Outer Continental Shelf Air Permit Application

Chukchi Sea

Devil's Paw Prospect

Volume 1

February 2010

Table of Contents

Volume 1

Section 1 Project Overview **1-4**

ConocoPhillips – Chukchi (Devil's Paw) Exploratory Project Overview 2-4

Section 2 General Information and Summary (GIS) **5-14**

Figure 1-1. Chukchi Sea_Leases by Company 6

EPA Form 5900-79

A. Mailing Address and Contact Information 7

B. Facility Location 7

C. Owner 8

D. Operator 8

E. Application Type 9

F. Applicable Requirement Summary 9

G. Source-wide Potential to Emit Restrictions and Generic Applicable Requirements 9

H. Process Description 10

I. Emission Unit Identification 10-13

J. Facility Emissions Summary 14

K. Existing Federally-Enforceable Permits 14

L. Emission Unit(s) Covered by General Permits 14

M. Cross-Referenced Information 14

Section 3 Emission Unit Description (EUD) **15-207**
(EPA Forms 5900-80 & 5900-82)

Drill Rig Emission Units **16-39**

Ice Breakers 1 & 2 Emission Units **40-75**

Oil Spill Response Vessels 1 & 2 Emission Units **76-111**

Anchor Handling Supply Tug Emission Units **112-123**

Offshore Supply Vessels 1 & 2 Emission Units **124-159**

Ware Vessel Emission Units **160-175**

Work Boats 1-4 Emission Units **176-191**
Marine Research Vessel Emission Units **192-199**
Spill Storage Tanker Emissions Units **200-207**

Section 4 Insignificant Emissions (IE) **208**
EPA Form 5900-83 209

Section 5 Potential to Emit (PTE) **210-231**
EPA Form 5900-85 211
Hazardous Air Pollutant (HAP) Emission Factor Basis 212
TANKS 4.0.9d Emissions Detail Reports
Drill Rig Fuel Tanks Proposed Allowable Emissions 213-217
All Vessels Fuel Tanks Proposed Allowable Emissions 218-222
Drill Rig Fuel Tanks Projected Maximum Emissions 223-227
All Vessels Fuel Tanks Projected Maximum Emissions 228-232

Section 6 Emission Calculations (EMISS) **233-234**
EPA Form 5900-84
A. Emissions Unit ID 234
B. Identification and Quantification of Emissions 234

Section 7 Initial Compliance Plan and Compliance Certification (I-COMP) **235-244**
EPA Form 5900-86
A. Compliance Status and Compliance Plan 236-242
B. Schedule of Compliance 243
C. Schedule of Submission of Progress Reports 243
D. Schedule of Submission of Compliance Certifications 243
E. Compliance with Enhanced Monitoring and Compliance Certification Requirements 244

Section 8 Fee Calculation Worksheet (FEE) **245-250**

EPA Form 5900-03

A. General Information 246

B. Source Information 246

C. Certification of Truth, Accuracy and Completeness 247

D. Annual Emissions Report for Fee Calculation Purposes – Non-HAP 247

E. Annual Emissions Report for Fee Calculation Purposes – HAP 248

F. Fee Calculation Worksheet 249-250

Section 9 Fee Filing Form (FF) **251-253**

EPA Form 5900-06 252

Photocopy of application fee check 253

Section 10 Certification of Truth, Accuracy and Completeness (CTAC) **254-255**

EPA Form 5900-02

A. Responsible Official 255

B. Certification of Truth, Accuracy and Completeness 255

APPENDICIES

Appendix A. Emissions Inventories **256-416**

Proposed Allowable Emissions Inventories **257-336**

Emissions Unit Inventory 258-260

Annual PTE Options Summary 261

Option 1 – Ware Barge/Tug and 2 OSV's 262

Option 2 – Ware Vessel and 2 OSV's 263

Uncontrolled Emissions Summary 264

Annual PTE Detail 265-279

Nitrogen Oxides 280-282

Carbon Monoxide 283-285

PM10/2.5 286-288

PM 289-291

Volatile Organic Compounds 292-294
Sulfur Dioxide 295-297
Lead 298-300
Hydrogen Sulfide 301
SCR NOx Control Efficiency 302
Sulfuric Acid Mist (from SCR Controls) 303
HAP Emissions Unit Inventory 304-306
HAP Annual PTE Options Summary 307
HAP Annual PTE Detail 308-334
HAP Option 1 – Ware Barge/Tug and 2 OSV's 335
HAP – Option 2 – Ware Vessel and 2 OSV's 336

Projected Maximum Emissions Inventories 337-416
Emissions Unit Inventory 338-340
Annual PTE Options Summary 341
Option 1 – Ware Barge/Tug and 2 OSV's 342
Option 2 – Ware Vessel and 2 OSV's 343
Uncontrolled Emissions Summary 344
Annual PTE Detail 345-359
Nitrogen Oxides 360-362
Carbon Monoxide 363-365
PM10/2.5 366-368
PM 369-371
Volatile Organic Compounds 372-374
Sulfur Dioxide 375-377
Lead 378-380
Hydrogen Sulfide 381
SCR NOx Control Efficiency 382
Sulfuric Acid Mist (from SCR Controls) 383
HAP Emissions Unit Inventory 384-386
HAP Annual PTE Options Summary 387
HAP Annual PTE Detail 388-414
HAP Option 1 – Ware Barge/Tug and 2 OSV's 415

HAP – Option 2 – Ware Vessel and 2 OSV's 416

Appendix B. Drill Rig Engine Load Emissions Profiles 417

Main Engine Wärtsilä 8L26A2 418

Emergency Back-up Engine Caterpillar Diesel 3508B 419

Cement Engine Caterpillar C15 DITA 420

Logging Winch Caterpillar C7 421

Digital Record (DVD Format)

Section 1
Project Overview

ConocoPhillips- Chukchi (Devil's Paw) Exploratory Project Overview

ConocoPhillips Company (COP) proposes to conduct exploratory drilling on the Devil's Paw prospect in the Chukchi Sea. The prospect's location ranges from 60-80 nautical miles (100-150 kilometers) from the nearest point on the Alaska coast, is 100 -120 nautical miles from Wainwright, and 70-90 nautical miles from Point Lay. See **Figure 1-1** for a map of the Devil's Paw prospect location relative to the Alaska coast.

The initial drilling program (jackup rig erection to jackup rig platform take-down) will be conducted over a maximum of 100 days (2400 hours) during the first year of exploration currently planned for the summer/fall of 2012. Drilling will continue in subsequent years only if a significant accumulation of hydrocarbons is discovered. At that point, COP will consider drilling one to three additional appraisal wells per year in later years.

The project will utilize a jackup rig with a variety of equipment and support vessels needed to conduct the exploration. COP wishes to emphasize the proposed project is only for exploratory and/or delineation activities. A separate air permit will be obtained should the exploration project identify the prospect as viable and COP proceeds to development and production.

To minimize environmental air quality impacts, all combustion equipment on the vessels and the jackup rig will utilize ultra-low sulfur diesel (ULSD) fuel to minimize environmental air quality impacts. In addition, selective catalytic reduction (SCR) technology will be employed on the rig's main drilling engines and on the main and auxiliary engines on the icebreaker vessels to minimize Nitrogen Oxide (NO_x) emissions. As demonstrated in the accompanying analysis, onshore air quality impacts from this project are below significant impact levels.

The rig will be towed (it has no self-propulsion capability) to the planned drilling site, jacked up and prepared for drilling over several days. Drilling at the drilling site could take a portion of the season or, comprise the entire drilling season (100 days). If rig drilling must cease during the season for safety reasons due to ice movement too close to the rig, the rig platform will be lowered, the legs raised and the rig will be towed to another location beyond the ice to wait for the ice conditions to clear before returning to the drill site to jack back up and resume drilling.

In addition to the jackup rig, support vessels will be utilized within 25 miles of the rig to conduct the exploration project. Due to the lead time necessary to obtain the air permit and the variability in availability of rigs and/or vessels over time, no rig or support vessels have been leased/contracted yet to conduct the program. As such, COP has prepared the application based upon representative equipment planned for this project. COP will utilize equipment consistent with the parameters (equipment sizes, emissions

egress parameters, emissions etc) in this application or apply for amended permits to address changes, if necessary, once the rig and/or vessels have been contracted. The vessel types planned to be used includes the following vessels and their respective functions.

Oil Spill Response Vessels (2-OSRVs) and Workboats (4)- An OSRV ("Dedicated OSRV") fully equipped for oil spill response will be located within approximately 10 miles of the jackup rig during drilling activities. This vessel will be cruising or anchored during this time. The OSRV will also be loaded with two smaller workboats (34' each) that can be quickly offloaded, and are more maneuverable, to assist in oil response activities. During jackup rig fueling activities (a maximum of 6 times per season), the dedicated OSRV and/or small workboats will be utilized to lay boom as a preventive measure around the refueling vessel and rig. The maximum duration of each jackup rig fueling event will be six hours including laying and removal of the booms.

A second OSRV, also loaded with two 34' workboats, will be located beyond 25 miles of the rig except for up to 48 hours per season during which time the two workboats are required to participate in MMS directed spill response practice exercises. Both OSRVs and workboats will be used for conducting oil spill response exercises within approximately a 1 mile area around the rig as directed by the Mineral Management Service (MMS).

Icebreakers (2) - Two icebreakers (a primary and secondary) will be used for the season for ice management. These icebreakers are each projected to operate within 25 miles of the rig up to a total of 1350 hours per season (estimated at 675 hours per season each) but could operate for a shorter or longer period of time, depending on ice conditions during the season. Should the icebreakers need to move closer than five miles of the jackup rig for ice management, the rig drilling will be shut down and the rig will be immediately prepared for movement to a pre-approved location. As noted above, these vessels will employ SCR technology on the main and auxiliary engines to control NOx emissions.

Offshore Supply Vessels (2) and/or Ware Vessel- The rig will need to be resupplied regularly to maintain drilling activities. There are two options under consideration for resupply of the rig depending on the rig finally selected. One option is to use two Offshore Supply Vessels (OSVs) each alternating trips at a rate of approximately once every four days (60 trips per season). Option two is a Ware Vessel (w/ an OSV backup), which is much larger in supply capacity than an OSV and therefore requires fewer supply trips. In either case, each supply vessel will transfer supplies while being held on station with Dynamic Positioning (DP) next to the jackup rig (without physical attachment) and use a crane to move supplies onto and off the rig. The OSVs could also be used to tow the jackup rig to the drilling site(s).

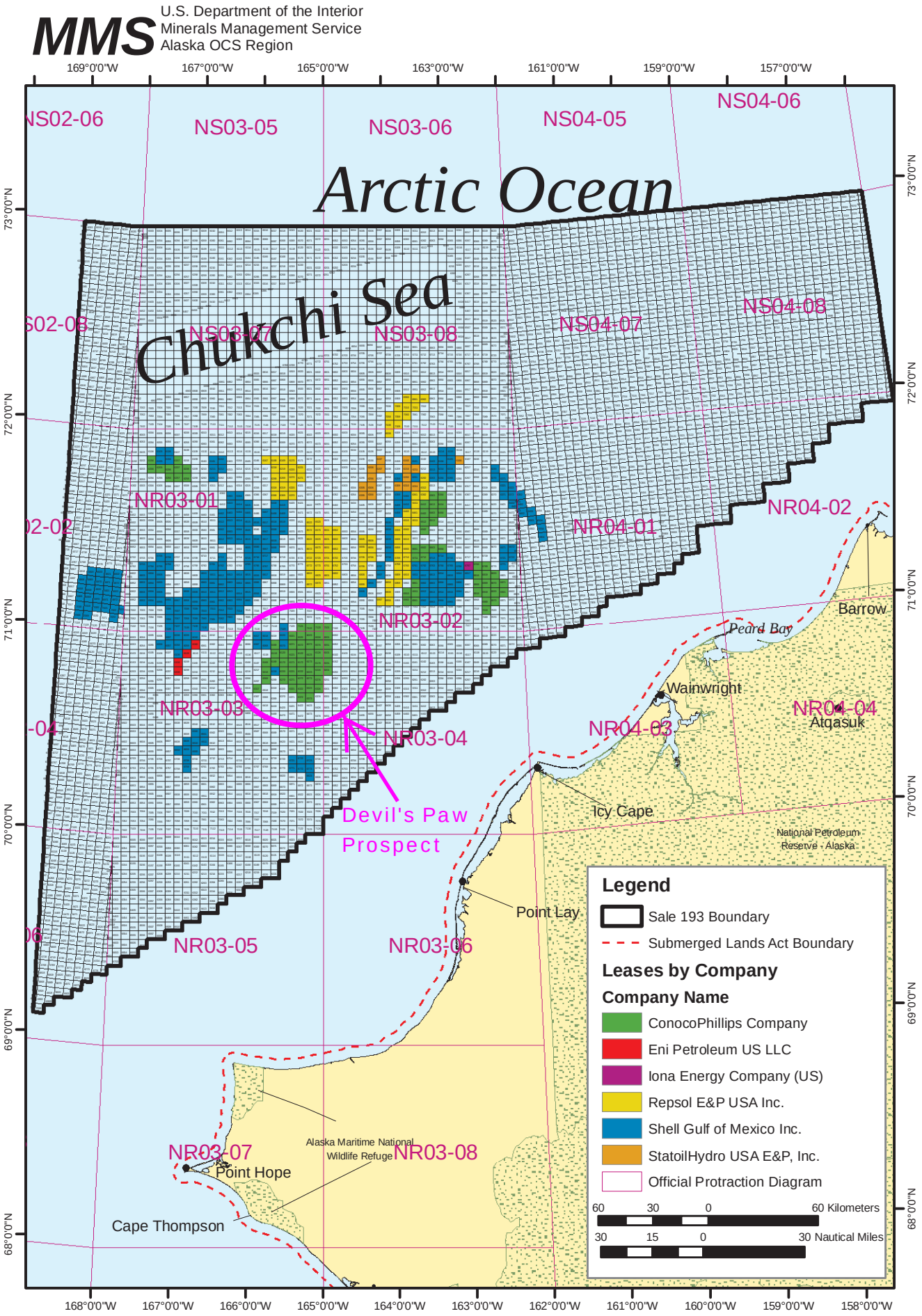
Spill Storage Tanker- A spill storage tanker will be maintained for oil spill response and located beyond 25 miles of the jackup rig except during MMS directed spill exercises. The spill exercises will last up to 48 hours per season. This will consist of the spill storage tanker vessel cruising to a location approximately 5 miles from the rig and anchoring during the exercises to demonstrate response capabilities for oil spill collection activities in conjunction with operation of the OSRV and workboats.

Anchor Handling Supply Tug (AHST) - In order to tow the jackup rig to the drilling site, or move the rig to another site, an AHST will be used (along with the two OSVs). After the rig is towed to the drilling site, the legs will be lowered to the sea floor and the rig is stabilized. The AHST will disconnect from the rig but will remain nearby for up to 20 hours in the event that the rig has to be moved due to a stability problem or an emergency. Once the rig is jacked up, the AHST will leave the 25 mile area around the rig until the rig is to be moved. The application assumes three movements of the jackup rig during a drilling season.

Marine Research Vessel- A marine research vessel may be operated within 25 miles of the jackup rig to conduct marine animal research and collect data during drilling activities. This vessel will operate no more than 600 hours per season during the drilling program within the 25 mile radius from the rig.

Section 2
General Information and Summary

Figure 1-1. Chukchi Sea Leases by Company



United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

GENERAL INFORMATION AND SUMMARY (GIS)

A. Mailing Address and Contact Information

Facility name **Devil's Paw Exploration Project**

Mailing address: Street or P.O. Box **ConocoPhillips Company, 700 G street, ATO-1970, P.O. Box 100360**

City **Anchorage** State **AK** ZIP **99510**

Contact person: **Brad Thomas** Title **Senior Environmental Specialist**

Telephone **(907) – 263 – 4741** Ext. _____

Facsimile **(907) – 265 – 6216**

B. Facility Location

Temporary source? ___Yes **X** No Plant site location **Lease Sale Number 193; Devil's Paw Prospect**

Official Protraction Diagram (OPD) number	**Lease Block number**	Official Protraction Diagram (OPD) number	**Lease Block number**	Official Protraction Diagram (OPD) number	**Lease Block number**	Official Protraction Diagram (OPD) number	**Lease Block number**
NR03-01	**7121**	NR03-03	**6119**	NR03-03	**6218**	NR03-03	**6321**
NR03-01	**7122**	NR03-03	**6120**	NR03-03	**6220**	NR03-03	**6322**
NR03-01	**7123**	NR03-03	**6121**	NR03-03	**6221**	NR03-03	**6323**
NR03-02	**7101**	NR03-03	**6122**	NR03-03	**6222**	NR03-03	**6324**
NR03-03	**6021**	NR03-03	**6123**	NR03-03	**6223**	NR03-03	**6372**
NR03-03	**6022**	NR03-03	**6124**	NR03-03	**6224**	NR03-03	**6373**
NR03-03	**6023**	NR03-03	**6168**	NR03-03	**6268**	NR03-04	**6001**
NR03-03	**6024**	NR03-03	**6169**	NR03-03	**6270**	NR03-04	**6051**
NR03-03	**6069**	NR03-03	**6170**	NR03-03	**6271**	NR03-04	**6101**
NR03-03	**6071**	NR03-03	**6171**	NR03-03	**6272**	NR03-04	**6151**
NR03-03	**6072**	NR03-03	**6172**	NR03-03	**6273**	NR03-04	**6201**
NR03-03	**6073**	NR03-03	**6173**	NR03-03	**6274**		
NR03-03	**6074**	NR03-03	**6174**	NR03-03	**6317**		

See Figure 1-1 Map of Lease Blocks by Company

City: **NA** State: **NA** County: **NA** EPA Region: **10**

Is the facility located within: Indian lands? ___YES **X** NO OCS waters? **X** YES ___ NO

Non-attainment area? ___ YES **X** NO If yes, for what air pollutants? _____

Within 50 miles of affected State? __ YES **X** NO If yes, What State(s)? _____

C. Owner

Name **David W. Brown, Manager, Land-Alaska, ConocoPhillips Company**

Street/P.O. Box **700 G Street, ATO-1470, P.O. Box 100360**

City **Anchorage** State **AK** ZIP **99510**

Telephone **(907) – 265 – 6914** Ext_____

D. Operator

Name **Chip Alvord, Drilling Manager, ConocoPhillips Company**

Street/P.O. Box **700 G Street, ATO-1570, P.O. Box 100360**

City **Anchorage** State **AK** ZIP **99510**

Telephone **(907) – 265 – 6120** Ext_____

E. Application Type

Mark only one permit application type and answer the supplementary question appropriate for the type marked.

X Initial Permit ___ Renewal ___ Significant Mod ___ Minor Permit Mod(MPM)

___ Group Processing, MPM ___ Administrative Amendment

For initial permits, when did operations commence? **07/15/2012**

For permit renewal, what is the expiration date of current permit? **NA**

F. Applicable Requirement Summary

Mark all types of applicable requirements that apply.

___ SIP ___ FIP/TIP ___ PSD ___Non-attainment NSR

___ Minor source NSR ___ Section 111 ___ Phase I acid rain ___Phase II acid rain

___ Stratospheric ozone **X** OCS regulations ___ NESHAP ___ Sec. 112(d) MACT

___ Sec. 112(g) MACT ___ Early reduction of HAP ___ Sec 112(j) MACT ___ RMP [Sec.112(r)]

___ Tank Vessel requirements, sec. 183(f)) ___ Section 129 Standards/Requirement

___ Consumer / comm. products, 183(e) ___ NAAQS, increments or visibility (temp. sources)

Has a risk management plan been registered? ___YES **X** NO Regulatory agency _____

Phase II acid rain application submitted? ___YES **X** NO If yes, Permitting authority _____

G. Source-Wide PTE Restrictions and Generic Applicable Requirements

Cite and describe any emissions-limiting requirements and/or facility-wide "generic" applicable requirements.

Rolling 12 month limits for PSD regulated pollutants (see I-COMP section for specific limits)

H. Process Description

List processes, products, and SIC codes for the facility.

Process	Products	SIC
Oil Exploration	**NA**	**1311**

I. Emission Unit Identification

Assign an emissions unit ID and describe each emissions unit at the facility. Control equipment and/or alternative operating scenarios associated with emissions units should by listed on a separate line. Applicants may exclude from this list any insignificant emissions units or activities.

Emission Unit ID	Emissions Unit Description
Drill Rig Equipment	
DR-01-ME-01	Drill Rig (1) Main Engine (1) NOx Control Equipment: Selective Catalytic Reduction (SCR)
DR-01-ME-02	Drill Rig (1) Main Engine (2) NOx Control Equipment: Selective Catalytic Reduction (SCR)
DR-01-ME-03	Drill Rig (1) Main Engine (3) NOx Control Equipment: Selective Catalytic Reduction (SCR)
DR-01-ME-04	Drill Rig (1) Main Engine (4) NOx Control Equipment: Selective Catalytic Reduction (SCR)
DR-01-EE-01	Drill Rig (1) Emergency Back-up Engine (1)
DR-01-CE-01	Drill Rig (1) Cement Engine (1)
DR-01-CE-02	Drill Rig (1) Cement Engine (2)
DR-01-LW-01	Drill Rig (1) Logging Winch (1)
DR-01-HE-01	Drill Rig (1) Heater (1)
DR-01-HE-02	Drill Rig (1) Heater (2)
DR-01-NC-01	Drill Rig (1) Incinerator (1)
DR-01-FT-01	Drill Rig (1) Fuel Tank (1)
DR-01-FT-02	Drill Rig (1) Fuel Tank (2)
DR-01-MD-01	Mud Degassing
Ice Breaker 1	
IB-01-ME-01	Ice Breaker (1) Main Engine (1) NOx Control Equipment: Selective Catalytic Reduction (SCR)
IB-01-ME-02	Ice Breaker (1) Main Engine (2) NOx Control Equipment: Selective Catalytic Reduction (SCR)
IB-01-ME-03	Ice Breaker (1) Main Engine (3) NOx Control Equipment: Selective Catalytic Reduction (SCR)
IB-01-ME-04	Ice Breaker (1) Main Engine (4) NOx Control Equipment: Selective Catalytic Reduction (SCR)
IB-01-HG-01	Ice Breaker (1) Harbor Generator (1)
IB-01-EG-01	Ice Breaker (1) Emergency Generator (1)
IB-01-BO-1	Ice Breaker (1) Boiler (1)
IB-01-BO-02	Ice Breaker (1) Boiler (2)
IB-01-NC-01	Ice Breaker (1) Incinerator (1)

Emission Unit ID	Emissions Unit Description
Ice Breaker 2	
IB-02-ME-01	Ice Breaker (2) Main Engine (1) NOx Control Equipment: Selective Catalytic Reduction (SCR)
IB-02-ME-02	Ice Breaker (2) Main Engine (2) NOx Control Equipment: Selective Catalytic Reduction (SCR)
IB-02-ME-03	Ice Breaker (2) Main Engine (3) NOx Control Equipment: Selective Catalytic Reduction (SCR)
IB-02-ME-04	Ice Breaker (2) Main Engine (4) NOx Control Equipment: Selective Catalytic Reduction (SCR)
IB-02-HG-01	Ice Breaker (2) Harbor Generator (1)
IB-02-EG-01	Ice Breaker (2) Emergency Generator (1)
IB-02-BO-01	Ice Breaker (2) Boiler (1)
IB-02-BO-02	Ice Breaker (2) Boiler (2)
IB-02-NC-01	Ice Breaker (2) Incinerator (1)
Oil Spill Response Vessel (Dedicated OSRV) 1	
SR-01-ME-01	Oil Spill Response Vessel (1) Main Engine (1)
SR-01-ME-02	Oil Spill Response Vessel (1) Main Engine (2)
SR-01-TE-01	Oil Spill Response Vessel (1) Thruster Engine (1)
SR-01-TE-02	Oil Spill Response Vessel (1) Thruster Engine (2)
SR-01-TE-03	Oil Spill Response Vessel (1) Thruster Engine (3)
SR-01-GE-01	Oil Spill Response Vessel (1) Generator (1)
SR-01-GE-02	Oil Spill Response Vessel (1) Generator (2)
SR-01-GE-03	Oil Spill Response Vessel (1) Generator (3)
SR-01-EG-01	Oil Spill Response Vessel (1) Emergency Generator (1)
Oil Spill Response Vessel (OSRV) 2	
SR-02-ME-01	Oil Spill Response Vessel (2) Main Engine (1)
SR-02-ME-02	Oil Spill Response Vessel (2) Main Engine (2)
SR-02-TE-01	Oil Spill Response Vessel (2) Thruster Engine (1)
SR-02-TE-02	Oil Spill Response Vessel (2) Thruster Engine (2)
SR-02-TE-03	Oil Spill Response Vessel (2) Thruster Engine (3)
SR-02-GE-01	Oil Spill Response Vessel (2) Generator (1)
SR-02-GE-02	Oil Spill Response Vessel (2) Generator (2)
SR-02-GE-03	Oil Spill Response Vessel (2) Generator (3)
SR-02-EG-01	Oil Spill Response Vessel (2) Emergency Generator (1)
Anchor Handling Supply Tug	
AT-01-ME-01	Anchor Handling Supply Tug (1) Main Engine (1)
AT-01-ME-02	Anchor Handling Supply Tug (1) Main Engine (2)
AT-01-GE-01	Anchor Handling Supply Tug (1) Generator (1)
AT-01-GE-02	Anchor Handling Supply Tug (1) Generator (2)
AT-01-GE-03	Anchor Handling Supply Tug (1) Generator (3)
AT-01-EG-01	Anchor Handling Supply Tug (1) Emergency Generator (1)

Emission Unit ID	Emissions Unit Description
Offshore Supply Vessels (OSV) 1	
SV-01-ME-01	Offshore Supply Vessel (1) Main Engine (1)
SV-01-ME-02	Offshore Supply Vessel (1) Main Engine (2)
SV-01-TE-01	Offshore Supply Vessel (1) Thruster Engine (1)
SV-01-TE-02	Offshore Supply Vessel (1) Thruster Engine (2)
SV-01-TE-03	Offshore Supply Vessel (1) Thruster Engine (3)
SV-01-GE-01	Offshore Supply Vessel (1) Generator (1)
SV-01-GE-02	Offshore Supply Vessel (1) Generator (2)
SV-01-GE-03	Offshore Supply Vessel (1) Generator (3)
SV-01-EG-01	Offshore Supply Vessel (1) Emergency Generator (1)
Offshore Supply Vessels (OSV) 2	
SV-02-ME-01	Offshore Supply Vessel (2) Main Engine (1)
SV-02-ME-02	Offshore Supply Vessel (2) Main Engine (2)
SV-02-TE-01	Offshore Supply Vessel (2) Thruster Engine (1)
SV-02-TE-02	Offshore Supply Vessel (2) Thruster Engine (2)
SV-02-TE-03	Offshore Supply Vessel (2) Thruster Engine (3)
SV-02-GE-01	Offshore Supply Vessel (2) Generator (1)
SV-02-GE-02	Offshore Supply Vessel (2) Generator (2)
SV-02-GE-03	Offshore Supply Vessel (2) Generator (3)
SV-02-EG-01	Offshore Supply Vessel (2) Emergency Generator (1)
Ware Vessel (WV)	
WV-01-ME-01	Ware Vessel (1) Main Engine (1)
WV-01-ME-02	Ware Vessel (1) Main Engine (2)
WV-01-ME-03	Ware Vessel (1) Main Engine (3)
WV-01-ME-04	Ware Vessel (1) Main Engine (4)
WV-01-GE-01	Ware Vessel (1) Generator (1)
WV-01-GE-02	Ware Vessel (1) Generator (2)
WV-01-GE-03	Ware Vessel (1) Generator (3)
WV-01-EG-01	Ware Vessel (1) Emergency Generator (1)
Work Boats 1-4	
WB-01-PE-01	Work Boat (1) Propulsion Engine (1)
WB-01-PE-02	Work Boat (1) Propulsion Engine (2)
WB-02-PE-01	Work Boat (2) Propulsion Engine (1)
WB-02-PE-02	Work Boat (2) Propulsion Engine (2)
WB-03-PE-01	Work Boat (3) Propulsion Engine (1)
WB-03-PE-02	Work Boat (3) Propulsion Engine (2)
WB-04-PE-01	Work Boat (4) Propulsion Engine (1)
WB-04-PE-02	Work Boat (4) Propulsion Engine (2)

Emission Unit ID	Emissions Unit Description
Marine Research Vessel	
MR-01-ME-01	Marine Research Vessel (1) Main Engine (1)
MR-01-ME-02	Marine Research Vessel (1) Main Engine (2)
MR-01-GE-01	Marine Research Vessel (1) Generator (1)
MR-01-GE-02	Marine Research Vessel (1) Generator (2)
MR-01-GE-03	Marine Research Vessel (1) Generator (3)
Spill Storage Tanker	
ST-01-ME-01	Spill Storage Tanker (1) Main Engine (1)
ST-01-ME-02	Spill Storage Tanker (1) Main Engine (2)
ST-01-BO-01	Spill Storage Tanker (1) Boiler (1)
ST-01-GE-01	Spill Storage Tanker (1) Generator (1)
All Vessels Fuel Tanks	
VE-01-FT-01	All Vessels (1) Fuel Tank (1) (insignificant emission unit)

J. Facility Emissions Summary

Enter potential to emit (PTE) for the facility as a whole for each air pollutant listed below. Enter the name of the single HAP emitted in the greatest amount and its PTE. For all pollutants stipulations to major source status may be indicated by entering "major" in the space for PTE. Indicate the total actual emissions for fee purposes for the facility in the space provided. Applications for permit modifications need not include actual emissions information.

NOx **225.3** tons/yr CO **173.6** tons/yr PM-10/2.5 **13.7** tons/yr PM **22.8** tons/yr VOC **25.6** tons/yr

SO2 **0.6** tons/yr H2S **0.1** tons/yr Lead **0.1** tons/yr H2SO4 **0.1** tons/yr Total HAP **1.5** tons/yr

Single HAP emitted in the greatest amount **Hydrogen Chloride** PTE **0.33** tons/yr

Total of regulated pollutants (for fee calculation), Sec. F, line 5 of form FEE **269.4** tons/yr

K. Existing Federally-Enforceable Permits

Permit number(s) **NA** Permit type **NA** Permitting authority **NA**

L. Emission Unit(s) Covered by General Permits

Emission unit(s) subject to general permit **NA**

Check one: **NA** ___ Application made ___ Coverage granted

General permit identifier **NA** Expiration Date **NA**

M. Cross-referenced Information

Does this application cross-reference information? ___ YES **X** NO (If yes, see instructions)

Section 3
Emission Unit Descriptions (EUD)

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **DR-01-ME-01** Description **Drill Rig (1) Main Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2310000220**

B. Emissions Unit Description

Primary use **Primary Rig Power** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 22** MM BTU/hr Max. Design Heat Input **22** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**400,306 gal/yr**	**167 gal/hr**	**442,004 gal/yr**
***The total operating time of the four drilling engines will not exceed 4800 hours per year with SCR control and 125 hours per year without SCR control.**			

E. Associated Air Pollution Control Equipment

Emissions unit ID **DR-01-ME-01** Device type **Selective Catalytic Reduction (SCR)**

Air pollutant(s) Controlled **NOx** Manufacturer **TBD**

Model No. TBD Serial No. TBD

Installation date TBD Control efficiency (%) **79.1**

Efficiency estimation method (**uncontrolled NOx emission rate) - (controlled NOx emission rate)/(uncontrolled NOx emission rate)*(100%).**

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **DR-01-ME-02** Description **Drill Rig (1) Main Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2310000220**

B. Emissions Unit Description

Primary use **Primary Rig Power** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 22** MM BTU/hr Max. Design Heat Input **22** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**400,306 gal/yr**	**167 gal/hr**	**442,004 gal/yr**
***The total operating time of the four drilling engines will not exceed 4800 hours per year with SCR control and 125 hours per year without SCR control.**			

E. Associated Air Pollution Control Equipment

Emissions unit ID **DR-01-ME-02** Device type **Selective Catalytic Reduction (SCR)**

Air pollutant(s) Controlled **NOx** Manufacturer **TBD**

Model No. TBD Serial No. TBD

Installation date TBD Control efficiency (%) **79.1**

Efficiency estimation method (**uncontrolled NOx emission rate) - (controlled NOx emission rate)/(uncontrolled NOx emission rate)*(100%).**

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **DR-01-ME-03** Description **Drill Rig (1) Main Engine (3)**

SIC Code (4-digit) **1311** SCC Code **2310000220**

B. Emissions Unit Description

Primary use **Primary Rig Power** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 22** MM BTU/hr Max. Design Heat Input **22** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**400,306 gal/yr**	**167 gal/hr**	**442,004 gal/yr**
***The total operating time of the four drilling engines will not exceed 4800 hours per year with SCR control and 125 hours per year without SCR control.**			

E. Associated Air Pollution Control Equipment

Emissions unit ID **DR-01-ME-03** Device type **Selective Catalytic Reduction (SCR)**

Air pollutant(s) Controlled **NOx** Manufacturer **TBD**

Model No. TBD Serial No. TBD

Installation date TBD Control efficiency (%) **79.1**

Efficiency estimation method (**uncontrolled NOx emission rate) - (controlled NOx emission rate)/(uncontrolled NOx emission rate)*(100%).**

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **DR-01-ME-04** Description **Drill Rig (1) Main Engine (4)**

SIC Code (4-digit) **1311** SCC Code **2310000220**

B. Emissions Unit Description

Primary use **Primary Rig Power** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 22** MM BTU/hr Max. Design Heat Input **22** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**400,306 gal/yr**	**167 gal/hr**	**442,004 gal/yr**
***The total operating time of the four drilling engines will not exceed 4800 hours per year with SCR control and 125 hours per year without SCR control.**			

E. Associated Air Pollution Control Equipment

Emissions unit ID **DR-01-ME-04** Device type **Selective Catalytic Reduction (SCR)**

Air pollutant(s) Controlled **NOx** Manufacturer **TBD**

Model No. TBD Serial No. TBD

Installation date TBD Control efficiency (%) **79.1**

Efficiency estimation method (**uncontrolled NOx emission rate) - (controlled NOx emission rate)/(uncontrolled NOx emission rate)*(100%).**

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **DR-01-EE-01** Description **Drill Rig (1) Emergency Back-up Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2310000220**

B. Emissions Unit Description

Primary use **Emergency back-up power demand for multiple vessel needs**

Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<8.6** MM BTU/hr Max. Design Heat Input **8.6** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**4,864 gal/yr**	**65 gal/hr**	**4,864 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. **NA** Serial No. **NA**

Installation date **NA** Control efficiency (%) **NA**

Efficiency estimation method **NA**

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **DR-01-LW-01** Description **Drill Rig (1) Logging Winch (1)**

SIC Code (4-digit) **1311** SCC Code **2310000220**

B. Emissions Unit Description

Primary use **Oil Well Drilling Support Equipment**

Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<1.8** MM BTU/hr Max. Design Heat Input **1.8** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**3,626 gal/yr**	**13 gal/hr**	**3,626 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **DR-01-CE-01** Description **Drill Rig (1) Cement Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2310000220**

B. Emissions Unit Description

Primary use **Cementing** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<3.8** MM BTU/hr Max. Design Heat Input **3.8** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **ULSD** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**3,799 gal/yr**	**29 gal/hr**	**3,799 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **DR-01-CE-02** Description **Drill Rig (1) Cement Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2310000220**

B. Emissions Unit Description

Primary use **Cementing** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<3.8** MM BTU/hr Max. Design Heat Input **3.8** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **ULSD** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**3,799 gal/yr**	**29 gal/hr**	**3,799 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **DR-01-HE-01** Description **Drill Rig (1) Heater (1)**

SIC Code (4-digit) **1311** SCC Code **2310000220**

B. Emissions Unit Description

Primary use **Space Heating** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **External Combustion**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<3.5** MM BTU/hr Max. Design Heat Input **3.5** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**63,590 gal/yr**	**26 gal/hr**	**63,590 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **DR-01-HE-02** Description **Drill Rig (1) Heater (2)**

SIC Code (4-digit) **1311** SCC Code **2310000220**

B. Emissions Unit Description

Primary use **Space Heating** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **External Combustion**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<3.5** MM BTU/hr Max. Design Heat Input **3.5** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**63,590 gal/yr**	**26 gal/hr**	**63,590 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **DR-01-NC-01** Description **Drill Rig (1) Incinerator (1)**

SIC Code (4-digit) **1311** SCC Code **2310000220**

B. Emissions Unit Description

Primary use **Waste Incineration** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Incinerator**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 1.7** MM BTU/hr Max. Design Heat Input **1.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Waste**

Standby fuel type(s) **Ultra Low Sulfur Diesel (ULSD) for ignition only**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
Waste	**Negligible**	**Unknown**	**6203 BTU/lb**
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
Waste	**65 ton/yr**	**276 lb/hr**	**65 ton/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR PROCESS SOURCES (EUD-3)

A. General Information

Emissions unit ID **DR-01-MD-01** Description **Drill Rig (1) Mud Degassing (1)**

SIC Code (4-digit) **1311** SCC Code **2310112100**

B. Emissions Unit Description

Primary use or equipment type **Gas separation from drilling mud (venting)**

Manufacturer **NA** Model No. **NA**

Serial No. **NA** Installation date **NA**

Raw materials **Drilling mud that has been downhole and contains well gas**

Finished products **Drilling mud free of well gas**

Temporary source: **X** No ___Yes

C. Activity or Production Rates

Activity or Production Rate	Amount/Hour	Amount/Year
(Projected) Actual Rate	**833.3 ft^3 gas / hr**	**2,000,000 ft^3 gas / yr**
Maximum rate	**833.3 ft^3 gas / hr**	**2,000,000 ft^3 gas / yr**

D. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device Type **NA**

Manufacturer **NA** Model No **NA**

Serial No. **NA** Installation date **NA**

Control efficiency (%) **NA** Capture efficiency (%) **NA**

Air pollutant(s) controlled **NA** Efficiency estimation method **NA**

E. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (This is not common).

Stack height (ft) **NA** Inside stack diameter (ft) **NA**

Stack temp (F) **NA** Design stack flow rate (ACFM) **NA**

Actual stack flow rate (ACFM) **NA** Velocity (ft/sec) **NA**

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-01-ME-01** Description **Ice Breaker (1) Main Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<56.3** MM BTU/hr Max. Design Heat Input **56.3** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**219,581 gal/yr**	**426 gal/hr**	**426,000 gal/yr**
*** We are proposing a limit of equivalent to 1,000 hours per year for each ice breaker engine.**			

E. Associated Air Pollution Control Equipment

Emissions unit ID **IB-01-ME-01** Device type **Selective Catalytic Reduction (SCR)**

Air pollutant(s) Controlled **NOx** Manufacturer **TBD**

Model No. **TBD** Serial No. **TBD** Installation date **TBD**

Control efficiency (%) **78.7%**

Efficiency estimation method **Uncontrolled Emissions (tons/yr) – Controlled Emissions (tons/yr) / Uncontrolled Emissions (tons/yr) * 100%**

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-01-ME-02** Description **Ice Breaker (1) Main Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<56.3** MM BTU/hr Max. Design Heat Input **56.3** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**219,581 gal/yr**	**426 gal/hr**	**426,000 gal/yr**
*** We are proposing a limit of equivalent to 1,000 hours per year for each ice breaker engine.**			

E. Associated Air Pollution Control Equipment

Emissions unit ID **IB-01-ME-02** Device type **Selective Catalytic Reduction (SCR)**

Air pollutant(s) Controlled **NOx** Manufacturer **TBD**

Model No. **TBD** Serial No. **TBD** Installation date **TBD**

Control efficiency (%) **78.7%**

Efficiency estimation method **Uncontrolled Emissions (tons/yr) – Controlled Emissions (tons/yr) / Uncontrolled Emissions (tons/yr) * 100%**

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-01-ME-03** Description **Ice Breaker (1) Main Engine (3)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 42.2** MM BTU/hr Max. Design Heat Input **42.2** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**164,700 gal/yr**	**320 gal/hr**	**320,000 gal/yr**
*** We are proposing a limit of equivalent to 1,000 hours per year for each ice breaker engine.**			

E. Associated Air Pollution Control Equipment

Emissions unit ID **IB-01-ME-03** Device type **Selective Catalytic Reduction (SCR)**

Air pollutant(s) Controlled **NOx** Manufacturer **TBD**

Model No. **TBD** Serial No. **TBD** Installation date **TBD**

Control efficiency (%) **78.7%**

Efficiency estimation method **Uncontrolled Emissions (tons/yr) – Controlled Emissions (tons/yr) / Uncontrolled Emissions (tons/yr) * 100%**

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-01-ME-04** Description **Ice Breaker (1) Main Engine (4)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 42.2** MM BTU/hr Max. Design Heat Input **42.2** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**164,700 gal/yr**	**320 gal/hr**	**320,000 gal/yr**
*** We are proposing a limit of equivalent to 1,000 hours per year for each ice breaker engine.**			

E. Associated Air Pollution Control Equipment

Emissions unit ID **IB-01-ME-04** Device type **Selective Catalytic Reduction (SCR)**

Air pollutant(s) Controlled **NOx** Manufacturer **TBD**

Model No. **TBD** Serial No. **TBD** Installation date **TBD**

Control efficiency (%) **78.7%**

Efficiency estimation method **Uncontrolled Emissions (tons/yr) – Controlled Emissions (tons/yr) / Uncontrolled Emissions (tons/yr) * 100%**

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-01-HG-01** Description **Ice Breaker (1) Harbor Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 6.7** MM BTU/hr Max. Design Heat Input **6.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**1,765 gal/yr**	**50 gal/hr**	**1,702 gal/hr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-01-EG-01** Description **Ice Breaker (1) Emergency Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Emergency backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 2.8** MM BTU/hr Max. Design Heat Input **2.8** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**746 gal/yr**	**21 gal/hr**	**719 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-01-BO-01** Description **Ice Breaker (1) Boiler (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Steam and/or Hot Water** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Commercial boiler**

Boiler horsepower rating **100** Boiler steam flow (lb/hr) **3450**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<3.7** MM BTU/hr Max. Design Heat Input **3.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**14,420 gal/yr**	**28 gal/hr**	**18,900 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-01-BO-02** Description **Ice Breaker (1) Boiler (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Steam and/or Hot Water** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Commercial boiler**

Boiler horsepower rating **100** Boiler steam flow (lb/hr) **3450**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<3.7** MM BTU/hr Max. Design Heat Input **3.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**14,420 gal/yr**	**28 gal/hr**	**18,900 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-01-NC-01** Description **Ice Breaker (1) Incinerator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Waste Incineration** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Incinerator**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 1.1** MM BTU/hr Max. Design Heat Input **1.1** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Waste**

Standby fuel type(s) **Ultra Low Sulfur Diesel (ULSD) for ignition only**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
Waste	**Negligible**	**Unknown**	**6203 BTU/lb**
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
Waste	**90,125 lb/yr**	**175 lb/hr**	**118,125 lb/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-02-ME-01** Description **Ice Breaker (2) Main Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<56.3** MM BTU/hr Max. Design Heat Input **56.3** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**219,581 gal/yr**	**426 gal/hr**	**426,000 gal/yr**
*** We are proposing a limit of equivalent to 1,000 hours per year for each ice breaker engine.**			

E. Associated Air Pollution Control Equipment

Emissions unit ID **IB-02-ME-01** Device type **Selective Catalytic Reduction (SCR)**

Air pollutant(s) Controlled **NOx** Manufacturer **TBD**

Model No. **TBD** Serial No. **TBD** Installation date **TBD**

Control efficiency (%) **78.7%**

Efficiency estimation method **Uncontrolled Emissions (tons/yr) – Controlled Emissions (tons/yr) / Uncontrolled Emissions (tons/yr) * 100%**

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-02-ME-02** Description **Ice Breaker (2) Main Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<56.3** MM BTU/hr Max. Design Heat Input **56.3** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**219,581 gal/yr**	**426 gal/hr**	**426,000 gal/yr**
*** We are proposing a limit of equivalent to 1,000 hours per year for each ice breaker engine.**			

E. Associated Air Pollution Control Equipment

Emissions unit ID **IB-02-ME-02** Device type **Selective Catalytic Reduction (SCR)**

Air pollutant(s) Controlled **NOx** Manufacturer **TBD**

Model No. **TBD** Serial No. **TBD** Installation date **TBD**

Control efficiency (%) **78.7%**

Efficiency estimation method **Uncontrolled Emissions (tons/yr) – Controlled Emissions (tons/yr) / Uncontrolled Emissions (tons/yr) * 100%**

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-02-ME-03** Description **Ice Breaker (2) Main Engine (3)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 42.2** MM BTU/hr Max. Design Heat Input **42.2** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**164,700 gal/yr**	**320 gal/hr**	**320,000 gal/yr**
*** We are proposing a limit of equivalent to 1,000 hours per year for each ice breaker engine.**			

E. Associated Air Pollution Control Equipment

Emissions unit ID **IB-02-ME-03** Device type **Selective Catalytic Reduction (SCR)**

Air pollutant(s) Controlled **NOx** Manufacturer **TBD**

Model No. **TBD** Serial No. **TBD** Installation date **TBD**

Control efficiency (%) **78.7%**

Efficiency estimation method **Uncontrolled Emissions (tons/yr) – Controlled Emissions (tons/yr) / Uncontrolled Emissions (tons/yr) * 100%**

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-02-ME-04** Description **Ice Breaker (2) Main Engine (4)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 42.2** MM BTU/hr Max. Design Heat Input **42.2** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**164,700 gal/yr**	**320 gal/hr**	**320,000 gal/yr**
*** We are proposing a limit of equivalent to 1,000 hours per year for each ice breaker engine.**			

E. Associated Air Pollution Control Equipment

Emissions unit ID **IB-02-ME-04** Device type **Selective Catalytic Reduction (SCR)**

Air pollutant(s) Controlled **NOx** Manufacturer **TBD**

Model No. **TBD** Serial No. **TBD** Installation date **TBD**

Control efficiency (%) **78.7%**

Efficiency estimation method **Uncontrolled Emissions (tons/yr) – Controlled Emissions (tons/yr) / Uncontrolled Emissions (tons/yr) * 100%**

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-02-HG-01** Description **Ice Breaker (2) Harbor Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 6.7** MM BTU/hr Max. Design Heat Input **6.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**1,765 gal/yr**	**50 gal/hr**	**1,702 gal/hr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-02-EG-01** Description **Ice Breaker (2) Emergency Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Emergency backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 2.8** MM BTU/hr Max. Design Heat Input **2.8** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**746 gal/yr**	**21 gal/hr**	**719 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-02-BO-01** Description **Ice Breaker (2) Boiler (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Steam and/or Hot Water** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Commercial boiler**

Boiler horsepower rating **100** Boiler steam flow (lb/hr) **3450**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<3.7** MM BTU/hr Max. Design Heat Input **3.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**14,420 gal/yr**	**28 gal/hr**	**18,900 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-02-BO-02** Description **Ice Breaker (2) Boiler (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Steam and/or Hot Water** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Commercial boiler**

Boiler horsepower rating **100** Boiler steam flow (lb/hr) **3450**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<3.7** MM BTU/hr Max. Design Heat Input **3.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**14,420 gal/yr**	**28 gal/hr**	**18,900 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-02-NC-01** Description **Ice Breaker (2) Incinerator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Waste Incineration** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Incinerator**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 1.1** MM BTU/hr Max. Design Heat Input **1.1** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Waste**

Standby fuel type(s) **Ultra Low Sulfur Diesel (ULSD) for ignition only**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
Waste	**Negligible**	**Unknown**	**6203 BTU/lb**
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
Waste	**90,125 lb/yr**	**175 lb/hr**	**118,125 lb/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-01-ME-01** Description **Oil Spill Response Vessel (1) Main Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 9.9** MM BTU/hr Max. Design Heat Input **9.9** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**60,000 gal/yr**	**75 gal/hr**	**67,500 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-01-ME-02** Description **Oil Spill Response Vessel (1) Main Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 9.9** MM BTU/hr Max. Design Heat Input **9.9** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**60,000 gal/yr**	**75 gal/hr**	**67,500 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-01-TE-01** Description **Oil Spill Response Vessel (1) Thruster Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Maneuvering** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 7.7** MM BTU/hr Max. Design Heat Input **7.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**696 gal/yr**	**58 gal/hr**	**696 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-01-TE-02** Description **Oil Spill Response Vessel (1) Thruster Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Maneuvering** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 7.7** MM BTU/hr Max. Design Heat Input **7.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**696 gal/yr**	**58 gal/hr**	**696 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-01-TE-03** Description **Oil Spill Response Vessel (1) Thruster Engine (3)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Maneuvering** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 7.7** MM BTU/hr Max. Design Heat Input **7.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**696 gal/yr**	**58 gal/hr**	**696 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-01-GE-01** Description **Oil Spill Response Vessel (1) Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 3.6** MM BTU/hr Max. Design Heat Input **3.6** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**64,800 gal/yr**	**27 gal/hr**	**64,800 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-01-GE-02** Description **Oil Spill Response Vessel (1) Generator (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 3.6** MM BTU/hr Max. Design Heat Input **3.6** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**8,100 gal/yr**	**27 gal/hr**	**8,100 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-01-GE-03** Description **Oil Spill Response Vessel (1) Generator (3)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 3.6** MM BTU/hr Max. Design Heat Input **3.6** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**0 gal/yr**	**27 gal/hr**	**0 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-01-EG-01** Description **Oil Spill Response Vessel (1) Emergency Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Emergency backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 1.1** MM BTU/hr Max. Design Heat Input **1.1** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**240 gal/yr**	**8 gal/hr**	**240 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-02-ME-01** Description **Oil Spill Response Vessel (2) Main Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 9.9** MM BTU/hr Max. Design Heat Input **9.9** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**4,500 gal/yr**	**75 gal/hr**	**4,500 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-02-ME-02** Description **Oil Spill Response Vessel (2) Main Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 9.9** MM BTU/hr Max. Design Heat Input **9.9** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**4,500 gal/yr**	**75 gal/hr**	**4,500 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-02-TE-01** Description **Oil Spill Response Vessel (2) Thruster Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Maneuvering** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 7.7** MM BTU/hr Max. Design Heat Input **7.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**2,784 gal/yr**	**58 gal/hr**	**2,784 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-02-TE-02** Description **Oil Spill Response Vessel (2) Thruster Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Maneuvering** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 7.7** MM BTU/hr Max. Design Heat Input **7.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**2,784 gal/yr**	**58 gal/hr**	**2,784 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-02-TE-03** Description **Oil Spill Response Vessel (2) Thruster Engine (3)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Maneuvering** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 7.7** MM BTU/hr Max. Design Heat Input **7.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**2,784 gal/yr**	**58 gal/hr**	**2,784 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-02-GE-01** Description **Oil Spill Response Vessel (2) Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 3.6** MM BTU/hr Max. Design Heat Input **3.6** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**1,620 gal/yr**	**27 gal/hr**	**1,620 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-02-GE-02** Description **Oil Spill Response Vessel (2) Generator (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 3.6** MM BTU/hr Max. Design Heat Input **3.6** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**810 gal/yr**	**27 gal/hr**	**810 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-02-GE-03** Description **Oil Spill Response Vessel (2) Generator (3)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 3.6** MM BTU/hr Max. Design Heat Input **3.6** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**0 gal/yr**	**27 gal/hr**	**0 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-02-EG-01** Description **Oil Spill Response Vessel (2) Emergency Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Emergency backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 1.1** MM BTU/hr Max. Design Heat Input **1.1** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**16 gal/yr**	**8 gal/hr**	**16 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **AT-01-ME-01** Description **Anchor Handling Supply Tug (1) Main Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 21.1** MM BTU/hr Max. Design Heat Input **21.1** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**9,600 gal/yr**	**160 gal/hr**	**9,600 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **AT-01-ME-02** Description **Anchor Handling Supply Tug (1) Main Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 21.1** MM BTU/hr Max. Design Heat Input **21.1** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**9,600 gal/yr**	**160 gal/hr**	**9,600 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **AT-01-GE-01** Description **Anchor Handling Supply Tug (1) Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 3.3** MM BTU/hr Max. Design Heat Input **3.3** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**1,500 gal/yr**	**25 gal/hr**	**1,500 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **AT-01-GE-02** Description **Anchor Handling Supply Tug (1) Generator (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 3.3** MM BTU/hr Max. Design Heat Input **3.3** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**300 gal/yr**	**25 gal/hr**	**300 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **AT-01-GE-03** Description **Anchor Handling Supply Tug (1) Generator (3)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 3.3** MM BTU/hr Max. Design Heat Input **3.3** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**0 gal/yr**	**25 gal/hr**	**0 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **AT-01-EG-01** Description **Anchor Handling Supply Tug (1) Emergency Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Emergency backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 0.7** MM BTU/hr Max. Design Heat Input **0.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**34 gal/yr**	**6 gal/hr**	**34 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-01-ME-01** Description **Offshore Supply Vessel (1) Main Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 9.9** MM BTU/hr Max. Design Heat Input **9.9** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD – Propulsion Cruising	**27,000 gal/yr**	**75 gal/hr**	**27,000 gal/yr**
ULSD – Propulsion Idling	**6,700 gal/yr**	**67 gal/hr**	**6,700 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-01-ME-02** Description **Offshore Supply Vessel (1) Main Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 9.9** MM BTU/hr Max. Design Heat Input **9.9** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD – Propulsion Cruising	**27,000 gal/yr**	**75 gal/hr**	**27,000 gal/yr**
ULSD – Propulsion Idling	**6,700 gal/yr**	**67 gal/hr**	**6,700 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-01-TE-01** Description **Offshore Supply Vessel (1) Thruster Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Maneuvering** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 7.7** MM BTU/hr Max. Design Heat Input **7.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**20,880 gal/yr**	**58 gal/hr**	**20,880 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-01-TE-02** Description **Offshore Supply Vessel (1) Thruster Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Maneuvering** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 7.7** MM BTU/hr Max. Design Heat Input **7.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**20,880 gal/yr**	**58 gal/hr**	**20,880 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-01-TE-03** Description **Offshore Supply Vessel (1) Thruster Engine (3)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Maneuvering** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 7.7** MM BTU/hr Max. Design Heat Input **7.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**20,880 gal/yr**	**58 gal/hr**	**20,880 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-01-GE-01** Description **Offshore Supply Vessel (1) Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 3.6** MM BTU/hr Max. Design Heat Input **3.6** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**22,140 gal/yr**	**27 gal/hr**	**22,140 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-01-GE-02** Description **Offshore Supply Vessel (1) Generator (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 3.6** MM BTU/hr Max. Design Heat Input **3.6** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**3,240 gal/yr**	**27 gal/hr**	**3,240 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-01-GE-03** Description **Offshore Supply Vessel (1) Generator (3)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 3.6** MM BTU/hr Max. Design Heat Input **3.6** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**0 gal/yr**	**27 gal/hr**	**0 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-01-EG-01** Description **Offshore Supply Vessel (1) Emergency Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Emergency backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 1.1** MM BTU/hr Max. Design Heat Input **1.1** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**240 gal/yr**	**8 gal/hr**	**240 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-02-ME-01** Description **Offshore Supply Vessel (2) Main Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 9.9** MM BTU/hr Max. Design Heat Input **9.9** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD – Propulsion Cruising	**27,000 gal/yr**	**75 gal/hr**	**27,000 gal/yr**
ULSD – Propulsion Idling	**6,700 gal/yr**	**67 gal/hr**	**6,700 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-02-ME-02** Description **Offshore Supply Vessel (2) Main Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 9.9** MM BTU/hr Max. Design Heat Input **9.9** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD – Propulsion Cruising	**27,000 gal/yr**	**75 gal/hr**	**27,000 gal/yr**
ULSD – Propulsion Idling	**6,700 gal/yr**	**67 gal/hr**	**6,700 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-02-TE-01** Description **Offshore Supply Vessel (2) Thruster Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Maneuvering** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 7.7** MM BTU/hr Max. Design Heat Input **7.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**20,880 gal/yr**	**58 gal/hr**	**20,880 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-02-TE-02** Description **Offshore Supply Vessel (2) Thruster Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Maneuvering** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 7.7** MM BTU/hr Max. Design Heat Input **7.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**20,880 gal/yr**	**58 gal/hr**	**20,880 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-02-TE-03** Description **Offshore Supply Vessel (2) Thruster Engine (3)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Maneuvering** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 7.7** MM BTU/hr Max. Design Heat Input **7.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**20,880 gal/yr**	**58 gal/hr**	**20,880 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-02-GE-01** Description **Offshore Supply Vessel (2) Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 3.6** MM BTU/hr Max. Design Heat Input **3.6** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**22,140 gal/yr**	**27 gal/hr**	**22,140 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-02-GE-02** Description **Offshore Supply Vessel (2) Generator (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 3.6** MM BTU/hr Max. Design Heat Input **3.6** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**3,240 gal/yr**	**27 gal/hr**	**3,240 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-02-GE-03** Description **Offshore Supply Vessel (2) Generator (3)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 3.6** MM BTU/hr Max. Design Heat Input **3.6** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**0 gal/yr**	**27 gal/hr**	**0 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-02-EG-01** Description **Offshore Supply Vessel (2) Emergency Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Emergency backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 1.1** MM BTU/hr Max. Design Heat Input **1.1** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**240 gal/yr**	**8 gal/hr**	**240 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WV-01-ME-01** Description **Ware Vessel (1) Main Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 11.5** MM BTU/hr Max. Design Heat Input **11.5** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**26,100 gal/yr**	**87 gal/hr**	**26,100 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%)NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WV-01-ME-02** Description **Ware Vessel (1) Main Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 11.5** MM BTU/hr Max. Design Heat Input **11.5** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**26,100 gal/yr**	**87 gal/hr**	**26,100 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%)NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WV-01-ME-03** Description **Ware Vessel (1) Main Engine (3)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 10.7** MM BTU/hr Max. Design Heat Input **10.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**32,400 gal/yr**	**87 gal/hr**	**32,400 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%)NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WV-01-ME-04** Description **Ware Vessel (1) Main Engine (4)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 10.7** MM BTU/hr Max. Design Heat Input **10.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**32,400 gal/yr**	**87 gal/hr**	**32,400 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%)NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WV-01-GE-01** Description **Ware Vessel (1) Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 4.2** MM BTU/hr Max. Design Heat Input **4.2** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**22,400 gal/yr**	**32 gal/hr**	**22,400 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WV-01-GE-02** Description **Ware Vessel (1) Generator (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 4.2** MM BTU/hr Max. Design Heat Input **4.2** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**3,200 gal/yr**	**32 gal/hr**	**3,200 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WV-01-GE-03** Description **Ware Vessel (1) Generator (3)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 4.2** MM BTU/hr Max. Design Heat Input **4.2** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**0 gal/yr**	**32 gal/hr**	**0 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WV-01-EG-01** Description **Ware Vessel (1) Emergency Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Emergency backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 1.6** MM BTU/hr Max. Design Heat Input **1.6** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**360 gal/yr**	**12 gal/hr**	**360 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WB-01-PE-01** Description **Work Boat (1) Propulsion Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 4.0** MM BTU/hr Max. Design Heat Input **4.0** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**1,440 gal/yr**	**30 gal/hr**	**1,440 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%)NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WB-01-PE-02** Description **Work Boat (1) Propulsion Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 4.0** MM BTU/hr Max. Design Heat Input **4.0** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**1,440 gal/yr**	**30 gal/hr**	**1,440 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%)NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WB-02-PE-01** Description **Work Boat (2) Propulsion Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 4.0** MM BTU/hr Max. Design Heat Input **4.0** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**1,440 gal/yr**	**30 gal/hr**	**1,440 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%)NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WB-02-PE-02** Description **Work Boat (2) Propulsion Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 4.0** MM BTU/hr Max. Design Heat Input **4.0** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**1,440 gal/yr**	**30 gal/hr**	**1,440 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%)NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WB-03-PE-01** Description **Work Boat (3) Propulsion Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 4.0** MM BTU/hr Max. Design Heat Input **4.0** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**1,440 gal/yr**	**30 gal/hr**	**1,440 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%)NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WB-03-PE-02** Description **Work Boat (3) Propulsion Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 4.0** MM BTU/hr Max. Design Heat Input **4.0** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**1,440 gal/yr**	**30 gal/hr**	**1,440 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%)NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WB-04-PE-01** Description **Work Boat (4) Propulsion Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 4.0** MM BTU/hr Max. Design Heat Input **4.0** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**1,440 gal/yr**	**30 gal/hr**	**1,440 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%)NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WB-04-PE-02** Description **Work Boat (4) Propulsion Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 4.0** MM BTU/hr Max. Design Heat Input **4.0** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**1,440 gal/yr**	**30 gal/hr**	**1,440 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%)NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **MR-01-ME-01** Description **Marine Research Vessel (1) Main Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 6.0** MM BTU/hr Max. Design Heat Input **6.0** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**27,026 gal/yr**	**45 gal/hr**	**27,026 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **MR-01-GE-01** Description **Marine Research Vessel (1) Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 1.3** MM BTU/hr Max. Design Heat Input **1.3** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**5,754 gal/yr**	**10 gal/hr**	**5,754 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **MR-01-GE-02** Description **Marine Research Vessel (1) Generator (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 0.8** MM BTU/hr Max. Design Heat Input **0.8** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**3,836 gal/yr**	**6 gal/hr**	**3,836 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **MR-01-GE-03** Description **Marine Research Vessel (1) Generator (3)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 0.4** MM BTU/hr Max. Design Heat Input **0.4** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**1,705 gal/yr**	**3 gal/hr**	**1,705 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **ST-01-ME-01** Description **Spill Storage Tanker (1) Main Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 11.7** MM BTU/hr Max. Design Heat Input **11.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**1,064 gal/yr**	**89 gal/hr**	**1,064 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **ST-01-ME-02** Description **Spill Storage Tanker (1) Main Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 11.7** MM BTU/hr Max. Design Heat Input **11.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**1,064 gal/yr**	**89 gal/hr**	**1,064 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **ST-01-GE-01** Description **Spill Storage Tanker (1) Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 5.4** MM BTU/hr Max. Design Heat Input **5.4** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**1,965 gal/yr**	**41 gal/hr**	**1,965 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **ST-01-BO-01** Description **Spill Storage Tanker (1) Boiler (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Steam and/or Hot Water** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Commercial boiler**

Boiler horsepower rating **100** Boiler steam flow (lb/hr) **3450**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<14.4** MM BTU/hr Max. Design Heat Input **14.4** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**5,240 gal/yr**	**109 gal/hr**	**5,240 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

Section 4
Insignificant Emissions (IE)

Federal Operating Permit Program (40 CFR Part 71)

INSIGNIFICANT EMISSIONS (IE)

List each insignificant activity or emission unit. In the "number" column, indicate the number of units in this category. Descriptions should be brief but unique. Indicate which emissions criterion of part 71 is the basis for the exemption.

Number	Description of Activities or Emissions Units	RAP, except HAP	HAP
2	71,000 gallon drill rig fuel tank	X	X
14+	Vessel fuel tanks	X	X

Section 5
Potential to Emit (PTE)

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

POTENTIAL TO EMIT (PTE)

For each unit with emissions that count towards applicability, list the emissions unit ID and the PTE for the air pollutants listed below and sum them up to show totals for the facility. You may find it helpful to complete form **EMISS** before completing this form. Show other pollutants not listed that are present in major amounts at the facility on attachment in a similar fashion. You may round values to the nearest tenth of a ton. Also report facility totals in section **J** of form **GIS**.

Emissions Unit ID	Regulated Air Pollutants and Pollutants for which the Source is Major (tons/yr)						
	NOx	VOC	SO2	PM10	CO	Lead	HAP
See Appendix A Emissions Unit Inventories for individual emissions unit details							
Proposed Allowable Emissions Facility Totals for Option 1 (Ware Barge/Tug and 2 OSVs)	**225.3**	**25.6**	**0.6**	**13.7**	**173.6**	**0.1**	**1.5**
Proposed Allowable Emissions Facility Totals for Option 2 (Ware Vessel w/ OSV backup)	**222.7**	**25.6**	**0.6**	**13.6**	**172.8**	**0.1**	**1.5**
Projected Maximum Emissions Facility Totals for Option 1 (Ware Barge/Tug and 2 OSVs)	**194.5**	**22.3**	**0.5**	**11.6**	**145.5**	**0.1**	**1.3**
Projected Maximum Emissions Facility Totals for Option 2 (Ware Vessel w/ OSV backup)	**191.8**	**22.2**	**0.5**	**11.5**	**144.7**	**0.1**	**1.3**

HAP EMISSION FACTOR BASIS

Sources of diesel fuel HAP factors were researched and obtained from the following sources: AP-42; California Air Resources Board (CARB), California Air Toxics Emission Factors Database (CATEF); or Ventura County Air Pollution Control District (VCAPD), AB 2588 Combustion Emission Factors, May 17, 2001. In cases where factors were available from more than one of these agencies for the same pollutant, we used the following methods to select factors for use in our calculations:

As a top level HAP emission factor selection method, preference was given to AP-42 factors because AP-42 is generally acceptable and provides the most refined emission factors, based on engine size and fuel type. For diesel engines, AP-42 provides two sets of factors for diesel engines, based on engine size (less than 600 hp and greater than 600 hp). CARB and VACPD diesel emission factors do not differentiate between large and small engines. Factors from CARB were ranked as our second choice because CARB factors include multiple factor rating methods. The mean value was used for CARB emission factors. VCAPD factors were used in cases where no factor was available from AP-42 or CARB. VCAPD factors do not list any confidence or ranking information.

As a second level emission factory selection method, AP-42 factors were compared with CARB factors. AP-42 factors were used except in cases where the CARB factor was an order of magnitude larger than the AP-42 factor and had a rating equal to or better than the EPA factor rating. In these cases, CARB

CALCULATIONS

Emission factors for polycyclic organic matter (POM) were calculated by adding the emission factors for individual HAPs. Calculations were based on the following technical document: Guidance on the Major Source Determination for Certain Hazardous Air Pollutants (EPA-HQ-OAR-2007-0750-0001).

Emissions were calculated for each emissions unit and then sum totaled for each vessel and for the drill rig. Total source HAP emissions were calculated by adding the emissions from each vessel and the drill rig. See Emissions Unit Inventory for a list of emissions units, operational parameters and assumptions.

Unit conversion examples:

1. Max Fuel Usage (MFU) (lb/MMBtu) = MFU (lb/1,000 gal)/(132096 Btu/gal)*(1,000,000 Btu/MMBtu)
2. MFU (lb/10^12 Btu) = MFU (lb/1,000 gal)/(132096 Btu/gal)*(10^12 Btu)

Examples of Potential to Emit (PTE) calculations:

1. PTE (lb/hr) = Emission Factor (EF) (lb/MMBtu)*MOC (kW)*MFU (g/kW-h)/(454 g/lb)/(6.74 lb/gal)/(1,000,000 Btu/MMBtu)*(132096 Btu/gal)
2. PTE (lb/hr) = EF (lb/MMBtu)*MFU (gal/hr)*(132096 Btu/gal)/(1,000,000 Btu/MMBtu)
3. PTE (lb/hr) = EF (lb/10^12 Btu)*MOC (MMBtu/hr)/(1,000,000 Btu/MMBtu)
4. PTE (lb/hr) = EF (lb/MMscf)*MOC (MMscf/yr)/Allowable Operation (hr/yr)
5. PTE (tpy) = EF (lb/MMscf)*MOC (MMscf/yr)/(2,000 lb/ton)
6. PTE (lb/hr) = EF (lb/1,000 gal)*MFU (gal/hr)/(1,000)
7. PTE (lb/hr) = EF (lb/ton)*MFU (lb/hr)/(2,000 lb/ton)
8. PTE (tpy) = PTE (lb/hr)*Allowable Operation (hr/yr)/(2,000lb/ton)

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	DR-01-FT-01 & DR-01-FT-02
City:	Chukchi Sea
State:	Alaska
Company:	ConocoPhillips
Type of Tank:	Horizontal Tank
Description:	DRILL RIG FUEL TANKS PROPOSED ALLOWABLE EMISSIONS

Tank Dimensions

Shell Length (ft):		56.50
Diameter (ft):		20.00
Volume (gallons):		71,000.00
Turnovers:		6.94
Net Throughput(gal/yr):		492,790.00
Is Tank Heated (y/n):	N	
Is Tank Underground (y/n):	N	

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition	Good

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Barrow, Alaska (Avg Atmospheric Pressure = 14.73 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

DR-01-FT-01 & DR-01-FT-02 - Horizontal Tank
Chukchi Sea, Alaska

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Distillate fuel oil no. 2	Jul	24.48	20.74	28.21	9.44	0.0031	0.0031	0.0031	130.0000			188.00	Option 1: VP40 = .0031
1,2,4-Trimethylbenzene						0.0043	0.0036	0.0051	120.1900	0.0100	0.0200	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.3986	0.3519	0.4504	78.1100	0.0000	0.0015	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0280	0.0240	0.0327	106.1700	0.0001	0.0017	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						0.6989	0.6221	0.7835	86.1700	0.0000	0.0003	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.0987	0.0858	0.1132	92.1300	0.0003	0.0147	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0029	0.0028	0.0029	132.3072	0.9866	0.9305	189.60	
Xylene (-m)						0.0231	0.0197	0.0269	106.1700	0.0029	0.0312	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Aug	23.03	20.42	25.65	9.44	0.0031	0.0031	0.0031	130.0000			188.00	Option 1: VP40 = .0031
1,2,4-Trimethylbenzene						0.0040	0.0035	0.0045	120.1900	0.0100	0.0187	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.3800	0.3482	0.4142	78.1100	0.0000	0.0014	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0264	0.0236	0.0294	106.1700	0.0001	0.0016	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						0.6684	0.6159	0.7246	86.1700	0.0000	0.0003	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.0935	0.0848	0.1030	92.1300	0.0003	0.0140	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0029	0.0028	0.0029	132.1651	0.9866	0.9347	189.60	
Xylene (-m)						0.0217	0.0194	0.0242	106.1700	0.0029	0.0294	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Sep	19.23	17.50	20.96	9.44	0.0031	0.0031	0.0031	130.0000			188.00	Option 1: VP40 = .0031
1,2,4-Trimethylbenzene						0.0033	0.0030	0.0036	120.1900	0.0100	0.0155	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.3344	0.3153	0.3545	78.1100	0.0000	0.0012	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0225	0.0208	0.0242	106.1700	0.0001	0.0014	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						0.5931	0.5613	0.6264	86.1700	0.0000	0.0003	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.0810	0.0758	0.0865	92.1300	0.0003	0.0121	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0030	0.0029	0.0029	131.8297	0.9866	0.9446	189.60	
Xylene (-m)						0.0184	0.0171	0.0199	106.1700	0.0029	0.0249	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Oct	11.41	9.55	13.26	9.44	0.0031	0.0031	0.0031	130.0000			188.00	Option 1: VP40 = .0031
1,2,4-Trimethylbenzene						0.0022	0.0020	0.0025	120.1900	0.0100	0.0104	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.2551	0.2388	0.2722	78.1100	0.0000	0.0010	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0159	0.0147	0.0173	106.1700	0.0001	0.0010	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						0.4604	0.4329	0.4893	86.1700	0.0000	0.0002	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.0597	0.0555	0.0643	92.1300	0.0003	0.0089	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0030	0.0030	0.0030	131.2896	0.9866	0.9609	189.60	
Xylene (-m)						0.0131	0.0120	0.0142	106.1700	0.0029	0.0177	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Nov	4.55	2.67	6.43	9.44	0.0031	0.0031	0.0031	130.0000			188.00	Option 1: VP40 = .0031
1,2,4-Trimethylbenzene						0.0016	0.0014	0.0017	120.1900	0.0100	0.0073	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.1992	0.1859	0.2134	78.1100	0.0000	0.0007	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0117	0.0107	0.0127	106.1700	0.0001	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						0.3655	0.3426	0.3898	86.1700	0.0000	0.0002	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.0452	0.0419	0.0489	92.1300	0.0003	0.0068	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0031	0.0030	0.0030	130.9435	0.9866	0.9715	189.60	
Xylene (-m)						0.0095	0.0087	0.0104	106.1700	0.0029	0.0129	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

DR-01-FT-01 & DR-01-FT-02 - Horizontal Tank
Chukchi Sea, Alaska

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):												
Vapor Space Volume (cu ft):							0.7268	0.4780	0.2753	0.3256	0.3325	
Vapor Density (lb/cu ft):							11,305.7315	11,305.7315	11,305.7315	11,305.7315	11,305.7315	
Vapor Space Expansion Factor:							0.0001	0.0001	0.0001	0.0001	0.0001	
Vented Vapor Saturation Factor:							0.0268	0.0176	0.0104	0.0117	0.0121	
							0.9984	0.9984	0.9984	0.9984	0.9984	
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):							11,305.7315	11,305.7315	11,305.7315	11,305.7315	11,305.7315	
Tank Diameter (ft):							20.0000	20.0000	20.0000	20.0000	20.0000	
Effective Diameter (ft):							37.9406	37.9406	37.9406	37.9406	37.9406	
Vapor Space Outage (ft):							10.0000	10.0000	10.0000	10.0000	10.0000	
Tank Shell Length (ft):							56.5000	56.5000	56.5000	56.5000	56.5000	
Vapor Density												
Vapor Density (lb/cu ft):							0.0001	0.0001	0.0001	0.0001	0.0001	
Vapor Molecular Weight (lb/lb-mole):							130.0000	130.0000	130.0000	130.0000	130.0000	
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031	0.0031	
Daily Avg. Liquid Surface Temp. (deg. R):							484.1452	482.7046	478.9006	471.0762	464.2172	
Daily Average Ambient Temp. (deg. F):							39.3000	37.8000	30.4000	13.4500	-1.7000	
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):							10.731	10.731	10.731	10.731	10.731	
Liquid Bulk Temperature (deg. R):							469.1067	469.1067	469.1067	469.1067	469.1067	
Tank Paint Solar Absorptance (Shell):							0.1700	0.1700	0.1700	0.1700	0.1700	
Daily Total Solar Insulation Factor (Btu/sqft day):							1,413.7551	832.5165	424.5073	151.6551	7.9318	
Vapor Space Expansion Factor												
Vapor Space Expansion Factor:							0.0268	0.0176	0.0104	0.0117	0.0121	
Daily Vapor Temperature Range (deg. R):							14.9375	10.4428	6.9167	7.4179	7.5258	
Daily Vapor Pressure Range (psia):							0.0000	0.0000	0.0000	0.0000	0.0000	
Breather Vent Press. Setting Range(psia):							0.0600	0.0600	0.0600	0.0600	0.0600	
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031	0.0031	
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031	0.0031	
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031	0.0031	
Daily Avg. Liquid Surface Temp. (deg R):							484.1452	482.7046	478.9006	471.0762	464.2172	
Daily Min. Liquid Surface Temp. (deg R):							480.4108	480.0939	477.1715	469.2217	462.3357	
Daily Max. Liquid Surface Temp. (deg R):							487.8796	485.3153	480.6298	472.9307	466.0986	
Daily Ambient Temp. Range (deg. R):							11.4000	9.0000	6.8000	9.3000	10.4000	
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:							0.9984	0.9984	0.9984	0.9984	0.9984	
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031	0.0031	
Vapor Space Outage (ft):							10.0000	10.0000	10.0000	10.0000	10.0000	
Working Losses (lb):												
Vapor Molecular Weight (lb/lb-mole):							0.9457	0.9457	0.9457	0.9457	0.9457	
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							130.0000	130.0000	130.0000	130.0000	130.0000	
Net Throughput (gal/mo.):							0.0031	0.0031	0.0031	0.0031	0.0031	
							98,558.0000	98,558.0000	98,558.0000	98,558.0000	98,558.0000	

Annual Turnovers:	6.9407	6.9407	6.9407	6.9407	6.9407
Turnover Factor:	1.0000	1.0000	1.0000	1.0000	1.0000
Tank Diameter (ft):	20.0000	20.0000	20.0000	20.0000	20.0000
Working Loss Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000
Total Losses (lb):	1.6725	1.4237	1.2210	1.2713	1.2782

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

DR-01-FT-01 & DR-01-FT-02 - Horizontal Tank
Chukchi Sea, Alaska

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Distillate fuel oil no. 2	4.73	2.14	6.87
1,2,4-Trimethylbenzene	0.07	0.03	0.10
Benzene	0.01	0.00	0.01
Ethylbenzene	0.01	0.00	0.01
Hexane (-n)	0.00	0.00	0.00
Toluene	0.05	0.03	0.08
Unidentified Components	4.48	2.02	6.50
Xylene (-m)	0.11	0.05	0.16

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	VE-01-FT-01
City:	Chukchi Sea
State:	Alaska
Company:	ConocoPhillips
Type of Tank:	Horizontal Tank
Description:	ALL VESSELS FUEL TANKS PROPOSED ALLOWABLE EMISSIONS

Tank Dimensions

Shell Length (ft):		56.50
Diameter (ft):		20.00
Volume (gallons):		100,000.00
Turnovers:		27.82
Net Throughput(gal/yr):		2,703,975.00
Is Tank Heated (y/n):	N	
Is Tank Underground (y/n):	N	

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition	Good

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Barrow, Alaska (Avg Atmospheric Pressure = 14.73 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

VE-01-FT-01 - Horizontal Tank
Chukchi Sea, Alaska

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Distillate fuel oil no. 2	Jul	24.48	20.74	28.21	9.44	0.0031	0.0031	0.0031	130.0000			188.00	Option 1: VP40 = .0031
1,2,4-Trimethylbenzene						0.0043	0.0036	0.0051	120.1900	0.0100	0.0200	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.3986	0.3519	0.4504	78.1100	0.0000	0.0015	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0280	0.0240	0.0327	106.1700	0.0001	0.0017	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						0.6989	0.6221	0.7835	86.1700	0.0000	0.0003	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.0987	0.0858	0.1132	92.1300	0.0003	0.0147	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0029	0.0028	0.0029	132.3072	0.9866	0.9305	189.60	
Xylene (-m)						0.0231	0.0197	0.0269	106.1700	0.0029	0.0312	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Aug	23.03	20.42	25.65	9.44	0.0031	0.0031	0.0031	130.0000			188.00	Option 1: VP40 = .0031
1,2,4-Trimethylbenzene						0.0040	0.0035	0.0045	120.1900	0.0100	0.0187	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.3800	0.3482	0.4142	78.1100	0.0000	0.0014	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0264	0.0236	0.0294	106.1700	0.0001	0.0016	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						0.6684	0.6159	0.7246	86.1700	0.0000	0.0003	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.0935	0.0848	0.1030	92.1300	0.0003	0.0140	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0029	0.0028	0.0029	132.1651	0.9866	0.9347	189.60	
Xylene (-m)						0.0217	0.0194	0.0242	106.1700	0.0029	0.0294	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Sep	19.23	17.50	20.96	9.44	0.0031	0.0031	0.0031	130.0000			188.00	Option 1: VP40 = .0031
1,2,4-Trimethylbenzene						0.0033	0.0030	0.0036	120.1900	0.0100	0.0155	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.3344	0.3153	0.3545	78.1100	0.0000	0.0012	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0225	0.0208	0.0242	106.1700	0.0001	0.0014	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						0.5931	0.5613	0.6264	86.1700	0.0000	0.0003	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.0810	0.0758	0.0865	92.1300	0.0003	0.0121	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0030	0.0029	0.0029	131.8297	0.9866	0.9446	189.60	
Xylene (-m)						0.0184	0.0171	0.0199	106.1700	0.0029	0.0249	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Oct	11.41	9.55	13.26	9.44	0.0031	0.0031	0.0031	130.0000			188.00	Option 1: VP40 = .0031
1,2,4-Trimethylbenzene						0.0022	0.0020	0.0025	120.1900	0.0100	0.0104	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.2551	0.2388	0.2722	78.1100	0.0000	0.0010	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0159	0.0147	0.0173	106.1700	0.0001	0.0010	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						0.4604	0.4329	0.4893	86.1700	0.0000	0.0002	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.0597	0.0555	0.0643	92.1300	0.0003	0.0089	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0030	0.0030	0.0030	131.2896	0.9866	0.9609	189.60	
Xylene (-m)						0.0131	0.0120	0.0142	106.1700	0.0029	0.0177	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Nov	4.55	2.67	6.43	9.44	0.0031	0.0031	0.0031	130.0000			188.00	Option 1: VP40 = .0031
1,2,4-Trimethylbenzene						0.0016	0.0014	0.0017	120.1900	0.0100	0.0073	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.1992	0.1859	0.2134	78.1100	0.0000	0.0007	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0117	0.0107	0.0127	106.1700	0.0001	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						0.3655	0.3426	0.3898	86.1700	0.0000	0.0002	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.0452	0.0419	0.0489	92.1300	0.0003	0.0068	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0031	0.0030	0.0030	130.9435	0.9866	0.9715	189.60	
Xylene (-m)						0.0095	0.0087	0.0104	106.1700	0.0029	0.0129	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

VE-01-FT-01 - Horizontal Tank
Chukchi Sea, Alaska

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):												
Vapor Space Volume (cu ft):							0.7268	0.4780	0.2753	0.3256	0.3325	
Vapor Density (lb/cu ft):							11,305.7315	11,305.7315	11,305.7315	11,305.7315	11,305.7315	
Vapor Space Expansion Factor:							0.0001	0.0001	0.0001	0.0001	0.0001	
Vented Vapor Saturation Factor:							0.0268	0.0176	0.0104	0.0117	0.0121	
							0.9984	0.9984	0.9984	0.9984	0.9984	
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):							11,305.7315	11,305.7315	11,305.7315	11,305.7315	11,305.7315	
Tank Diameter (ft):							20.0000	20.0000	20.0000	20.0000	20.0000	
Effective Diameter (ft):							37.9406	37.9406	37.9406	37.9406	37.9406	
Vapor Space Outage (ft):							10.0000	10.0000	10.0000	10.0000	10.0000	
Tank Shell Length (ft):							56.5000	56.5000	56.5000	56.5000	56.5000	
Vapor Density												
Vapor Density (lb/cu ft):							0.0001	0.0001	0.0001	0.0001	0.0001	
Vapor Molecular Weight (lb/lb-mole):							130.0000	130.0000	130.0000	130.0000	130.0000	
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031	0.0031	
Daily Avg. Liquid Surface Temp. (deg. R):							484.1452	482.7046	478.9006	471.0762	464.2172	
Daily Average Ambient Temp. (deg. F):							39.3000	37.8000	30.4000	13.4500	-1.7000	
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):							10.731	10.731	10.731	10.731	10.731	
Liquid Bulk Temperature (deg. R):							469.1067	469.1067	469.1067	469.1067	469.1067	
Tank Paint Solar Absorptance (Shell):							0.1700	0.1700	0.1700	0.1700	0.1700	
Daily Total Solar Insulation Factor (Btu/sqft day):							1,413.7551	832.5165	424.5073	151.6551	7.9318	
Vapor Space Expansion Factor												
Vapor Space Expansion Factor:							0.0268	0.0176	0.0104	0.0117	0.0121	
Daily Vapor Temperature Range (deg. R):							14.9375	10.4428	6.9167	7.4179	7.5258	
Daily Vapor Pressure Range (psia):							0.0000	0.0000	0.0000	0.0000	0.0000	
Breather Vent Press. Setting Range(psia):							0.0600	0.0600	0.0600	0.0600	0.0600	
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031	0.0031	
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031	0.0031	
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031	0.0031	
Daily Avg. Liquid Surface Temp. (deg R):							484.1452	482.7046	478.9006	471.0762	464.2172	
Daily Min. Liquid Surface Temp. (deg R):							480.4108	480.0939	477.1715	469.2217	462.3357	
Daily Max. Liquid Surface Temp. (deg R):							487.8796	485.3153	480.6298	472.9307	466.0986	
Daily Ambient Temp. Range (deg. R):							11.4000	9.0000	6.8000	9.3000	10.4000	
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:							0.9984	0.9984	0.9984	0.9984	0.9984	
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031	0.0031	
Vapor Space Outage (ft):							10.0000	10.0000	10.0000	10.0000	10.0000	
Working Losses (lb):												
Vapor Molecular Weight (lb/lb-mole):							5.1891	5.1891	5.1891	5.1891	5.1891	
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							130.0000	130.0000	130.0000	130.0000	130.0000	
Net Throughput (gal/mo.):							0.0031	0.0031	0.0031	0.0031	0.0031	
							540,795.0000	540,795.0000	540,795.0000	540,795.0000	540,795.0000	

Annual Turnovers:	27.8157	27.8157	27.8157	27.8157	27.8157
Turnover Factor:	1.0000	1.0000	1.0000	1.0000	1.0000
Tank Diameter (ft):	20.0000	20.0000	20.0000	20.0000	20.0000
Working Loss Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000
Total Losses (lb):	5.9159	5.6671	5.4644	5.5147	5.5216

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

VE-01-FT-01 - Horizontal Tank
Chukchi Sea, Alaska

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Distillate fuel oil no. 2	25.95	2.14	28.08
1,2,4-Trimethylbenzene	0.37	0.03	0.41
Benzene	0.03	0.00	0.03
Ethylbenzene	0.03	0.00	0.04
Hexane (-n)	0.01	0.00	0.01
Toluene	0.29	0.03	0.32
Unidentified Components	24.61	2.02	26.63
Xylene (-m)	0.60	0.05	0.66

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	DR-01-FT-01 & DR-01-FT-02(2)
City:	Chukchi Sea
State:	Alaska
Company:	ConocoPhillips
Type of Tank:	Horizontal Tank
Description:	DRILL RIG FUEL TANKS PROJECTED MAXIMUM EMISSIONS

Tank Dimensions

Shell Length (ft):		56.50
Diameter (ft):		20.00
Volume (gallons):		71,000.00
Turnovers:		6.65
Net Throughput(gal/yr):		471,941.00
Is Tank Heated (y/n):	N	
Is Tank Underground (y/n):	N	

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition	Good

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Barrow, Alaska (Avg Atmospheric Pressure = 14.73 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

DR-01-FT-01 & DR-01-FT-02(2) - Horizontal Tank
Chukchi Sea, Alaska

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Distillate fuel oil no. 2	Jul	24.48	20.74	28.21	9.44	0.0031	0.0031	0.0031	130.0000			188.00	Option 1: VP40 = .0031
1,2,4-Trimethylbenzene						0.0043	0.0036	0.0051	120.1900	0.0100	0.0200	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.3986	0.3519	0.4504	78.1100	0.0000	0.0015	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0280	0.0240	0.0327	106.1700	0.0001	0.0017	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						0.6989	0.6221	0.7835	86.1700	0.0000	0.0003	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.0987	0.0858	0.1132	92.1300	0.0003	0.0147	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0029	0.0028	0.0029	132.3072	0.9866	0.9305	189.60	
Xylene (-m)						0.0231	0.0197	0.0269	106.1700	0.0029	0.0312	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Aug	23.03	20.42	25.65	9.44	0.0031	0.0031	0.0031	130.0000			188.00	Option 1: VP40 = .0031
1,2,4-Trimethylbenzene						0.0040	0.0035	0.0045	120.1900	0.0100	0.0187	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.3800	0.3482	0.4142	78.1100	0.0000	0.0014	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0264	0.0236	0.0294	106.1700	0.0001	0.0016	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						0.6684	0.6159	0.7246	86.1700	0.0000	0.0003	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.0935	0.0848	0.1030	92.1300	0.0003	0.0140	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0029	0.0028	0.0029	132.1651	0.9866	0.9347	189.60	
Xylene (-m)						0.0217	0.0194	0.0242	106.1700	0.0029	0.0294	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Sep	19.23	17.50	20.96	9.44	0.0031	0.0031	0.0031	130.0000			188.00	Option 1: VP40 = .0031
1,2,4-Trimethylbenzene						0.0033	0.0030	0.0036	120.1900	0.0100	0.0155	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.3344	0.3153	0.3545	78.1100	0.0000	0.0012	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0225	0.0208	0.0242	106.1700	0.0001	0.0014	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						0.5931	0.5613	0.6264	86.1700	0.0000	0.0003	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.0810	0.0758	0.0865	92.1300	0.0003	0.0121	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0030	0.0029	0.0029	131.8297	0.9866	0.9446	189.60	
Xylene (-m)						0.0184	0.0171	0.0199	106.1700	0.0029	0.0249	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Oct	11.41	9.55	13.26	9.44	0.0031	0.0031	0.0031	130.0000			188.00	Option 1: VP40 = .0031
1,2,4-Trimethylbenzene						0.0022	0.0020	0.0025	120.1900	0.0100	0.0104	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.2551	0.2388	0.2722	78.1100	0.0000	0.0010	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0159	0.0147	0.0173	106.1700	0.0001	0.0010	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						0.4604	0.4329	0.4893	86.1700	0.0000	0.0002	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.0597	0.0555	0.0643	92.1300	0.0003	0.0089	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0030	0.0030	0.0030	131.2896	0.9866	0.9609	189.60	
Xylene (-m)						0.0131	0.0120	0.0142	106.1700	0.0029	0.0177	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Nov	4.55	2.67	6.43	9.44	0.0031	0.0031	0.0031	130.0000			188.00	Option 1: VP40 = .0031
1,2,4-Trimethylbenzene						0.0016	0.0014	0.0017	120.1900	0.0100	0.0073	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.1992	0.1859	0.2134	78.1100	0.0000	0.0007	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0117	0.0107	0.0127	106.1700	0.0001	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						0.3655	0.3426	0.3898	86.1700	0.0000	0.0002	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.0452	0.0419	0.0489	92.1300	0.0003	0.0068	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0031	0.0030	0.0030	130.9435	0.9866	0.9715	189.60	
Xylene (-m)						0.0095	0.0087	0.0104	106.1700	0.0029	0.0129	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

DR-01-FT-01 & DR-01-FT-02(2) - Horizontal Tank
Chukchi Sea, Alaska

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):												
Vapor Space Volume (cu ft):							0.7268	0.4780	0.2753	0.3256	0.3325	
Vapor Density (lb/cu ft):							11,305.7315	11,305.7315	11,305.7315	11,305.7315	11,305.7315	
Vapor Space Expansion Factor:							0.0001	0.0001	0.0001	0.0001	0.0001	
Vented Vapor Saturation Factor:							0.0268	0.0176	0.0104	0.0117	0.0121	
							0.9984	0.9984	0.9984	0.9984	0.9984	
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):							11,305.7315	11,305.7315	11,305.7315	11,305.7315	11,305.7315	
Tank Diameter (ft):							20.0000	20.0000	20.0000	20.0000	20.0000	
Effective Diameter (ft):							37.9406	37.9406	37.9406	37.9406	37.9406	
Vapor Space Outage (ft):							10.0000	10.0000	10.0000	10.0000	10.0000	
Tank Shell Length (ft):							56.5000	56.5000	56.5000	56.5000	56.5000	
Vapor Density												
Vapor Density (lb/cu ft):							0.0001	0.0001	0.0001	0.0001	0.0001	
Vapor Molecular Weight (lb/lb-mole):							130.0000	130.0000	130.0000	130.0000	130.0000	
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031	0.0031	
Daily Avg. Liquid Surface Temp. (deg. R):							484.1452	482.7046	478.9006	471.0762	464.2172	
Daily Average Ambient Temp. (deg. F):							39.3000	37.8000	30.4000	13.4500	-1.7000	
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):							10.731	10.731	10.731	10.731	10.731	
Liquid Bulk Temperature (deg. R):							469.1067	469.1067	469.1067	469.1067	469.1067	
Tank Paint Solar Absorptance (Shell):							0.1700	0.1700	0.1700	0.1700	0.1700	
Daily Total Solar Insulation Factor (Btu/sqft day):							1,413.7551	832.5165	424.5073	151.6551	7.9318	
Vapor Space Expansion Factor												
Vapor Space Expansion Factor:							0.0268	0.0176	0.0104	0.0117	0.0121	
Daily Vapor Temperature Range (deg. R):							14.9375	10.4428	6.9167	7.4179	7.5258	
Daily Vapor Pressure Range (psia):							0.0000	0.0000	0.0000	0.0000	0.0000	
Breather Vent Press. Setting Range(psia):							0.0600	0.0600	0.0600	0.0600	0.0600	
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031	0.0031	
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031	0.0031	
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031	0.0031	
Daily Avg. Liquid Surface Temp. (deg R):							484.1452	482.7046	478.9006	471.0762	464.2172	
Daily Min. Liquid Surface Temp. (deg R):							480.4108	480.0939	477.1715	469.2217	462.3357	
Daily Max. Liquid Surface Temp. (deg R):							487.8796	485.3153	480.6298	472.9307	466.0986	
Daily Ambient Temp. Range (deg. R):							11.4000	9.0000	6.8000	9.3000	10.4000	
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:							0.9984	0.9984	0.9984	0.9984	0.9984	
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031	0.0031	
Vapor Space Outage (ft):							10.0000	10.0000	10.0000	10.0000	10.0000	
Working Losses (lb):												
Vapor Molecular Weight (lb/lb-mole):							0.9057	0.9057	0.9057	0.9057	0.9057	
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							130.0000	130.0000	130.0000	130.0000	130.0000	
Net Throughput (gal/mo.):							0.0031	0.0031	0.0031	0.0031	0.0031	
							94,388.2000	94,388.2000	94,388.2000	94,388.2000	94,388.2000	

Annual Turnovers:	6.6471	6.6471	6.6471	6.6471	6.6471
Turnover Factor:	1.0000	1.0000	1.0000	1.0000	1.0000
Tank Diameter (ft):	20.0000	20.0000	20.0000	20.0000	20.0000
Working Loss Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000
Total Losses (lb):	1.6325	1.3837	1.1810	1.2313	1.2382

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

DR-01-FT-01 & DR-01-FT-02(2) - Horizontal Tank
Chukchi Sea, Alaska

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Distillate fuel oil no. 2	4.53	2.14	6.67
1,2,4-Trimethylbenzene	0.07	0.03	0.10
Benzene	0.01	0.00	0.01
Ethylbenzene	0.01	0.00	0.01
Hexane (-n)	0.00	0.00	0.00
Toluene	0.05	0.03	0.08
Unidentified Components	4.29	2.02	6.31
Xylene (-m)	0.11	0.05	0.16

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	VE-01-FT-01(2)
City:	Chukchi Sea
State:	Alaska
Company:	ConocoPhillips
Type of Tank:	Horizontal Tank
Description:	ALL VESSELS FUEL TANKS PROJECTED MAXIMUM EMISSIONS

Tank Dimensions

Shell Length (ft):		56.50
Diameter (ft):		20.00
Volume (gallons):		100,000.00
Turnovers:		21.94
Net Throughput(gal/yr):		2,193,682.00
Is Tank Heated (y/n):	N	
Is Tank Underground (y/n):	N	

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition	Good

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Barrow, Alaska (Avg Atmospheric Pressure = 14.73 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

VE-01-FT-01(2) - Horizontal Tank
Chukchi Sea, Alaska

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Distillate fuel oil no. 2	Jul	24.48	20.74	28.21	9.44	0.0031	0.0031	0.0031	130.0000			188.00	Option 1: VP40 = .0031
1,2,4-Trimethylbenzene						0.0043	0.0036	0.0051	120.1900	0.0100	0.0200	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.3986	0.3519	0.4504	78.1100	0.0000	0.0015	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0280	0.0240	0.0327	106.1700	0.0001	0.0017	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						0.5989	0.6221	0.7835	86.1700	0.0000	0.0003	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.0987	0.0858	0.1132	92.1300	0.0003	0.0147	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0029	0.0028	0.0029	132.3072	0.9866	0.9305	189.60	
Xylene (-m)						0.0231	0.0197	0.0269	106.1700	0.0029	0.0312	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Aug	23.03	20.42	25.65	9.44	0.0031	0.0031	0.0031	130.0000			188.00	Option 1: VP40 = .0031
1,2,4-Trimethylbenzene						0.0040	0.0035	0.0045	120.1900	0.0100	0.0187	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.3800	0.3482	0.4142	78.1100	0.0000	0.0014	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0264	0.0236	0.0294	106.1700	0.0001	0.0016	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						0.6684	0.6159	0.7246	86.1700	0.0000	0.0003	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.0935	0.0848	0.1030	92.1300	0.0003	0.0140	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0029	0.0028	0.0029	132.1651	0.9866	0.9347	189.60	
Xylene (-m)						0.0217	0.0194	0.0242	106.1700	0.0029	0.0294	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Sep	19.23	17.50	20.96	9.44	0.0031	0.0031	0.0031	130.0000			188.00	Option 1: VP40 = .0031
1,2,4-Trimethylbenzene						0.0033	0.0030	0.0036	120.1900	0.0100	0.0155	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.3344	0.3153	0.3545	78.1100	0.0000	0.0012	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0225	0.0208	0.0242	106.1700	0.0001	0.0014	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						0.5931	0.5613	0.6264	86.1700	0.0000	0.0003	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.0810	0.0758	0.0865	92.1300	0.0003	0.0121	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0030	0.0029	0.0029	131.8297	0.9866	0.9446	189.60	
Xylene (-m)						0.0184	0.0171	0.0199	106.1700	0.0029	0.0249	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Oct	11.41	9.55	13.26	9.44	0.0031	0.0031	0.0031	130.0000			188.00	Option 1: VP40 = .0031
1,2,4-Trimethylbenzene						0.0022	0.0020	0.0025	120.1900	0.0100	0.0104	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.2551	0.2388	0.2722	78.1100	0.0000	0.0010	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0159	0.0147	0.0173	106.1700	0.0001	0.0010	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						0.4604	0.4329	0.4893	86.1700	0.0000	0.0002	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.0597	0.0555	0.0643	92.1300	0.0003	0.0089	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0030	0.0030	0.0030	131.2896	0.9866	0.9609	189.60	
Xylene (-m)						0.0131	0.0120	0.0142	106.1700	0.0029	0.0177	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Nov	4.55	2.67	6.43	9.44	0.0031	0.0031	0.0031	130.0000			188.00	Option 1: VP40 = .0031
1,2,4-Trimethylbenzene						0.0016	0.0014	0.0017	120.1900	0.0100	0.0073	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.1992	0.1859	0.2134	78.1100	0.0000	0.0007	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0117	0.0107	0.0127	106.1700	0.0001	0.0007	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						0.3655	0.3426	0.3898	86.1700	0.0000	0.0002	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.0452	0.0419	0.0489	92.1300	0.0003	0.0068	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0031	0.0030	0.0030	130.9435	0.9866	0.9715	189.60	
Xylene (-m)						0.0095	0.0087	0.0104	106.1700	0.0029	0.0129	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

VE-01-FT-01(2) - Horizontal Tank
Chukchi Sea, Alaska

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):												
Vapor Space Volume (cu ft):							0.7268	0.4780	0.2753	0.3256	0.3325	
Vapor Density (lb/cu ft):							11,305.7315	11,305.7315	11,305.7315	11,305.7315	11,305.7315	
Vapor Space Expansion Factor:							0.0001	0.0001	0.0001	0.0001	0.0001	
Vented Vapor Saturation Factor:							0.0268	0.0176	0.0104	0.0117	0.0121	
							0.9984	0.9984	0.9984	0.9984	0.9984	
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):							11,305.7315	11,305.7315	11,305.7315	11,305.7315	11,305.7315	
Tank Diameter (ft):							20.0000	20.0000	20.0000	20.0000	20.0000	
Effective Diameter (ft):							37.9406	37.9406	37.9406	37.9406	37.9406	
Vapor Space Outage (ft):							10.0000	10.0000	10.0000	10.0000	10.0000	
Tank Shell Length (ft):							56.5000	56.5000	56.5000	56.5000	56.5000	
Vapor Density												
Vapor Density (lb/cu ft):							0.0001	0.0001	0.0001	0.0001	0.0001	
Vapor Molecular Weight (lb/lb-mole):							130.0000	130.0000	130.0000	130.0000	130.0000	
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031	0.0031	
Daily Avg. Liquid Surface Temp. (deg. R):							484.1452	482.7046	478.9006	471.0762	464.2172	
Daily Average Ambient Temp. (deg. F):							39.3000	37.8000	30.4000	13.4500	-1.7000	
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):							10.731	10.731	10.731	10.731	10.731	
Liquid Bulk Temperature (deg. R):							469.1067	469.1067	469.1067	469.1067	469.1067	
Tank Paint Solar Absorptance (Shell):							0.1700	0.1700	0.1700	0.1700	0.1700	
Daily Total Solar Insulation Factor (Btu/sqft day):							1,413.7551	832.5165	424.5073	151.6551	7.9318	
Vapor Space Expansion Factor												
Vapor Space Expansion Factor:							0.0268	0.0176	0.0104	0.0117	0.0121	
Daily Vapor Temperature Range (deg. R):							14.9375	10.4428	6.9167	7.4179	7.5258	
Daily Vapor Pressure Range (psia):							0.0000	0.0000	0.0000	0.0000	0.0000	
Breather Vent Press. Setting Range(psia):							0.0600	0.0600	0.0600	0.0600	0.0600	
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031	0.0031	
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031	0.0031	
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031	0.0031	
Daily Avg. Liquid Surface Temp. (deg R):							484.1452	482.7046	478.9006	471.0762	464.2172	
Daily Min. Liquid Surface Temp. (deg R):							480.4108	480.0939	477.1715	469.2217	462.3357	
Daily Max. Liquid Surface Temp. (deg R):							487.8796	485.3153	480.6298	472.9307	466.0986	
Daily Ambient Temp. Range (deg. R):							11.4000	9.0000	6.8000	9.3000	10.4000	
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:							0.9984	0.9984	0.9984	0.9984	0.9984	
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031	0.0031	
Vapor Space Outage (ft):							10.0000	10.0000	10.0000	10.0000	10.0000	
Working Losses (lb):												
Vapor Molecular Weight (lb/lb-mole):							4.2098	4.2098	4.2098	4.2098	4.2098	
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							130.0000	130.0000	130.0000	130.0000	130.0000	
Net Throughput (gal/mo.):							0.0031	0.0031	0.0031	0.0031	0.0031	
							438,736.4000	438,736.4000	438,736.4000	438,736.4000	438,736.4000	

Annual Turnovers:	21.9368	21.9368	21.9368	21.9368	21.9368
Turnover Factor:	1.0000	1.0000	1.0000	1.0000	1.0000
Tank Diameter (ft):	20.0000	20.0000	20.0000	20.0000	20.0000
Working Loss Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000
Total Losses (lb):	4.9366	4.6878	4.4851	4.5354	4.5423

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

VE-01-FT-01(2) - Horizontal Tank
Chukchi Sea, Alaska

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Distillate fuel oil no. 2	21.05	2.14	23.19
1,2,4-Trimethylbenzene	0.30	0.03	0.34
Benzene	0.02	0.00	0.03
Ethylbenzene	0.03	0.00	0.03
Hexane (-n)	0.01	0.00	0.01
Toluene	0.24	0.03	0.26
Unidentified Components	19.96	2.02	21.98
Xylene (-m)	0.49	0.05	0.54

Section 6
Emission Calculations (EMISS)

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

EMISSION CALCULATIONS (EMISS)

Calculate potential to emit (PTE) for applicability purposes and actual emissions for fee purposes for each emissions unit, control device, or alternative operating scenario identified in section I of form **GIS**. If form **FEE** does not need to be submitted with the application, do not calculate actual emissions.

A. Emissions Unit ID **See Appendix A. Emissions Inventories**

B. Identification and Quantification of Emissions

First, list each air pollutant that is either regulated at the unit or present in major amounts, then list any other regulated pollutant (for fee calculation) not already listed. HAP may be simply listed as "HAP." Next, calculate PTE for applicability purposes and actual emissions for fee purposes for each pollutant. Do not calculate PTE for air pollutants listed solely for fee purposes. Include all fugitives for fee purposes. You may round to the nearest tenth of a ton for yearly values or tenth of a pound for hourly values.

Air Pollutants	Emission Rates			CAS No.
	Actual Annual Emissions (tons/yr)	Potential to Emit		
		Hourly (lb/hr)	Annual (tons/yr)	
See Appendix A. Emissions Inventories				

Section 7
Initial Compliance Plan and Compliance Certification (I-COMP)

Federal Operating Permit Program (40 CFR Part 71)

INITIAL COMPLIANCE PLAN AND COMPLIANCE CERTIFICATION (I-COMP)

SECTION A - COMPLIANCE STATUS AND COMPLIANCE PLAN

Complete this section for each unique combination of applicable requirements and emissions units at the facility. List all compliance methods (monitoring, recordkeeping and reporting) you used to determine compliance with the applicable requirement described above. Indicate your compliance status at this time for this requirement and compliance methods and check "YES" or "NO" to the follow-up question.

Emission Unit ID(s):

All emissions units (OCS source and support vessels within 25 miles of the OCS source)

Applicable Requirement (Description and Citation):

Annual Emissions (tons/rolling 12 -months) shall be limited as follows:

Particulate Matter- 22.8
Particulate Matter less than 10 um- 13.7
Particulate Matter less than 2.5 um- 13.7
Sulfur Dioxide- 0.6
Nitrogen Oxides- 225.3
Volatile Organic Compounds- 25.6
Carbon Monoxide- 173.6

Compliance Methods for the Above (Description and Citation):

Rolling 12-month monitoring, recordkeeping and reporting of emissions for the OCS source and support vessels while operating within 25 miles of the rig.

Emissions monitoring is proposed as follows:

1. **Engines- Jackup rig, OSRV (dedicated), Ice breakers (2), Offshore Supply Vessels (OSVs), Ware Vessel: Emissions units will be monitored as follows (the option chosen will be a function of the fuel monitoring capability of the vessel used and/or individual equipment):**

   Option 1- Monthly fuel use (gallons) x engine emissions factor* (lb/gal) or,

   Option 2- Monthly operating time (hours) x maximum engine emissions (lb/hour) as defined in this application

2. **Engines- Oil Spill Response Vessel (2nd vessel for spill response exercises),**

   Anchor Handling Supply Tug, 34' work boats (4), Marine Research Vessel, Spill Storage Tanker:

Monthly operating time (hours) x maximum engine emissions (lb/hour) as defined in this application

3. **Rig and Vessel Fuel Tanks: EPA Tanks program (version 4.09D)**

4. **Incinerators:**

   Monthly operating time (hours) x maximum emissions factor* (lb/hour)

5. **Mud degassing:**

   20,000 scf/day of drilling x emissions factor* (lb/scf)= lbs VOC

6. **Heaters and Boilers:**

   Monthly operating time (hours) x maximum emissions (lb/hour) as defined in this application

***The emissions factor utilized will be the same as presented in this application (including converted into the appropriate units for use) unless an emissions unit specific factor is developed for a pollutant via approved EPA emissions measurements.**

Compliance Status:

NA In Compliance: Will you continue to comply up to permit issuance? __Yes __ No

NA Not In Compliance: Will you be in compliance at permit issuance? __Yes __No

YES Future-Effective Requirement: Do you expect to meet this on a timely basis? **X Yes** ___No

Emission Unit ID(s):

All diesel fired equipment (DR-01-ME-01, DR-01-ME-02, DR-01-ME-03, DR-01-ME-04, DR-01-EE-01, DR-01-CE-01, DR-01-CE-02, DR-01-LW-01, DR-01-HE-01, DR-01-HE-02, IB-01-ME-01, IB-01-ME-02, IB-01-ME-03, IB-01-ME-04, IB-01-HG-01, IB-01-EG-01, IB-01-BO-1, IB-01-BO-02, IB-02-ME-01, IB-02-ME-02, IB-02-ME-03, IB-02-ME-04, IB-02-HG-01, IB-02-EG-01, IB-02-BO-01, IB-02-BO-02, SR-01-ME-01, SR-01-ME-02, SR-01-TE-01, SR-01-TE-02, SR-01-TE-03, SR-01-GE-01, SR-01-GE-02, SR-01-GE-03, SR-01-EG-01, AT-01-ME-01, AT-01-ME-02, AT-01-ME-03, AT-01-ME-04, AT-01-EG-01, SV-01-ME-01, SV-01-ME-02, SV-01-TE-01, SV-01-TE-02, SV-01-TE-03, SV-01-GE-01, SV-01-GE-02, SV-01-GE-03, SV-01-EG-01, SV-02-ME-01, SV-02-ME-02, SV-02-TE-01, SV-02-TE-02, SV-02-TE-03, SV-02-GE-01, SV-02-GE-02, SV-02-GE-03, SV-02-EG-01, WV-01-ME-01, WV-01-ME-02, WV-01-ME-03, WV-01-ME-04, WV-01-GE-01, WV-01-GE-02, WV-01-GE-03, WV-01-EG-01, WB-01-PE-01, WB-01-PE-02, WB-02-PE-01, WB-02-PE-02, WB-03-PE-01, WB-03-PE-02, WB-04-PE-01, WB-04-PE-02, MR-01-ME-01, MR-01-GE-01, MR-01-GE-02, MR-01-GE-03, ST-01-ME-01, ST-01-ME-02, ST-01-BO-01, ST-01-GE-01, SR-02-ME-01, SR-02-ME-02, SR-02-TE-01, SR-02-TE-02, SR-02-TE-03, SR-02-GE-01, SR-02-GE-02, SR-02-GE-03, SR-02-EG-01)

Applicable Requirement (Description and Citation):

The fuel burned shall be limited to ultra low sulfur diesel fuel (0.0015% max. S content)

Compliance Methods for the Above (Description and Citation):

Fuel supply specification monitoring and recordkeeping for the fuel sulfur content and heat content for fuel used on the OCS source and support vessels operating within 25 miles of the OCS source.

Compliance Status:

NA In Compliance: Will you continue to comply up to permit issuance? ____Yes ____No

NA Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

YES Future-Effective Requirement: Do you expect to meet this on a timely basis? **X** Yes ____No

Emission Unit ID(s):

Main rig engines (DR-01-ME-01, DR-01-ME-02, DR-01-ME-03, DR-01-ME-04).

Applicable Requirement (Describe and Cite)

Utilize SCR during main engine operation and maintain a NOX emissions rate of no more than 10.0 lbs/hour for each engine except for up to 72 hours immediately subsequent to jack up of the rig platform (during periods of non-drilling only) and a not to exceed total of 125 hours per year during non-drilling periods.

Compliance Methods for the Above (Description and Citation):

Daily record of the main engine operating times and SCR operating times.

During SCR operation continuously record and maintain inlet air temperature to the SCR catalyst consistent with manufacturer's specifications for the range during the OCS operation.

On each day of SCR operation, record and maintain the exhaust ammonia concentration within the manufacturer's recommended range during OCS operation.

Compliance Status:

NA In Compliance: Will you continue to comply up to permit issuance? ____Yes ____No

NA Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

YES Future-Effective Requirement: Do you expect to meet this on a timely basis? **X** Yes ____No

Emission Unit ID(s):

Icebreakers (1 and 2) main and/or auxiliary engines (IB-01-ME-01, IB-01-ME-02, IB-01-ME-03, IB-01-ME-04, IB-02-ME-01, IB-02-ME-02, IB-02-ME-03, IB-02-ME-04)

Applicable Requirement (Description and Citation):

Utilize SCR for NOX emissions control and no main engine on the Icebreakers shall operate more than 1,000 per year within 25 miles of the OCS source.

Compliance Methods for the Above (Description and Citation):

Monthly record of the main engine and SCR operating times while operating within 25 miles of the OCS source.

Maintain and continuously record inlet air temperature to SCR catalyst with manufacturer's specifications for the range during the OCS operation.

Daily monitoring and recording of ammonia concentration in the SCR outlet exhaust within manufacturer's recommended range during OCS operation.

Compliance Status:

NA In Compliance: Will you continue to comply up to permit issuance? ____Yes ____No

NA Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

YES Future-Effective Requirement: Do you expect to meet this on a timely basis? **X** Yes ____No

Emission Unit ID(s):

Rig main engines (DR-01-ME-01, DR-01-ME-02, DR-01-ME-03, DR-01-ME-04).

Applicable Requirement (Description and Citation):

Total operation of all 4 main engines shall not exceed 4800 hours/year and shall not exceed 125 hours per year operating 2 main engines uncontrolled.

Compliance Methods for the Above (Description and Citation):

Daily log of the main engine operating times for the OCS source will be maintained.

Compliance Status:

NA In Compliance: Will you continue to comply up to permit issuance? ____Yes ____No

NA Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

YES Future-Effective Requirement: Do you expect to meet this on a timely basis? **X** Yes ____No

Emission Unit ID(s):

Icebreakers 1 and 2 (IB-01-ME-01, IB-01-ME-02, IB-01-ME-03, IB-01-ME-04, IB-01-HG-01, IB-01-EG-01, IB-01-BO-1, IB-01-BO-02, IB-01-NC-01, IB-02-ME-01, IB-02-ME-02, IB-02-ME-03, IB-02-ME-04, IB-02-HG-01, IB-02-EG-01, IB-02-BO-01, IB-02-BO-02, IB-02-NC-01).

Applicable Requirement (Describe and Cite)

The icebreakers shall not operate within 5 miles of the OCS source during drilling operations.

Compliance Methods for the Above (Description and Citation):

Daily monitoring of the vessel movement within the 25 mile area of the rig will be tracked and recorded using GPS and/or an AIS system.

Drilling engine operating times will be monitored and recorded daily on the jack-up rig.

Compliance Status:

NA In Compliance: Will you continue to comply up to permit issuance? ____Yes ____No

NA Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

YES Future-Effective Requirement: Do you expect to meet this on a timely basis? _**X**_ Yes ____No

Emission Unit ID(s):

Dedicated Oil Spill Response Vessel (**SR-01-ME-01, SR-01-ME-02, SR-01-TE-01, SR-01-TE-02, SR-01-TE-03, SR-01-GE-01, SR-01-GE-02, SR-01-GE-03, SR-01-EG-01)**

Applicable Requirement (Description and Citation):

The Dedicated Oil Spill Response Vessel (OSRV) shall be anchored no closer than 10 miles from the OCS source.

Compliance Methods for the Above (Description and Citation):

Daily monitoring of the vessel movement within the 25 mile area of the rig will be tracked and recorded using GPS and/or an AIS system.

Compliance Status:

NA In Compliance: Will you continue to comply up to permit issuance? ____Yes ____No

NA Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

YES Future-Effective Requirement: Do you expect to meet this on a timely basis? **X** Yes ____No

Emission Unit ID(s):

Rig Main drilling engines (DR-01-ME-01, DR-01-ME-02, DR-01-ME-03, DR-01-ME-04), OSRV Main Engines (SR-01-ME-01, SR-01-ME-02), OSRV Thruster Engines (SR-01-TE-01, SR-01-TE-02, SR-01-TE-03), OSV Thruster Engines (SV-01-TE-01, SV-01-TE-02, SV-01-TE-03, SV-02-TE-01, SV-02-TE-02, SV-02-TE-03), Ware Vessel Main Engines (WV-01-ME-01, WV-01-ME-02, WV-01-ME-03, WV-01-ME-04)

Applicable Requirement (Description and Citation):

Hourly (lbs/hour) PM2.5 emissions shall be limited as follows for each engine:

Rig Main drilling engines (DR-01-ME-01, DR-01-ME-02, DR-01-ME-03, DR-01-ME-04)- 1.4
OSRV Main Engines (SR-01-ME-01, SR-01-ME-02) – 0.6
OSRV Thruster Engines (SR-01-TE-01, SR-01-TE-02, SR-01-TE-03) – 0.5
OSV Thruster Engines (SV-01-TE-01, SV-01-TE-02, SV-01-TE-03, SV-02-TE-01, SV-02-TE-02, SV-02-TE-03)- 0.5
Ware Vessel Main Engines (WV-01-ME-01, WV-01-ME-02, WV-01-ME-03, WV-01-ME-04) – 0.7

Compliance Methods for the Above (Description and Citation):

Utilize emissions factors (or emissions test factors for individual emissions units if site-specific testing is performed) as presented in this application and daily operational parameters to derive hourly emissions as needed.

Compliance Status:

NA In Compliance: Will you continue to comply up to permit issuance? ____Yes ____No

NA Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

YES Future-Effective Requirement: Do you expect to meet this on a timely basis? **X** Yes ____No

Emission Unit ID(s):

OSV and/or Ware Vessel Resupply (SV-01-ME-01, SV-01-ME-02, SV-01-TE-01, SV-01-TE-02, SV-01-TE-03, SV-01-GE-01, SV-01-GE-02, SV-01-GE-03, SV-01-EG-01, SV-02-ME-01, SV-02-ME-02, SV-02-TE-01, SV-02-TE-02, SV-02-TE-03, SV-02-GE-01, SV-02-GE-02, SV-02-GE-03, SV-02-EG-01, WV-01-ME-01, WV-01-ME-02, WV-01-ME-03, WV-01-ME-04, WV-01-GE-01, WV-01-GE-02, WV-01-GE-03, WV-01-EG-01)

Applicable Requirement (Description and Citation):

Rig resupply events shall not exceed 60 per year. A Resupply Event shall be defined as the OSV or Ware Vessel is located immediately alongside the OCS Source for transfer of supplies.

On days upon which drilling occurs, the total duration for resupply events shall not exceed 6 hours.

Compliance Methods for the Above (Description and Citation):

A daily log for times of the resupply events shall be maintained.

Compliance Status:

NA In Compliance: Will you continue to comply up to permit issuance? ____Yes ____No

NA Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

YES Future-Effective Requirement: Do you expect to meet this on a timely basis? **X** Yes ____No

Emission Unit ID(s):

Applicable Requirement (Describe and Cite):

Compliance Methods for the Above (Description and Citation):

Compliance Status:

In Compliance: Will you continue to comply up to permit issuance? ____Yes ____No

Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

Future-Effective Requirement: Do you expect to meet this on a timely basis? ____Yes ____No

B. SCHEDULE OF COMPLIANCE- NA

Complete this section if you answered "NO" to any of the questions in section A. Also complete this section if required to submit a schedule of compliance by an applicable requirement. Please attach copies of any judicial consent decrees or administrative orders for this requirement.

Unit(s)_____ Requirement_____

Reason for Noncompliance. Briefly explain reason for noncompliance at time of permit issuance or that future-effective requirement will not be met on a timely basis:

Narrative Description of how Source Compliance Will be Achieved. Briefly explain your plan for achieving compliance:

Schedule of Compliance. Provide a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance, including a date for final compliance.

Remedial Measure or Action	Date to be Achieved

C. SCHEDULE FOR SUBMISSION OF PROGRESS REPORTS- NA

Only complete this section if you are required to submit one or more schedules of compliance in section B or if an applicable requirement requires submittal of a progress report. If a schedule of compliance is required, your progress report should start within 6 months of application submittal and subsequently, no less than every six months. One progress report may include information on multiple schedules of compliance.

Contents of Progress Report (describe):

First Report____/____/___ Frequency of Submittal_____

Contents of Progress Report (describe):

First Report____/____/___ Frequency of Submittal_____

D. SCHEDULE FOR SUBMISSION OF COMPLIANCE CERTIFICATIONS

This section must be completed once by every source. Indicate when you would prefer to submit compliance certifications during the term of your permit (at least once per year).

Frequency of submittal **Semiannual** Beginning **1/31/2013**

E. COMPLIANCE WITH ENHANCED MONITORING & COMPLIANCE CERTIFICATION REQUIREMENTS

This section must be completed once by every source. To certify compliance with these, you must be able to certify compliance for every applicable requirement related to monitoring and compliance certification at every unit.

Enhanced Monitoring Requirements: **NA** ____ In Compliance ____ Not In Compliance

Compliance Certification Requirements: **NA** ____ In Compliance ____ Not In Compliance

Section 8
Fee Calculation Worksheet

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

FEE CALCULATION WORKSHEET (FEE)

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

A. General Information

Type of fee (Check one): **X** Initial __ Annual

Deadline for submitting fee calculation worksheet **NA**

For initial fees, emissions are based on (Check one): **No actual emissions yet emissions are based on PTE. Operations will commence 7/15/2012.**

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

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

Date commenced operations __/__/____

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

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

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

Source or facility name ConocoPhillips Company

Note: This section is completed since the application was delivered to Region 10 in Seattle while this is being sent via Express Mail to: US Bank, Government Lockbox 979078, USEPA, FOIA and Miscellaneous Payments, 1005 Convention Plaza, Mail Station SL-MO-C2GL, St. Louis, MO 63101 Contact: Natalie Pearson, (314) 418-4087

Mailing address:

Street or P.O. Box 700 G Street, ATO-1970

City Anchorage State AK ZIP 99510

Contact person Brad Thomas Title Senior Environmental Scientist

Telephone (907) 263 - 4741 Ext n/a Part 71 permit no. not yet issued

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

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

Name (signed) _____

Name (typed) Geoffrey A. Haddad Date: February / 09 / 2010

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

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

This data is for **2012** (year)

Emission Unit ID	NOx	$PM_{10}/_{2.5}$	VOC	SO2	Lead	H2S	H2SO4
See Appendix A. Emissions Unit Inventories - **No actual emissions yet, emissions are based on PTE**							
SUBTOTALS	**225.4**	**13.7**	**26.1**	**0.6**	**0.1**	**0.1**	**0.1**

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

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

Name of HAP	CAS No	Identifier
See Appendix A. HAP Emissions Unit Inventories		

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

This data is for **2012** (year)

Emissions Unit ID	Total HAP	HAP___	HAP___	HAP___	HAP___	HAP___
See Appendix A. HAP Emissions Unit Inventories						
SUBTOTALS	**1.5**					

F. Fee Calculation Worksheet

This section is used to calculate the total fee owed for both initial and annual fee payment purposes. Reconciliation is only for cases where you are paying the annual fee and you used any type of estimate of actual emissions when you calculated the initial fee. If you do not need to reconcile fees, only complete line 1-5 and then skip down to lines 21 – 26. See instructions for more detailed explanation.

1. Sum the emissions from section D of this form (non-HAP) and enter the total (tons).	**266.1**
2. Sum the emissions from section E of this form (HAP) and enter the total (tons).	**1.5**
3. Sum lines 1 and 2.	**267.6**
4. Enter the emissions that were counted twice. If none, enter "0."	**0**
5. Subtract line 4 from line 3, round to the nearest ton, and enter the result here.	**267.6**

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

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

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

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

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

11. Sum the actual emissions from section D (non-HAP) for the calendar year preceding initial fee payment and enter the result here.	
12. Sum the actual emissions from section E (HAP) for the calendar year preceding initial fee payment and enter the result here.	
13. Add lines 11 and 12 and enter the total here. These are total actual emissions for the calendar year preceding initial fee payment.	
14. Enter double counted emission from line 13 here. If none, enter "0."	
15. Subtract line 14 from line 13, round to the nearest ton, and enter the result here.	

16. Enter the total estimated actual emissions previously reported on line 5 of the initial fee form. These are estimated actual emissions for the calendar year preceding initial fee payment.	
17. If line 15 is greater than line 16, subtract line 16 from line 15, and enter the result here. Otherwise enter "0."	
18. If line 16 is greater than line 15, subtract line 15 from line 16, and enter the result here. Otherwise enter "0."	
19. If line 17 is greater than 0, multiply line 17 by last year's fee rate ($/ton) and enter the result here. This is the underpayment.	
20. If line 18 is greater than 0, multiply line 18 by last year's fee rate ($/ton) and enter the result on this line. This is the overpayment.	
FEE CALCULATION	
21. Multiply line 5 (tons) by the current fee rate ($/ton) and enter the result here.	**$12,130.31**
22. Enter any underpayment from line 9 or 19 here. Otherwise enter "0."	**0**
23. Enter any overpayment from line 10 or 20 here. Otherwise enter "0."	**0**
24. If line 22 is greater than "0," add it to line 21 and enter the result here. If line 23 is greater than "0," subtract this from line 21 and enter the result here. Otherwise enter the amount on line 21 here. This is the fee adjusted for reconciliation.	**$12,130.31**
25. If your account was credited for fee assessment error since the last time you paid fees, enter the amount of the credit here. Otherwise enter "0."	**0**
26. Subtract line 25 from line 24 and enter the result here. Stop here. This is the total fee amount that you must remit to EPA.	**$12,130.31**

Section 9
Fee Filing Form

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

FEE FILING FORM (FF)

Complete this form each time you prepare form **FEE** and send this form to the appropriate lockbox bank address, along with full payment. This form required at time of initial fee payment, and thereafter, when paying annual fees.

Source or Facility Name ConocoPhillips Company

Mailing Address:

Street/P.O. Box 700 G Street, ATO-1970, P.O. Box 100360 City Anchorage

State AK ZIP 99510

Contact Person: Brad Thomas Title Senior Environmental Specialist

Telephone (907) 263 - 4741 Ext. _____

Total Fee Payment Remitted: $ 12,130.31

REGN 1 2 3 4 9 10 DC CIN TRVL JURYDTY CRDRFNDS SALE/PRPERTY TUITION IAG-RFNDS PARI

CONTACT: LORI DANA MICHELLE JOE DICK VAL PATTI ELIZBTH EVELYN CRAIG ERIC BLAKE KIM OWENS(TDY PCS)

COLLECTION INFORMATION

DEPOSIT (SCHEDULE) NUMBER 2721710 SUSPENSE [ ] LIABILITY [ ]

CR NUMBER 2710107 1Q02

REMOVED BY

BILL NUMBER (IF DIFFERENT FROM CR NUMBER)

REMOVED DATE

IFMS ENTERED DATE 2/10/10

DATE ITEM REC'D (IF NOT CIRCLED ON CHECK)

COLLECTION ENTRY DONE BY ALEX

NOT IN: ICIS, BRAINS, RHC DATABASE part 71 IPAC TO: LV RTP HQ

ACCOUNTING

CR Line	BFY	APPR	Bud Org	PRC	BOC	Site/Proj	AMOUNT	Ref. Line	Rep Cat
								998	
								997	
15	10	5295					12,130.31	001	
								002	
								003	
								004	
								005	
								999	

KEY: REF LINE NO. 997=Interest LINE NO. 998=Handling LINE NO. 999=Penalty

QUALITY MEANS MEETING THE REQUIREMENTS BOX 979078
SEQ# 002 $ 0001213031 BA# 34 02-09-10 20 3

usbancorp. Five Star Service Guaranteed

THIS IS WATERMARKED PAPER-DO NOT ACCEPT WITHOUT NOTING WATERMARK-HOLD TO LIGHT TO VERIFY WATERMARK

Deutsche Bank Trust Company Delaware

ConocoPhillips Company Houston, TX

62-38/311
Check No: 00908614

96069

02/04/2010 00908614 $****12,130.31*

PAY TO THE ORDER OF

EXACTLY ***12130 US Dollars and 31 Cents***

U S ENVIRONMENTAL PROTECTION AGENCY
C/O US BANK GOVT LOCK BOX 979078
US EPA FOIA & MISC PAYMENTS
MAIL STATION SL MO C2GL
1005 CONVENTION PLAZA
SAINT LOUIS, MO 63101-1200

Fence M Vallejo
Treasurer

⑈00908614⑈ ⑆031100380⑆ 0053806 2⑈ ⑈0001213031⑈

Section 10
Certification of Truth, Accuracy, and Completeness (CTAC)

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

CERTIFICATION OF TRUTH, ACCURACY, AND COMPLETENESS (CTAC)

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

A. Responsible Official

Name: (Last) Haddad (First) Geoffrey (MI) A

Title Manager, Alaska Exploration

Street or P.O. Box 700 G Street, P.O. Box 100360

City Anchorage State AK ZIP 99510

Telephone (907) 265 - 6354 Ext. n/a Facsimile (907) 265-6335

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

I certify under penalty of law, based on information and belief formed after reasonable inquiry, the statements and information contained in these documents are true, accurate and complete.

Name (signed) G A Haddad

Name (typed) Geoffrey A. Haddad Date: February / 9 / 2010

Appendix A
Emissions Inventories

Proposed Allowable Emissions Inventories

Devil's Paw Prospect Proposed Allowable Emissions

Emissions Unit Inventory

Emissions Unit			Classification /	Fuel	Allowable	Maximum	Maximum	Form EUD	
	Description	Type	Mode	Type	Operation	Fuel Usage	Output Capacity	Maximum Heat Input (fuel usage x fuel heat content)	Maximum Annual Fuel usage
Drill Rig Equipment									
	Main Drill Rig Engine 1	Wärtsilä 8L26A2	Non-propulsion	ULSD	1200 hr/yr	205.8 g fuel/kWh	2480 kW	22 MMBtu/hr	200153 gal/yr
	Main Drill Rig Engine 2	Wärtsilä 8L26A2	Non-propulsion	ULSD	1200 hr/yr	205.8 g fuel/kWh	2480 kW	22 MMBtu/hr	200153 gal/yr
	Main Drill Rig Engine 3	Wärtsilä 8L26A2	Non-propulsion	ULSD	1200 hr/yr	205.8 g fuel/kWh	2480 kW	22 MMBtu/hr	200153 gal/yr
	Main Drill Rig Engine 4	Wärtsilä 8L26A2	Non-propulsion	ULSD	1200 hr/yr	205.8 g fuel/kWh	2480 kW	22 MMBtu/hr	200153 gal/yr
	Main Engine Uncontrolled 1	Wärtsilä 8L26A2	Non-propulsion	ULSD	125 hr/yr	205.8 g fuel/kWh	2480 kW	22 MMBtu/hr	20849 gal/yr
	Main Engine Uncontrolled 2	Wärtsilä 8L26A2	Non-propulsion	ULSD	125 hr/yr	205.8 g fuel/kWh	2480 kW	22 MMBtu/hr	20849 gal/yr
	Emergency Back-up Engine	Caterpillar Diesel 3508 B	Non-propulsion	ULSD	75 hr/yr	205 g fuel/kWh	968 kW	8.6 MMBtu/hr	4864 gal/yr
	Cement Engine 1	Caterpillar 15 DITA	Non-propulsion	ULSD	131 hr/yr	29 gal/hr	403 kW	3.8 MMBtu/hr	3799 gal/yr
	Cement Engine 2	Caterpillar 15 DITA	Non-propulsion	ULSD	131 hr/yr	29 gal/hr	403 kW	3.8 MMBtu/hr	3799 gal/yr
	Logging Winch	Caterpillar C7 Acert Engine	Non-propulsion	ULSD	273 hr/yr	13 gal/hr	187 kW	1.8 MMBtu/hr	3626 gal/yr
	Heater 1	To be determined	Non-propulsion	ULSD	2400 hr/yr	26 gal/hr	3.5 MMBtu/hr [a]	3.5 MMBtu/hr	63590 gal/yr
	Heater 2	To be determined	Non-propulsion	ULSD	2400 hr/yr	26 gal/hr	3.5 MMBtu/hr [a]	3.5 MMBtu/hr	63590 gal/yr
	Incinerator	To be determined	Non-propulsion	Waste	65 tons/yr	276 lbs/hr	N A	1.7 MMBtu/hr	65 tons/yr
	Fuel Tank 1	71,000 gallons	Non-propulsion	ULSD	2400 hrs/yr	492790 gal/yr*	N A	N A	492790 gal/yr*
	Fuel Tank 2	71,000 gallons	Non-propulsion	ULSD	2400 hrs/yr	492790 gal/yr*	N A	N A	492790 gal/yr*
	Mud Degassing	Water Based Mud & Cuttings	Non-propulsion	Well Gas	100 days/yr	N A	20000 scf/day	N A	N A

[a] Heat input rate *Max throughput

Ice Breaker 1									
	Main Engine 1	Wärtsilä Vasa 16V32/6000kW	Propulsion	ULSD	675 hr/yr	426 gal/hr	8046 bhp	56.3 MMBtu/hr	287801 galyr
	Main Engine 2	Wärtsilä Vasa 16V32/6000kW	Propulsion	ULSD	675 hr/yr	426 gal/hr	8046 bhp	56.3 MMBtu/hr	287801 galyr
	Main Engine 3	Wärtsilä Vasa 12V32/4500 kW	Propulsion	ULSD	675 hr/yr	320 gal/hr	6035 bhp	42.2 MMBtu/hr	215869 galyr
	Main Engine 4	Wärtsilä Vasa 12V32/4500 kW	Propulsion	ULSD	675 hr/yr	320 gal/hr	6035 bhp	42.2 MMBtu/hr	215869 galyr
	Harbor Generator	Wärtsilä Vasa 4R22 - 710kW	Propulsion	ULSD	34 hr/yr	50 gal/hr	952 bhp	6.7 MMBtu/hr	1702 galyr
	Emergency Generator	Caterpillar 3412 - 300kW	Propulsion	ULSD	34 hr/yr	21 gal/hr	402 bhp	2.8 MMBtu/hr	719 galyr
	Boiler 1	Aquamaster Rauma Unex BH-2000	Propulsion	ULSD	675 hr/yr	28 gal/hr	3.7 MMBtu/hr [a]	3.7 MMBtu/hr	18900 galyr
	Boiler 2	Aquamaster Rauma Unex BH-2000	Propulsion	ULSD	675 hr/yr	28 gal/hr	3.7 MMBtu/hr [a]	3.7 MMBtu/hr	18900 galyr
	Incinerator	Aquamaster Rauma Unex BH-2000	Propulsion	Waste	675 hr/yr	175 lb/hr	N A	1.1 MMBtu/hr	118125 lb/yr

[a] Heat input rate

Ice Breaker 2									
	Main Engine 1	Wärtsilä Vasa 16V32/6000kW	Propulsion	ULSD	675 hr/yr	426 gal/hr	8046 bhp	56.3 MMBtu/hr	287801 gal/yr
	Main Engine 2	Wärtsilä Vasa 16V32/6000kW	Propulsion	ULSD	675 hr/yr	426 gal/hr	8046 bhp	56.3 MMBtu/hr	287801 gal/yr
	Main Engine 3	Wärtsilä Vasa 12V32/4500 kW	Propulsion	ULSD	675 hr/yr	320 gal/hr	6035 bhp	42.2 MMBtu/hr	215869 gal/yr
	Main Engine 4	Wärtsilä Vasa 12V32/4500 kW	Propulsion	ULSD	675 hr/yr	320 gal/hr	6035 bhp	42.2 MMBtu/hr	215869 gal/yr
	Harbor Generator	Wärtsilä Vasa 4R22 - 710kW	Propulsion	ULSD	34 hr/yr	50 gal/hr	952 bhp	6.7 MMBtu/hr	1702 gal/yr
	Emergency Generator	Caterpillar 3412 - 300kW	Propulsion	ULSD	34 hr/yr	21 gal/hr	402 bhp	2.8 MMBtu/hr	719 gal/yr
	Boiler 1	Aquamaster Rauma Unex BH-2000	Propulsion	ULSD	675 hr/yr	28 gal/hr	3.7 MMBtu/hr [a]	3.7 MMBtu/hr	18900 gal/yr
	Boiler 2	Aquamaster Rauma Unex BH-2000	Propulsion	ULSD	675 hr/yr	28 gal/hr	3.7 MMBtu/hr [a]	3.7 MMBtu/hr	18900 gal/yr
	Incinerator	Aquamaster Rauma Unex BH-2000	Propulsion	Waste	675 hr/yr	175 lb/hr	N A	1.1 MMBtu/hr	118125 lb/yr

[a] Heat input rate

Oil Spill Response Vessel 1 (Dedicated OSRV)			**Operates continuously within 25 Mile Zone = 1500 hours anchored and 900 hours cruising**						
	Main Engine 1	Caterpillar 3516C	Propulsion-Cruising	ULSD	900 hr/yr	75 gal/hr	3000 bhp	9.9 MMBtu/hr	67500 gal/yr
	Main Engine 2	Caterpillar 3516C	Propulsion-Cruising	ULSD	900 hr/yr	75 gal/hr	3000 bhp	9.9 MMBtu/hr	67500 gal/yr
	Thruster Engine 1	Caterpillar C32	Refueling	ULSD	12 hr/yr	58 gal/hr	950 hp	7.7 MMBtu/hr	696 gal/yr
	Thruster Engine 2	Caterpillar C32	Refueling	ULSD	12 hr/yr	58 gal/hr	950 hp	7.7 MMBtu/hr	696 gal/yr
	Thruster Engine 3	Caterpillar C32	Refueling	ULSD	12 hr/yr	58 gal/hr	950 hp	7.7 MMBtu/hr	696 gal/yr
	Generator 1	Caterpillar C18	Propulsion-Anchored	ULSD	2400 hr/yr	27 gal/hr	400 kW	3.6 MMBtu/hr	64800 gal/yr
	Generator 2	Caterpillar C18	Propulsion-Anchored	ULSD	300 hr/yr	27 gal/hr	400 kW	3.6 MMBtu/hr	8100 gal/yr
	Generator 3	Caterpillar C18	Propulsion-Anchored	ULSD	0 hr/yr	27 gal/hr	400 kW	3.6 MMBtu/hr	0 gal/yr
	Emergency Generator	Caterpillar C4.4	Propulsion-Anchored	ULSD	30 hr/yr	8 gal/hr	99 kW	1.1 MMBtu/hr	240 gal/yr

Devil's Paw Prospect Proposed Allowable Emissions

Emissions Unit Inventory

Emissions Unit			Classification /	Fuel	Allowable	Maximum	Maximum	Form EUD	
	Description	Type	Mode	Type	Operation	Fuel Usage	Output Capacity	Maximum Heat Input (fuel usage x fuel heat content)	Maximum Annual Fuel usage
Oil Spill Response Vessel 2			**Only operates during spill exercises 48 hrs + 12 hrs travel time**						
	Main Engine 1	Caterpillar 3516C	Propulsion-Cruising	ULSD	60 hr/yr	75 gal/hr	3000 bhp	9.9 MMBtu/hr	4500 gal/yr
	Main Engine 2	Caterpillar 3516C	Propulsion-Cruising	ULSD	60 hr/yr	75 gal/hr	3000 bhp	9.9 MMBtu/hr	4500 gal/yr
	Thruster Engine 1	Caterpillar C32	Propulsion-idling	ULSD	48 hr/yr	58 gal/hr	950 hp	7.7 MMBtu/hr	2784 gal/yr
	Thruster Engine 2	Caterpillar C32	Propulsion-idling	ULSD	48 hr/yr	58 gal/hr	950 hp	7.7 MMBtu/hr	2784 gal/yr
	Thruster Engine 3	Caterpillar C32	Propulsion-idling	ULSD	48 hr/yr	58 gal/hr	950 hp	7.7 MMBtu/hr	2784 gal/yr
	Generator 1	Caterpillar C18	Propulsion-Anchored & Cruising	ULSD	60 hr/yr	27 gal/hr	400 kW	3.6 MMBtu/hr	1620 gal/yr
	Generator 2	Caterpillar C18	Propulsion- Anchored	ULSD	30 hr/yr	27 gal/hr	400 kW	3.6 MMBtu/hr	810 gal/yr
	Generator 3	Caterpillar C18	Propulsion-Anchored	ULSD	0 hr/yr	27 gal/hr	400 kW	3.6 MMBtu/hr	0 gal/yr
	Emergency Generator	Caterpillar C4.4	Propulsion- Anchored	ULSD	2 hr/yr	8 gal/hr	99 kW	1.1 MMBtu/hr	16 gal/yr
Anchor Handling Supply Tug (AHST)			**20 hours for 3-movement events**						
	Main Engine 1	Cat 3608	Propulsion	ULSD	60 hr/yr	160 gal/hr	2529 kW	21.1 MMBtu/hr	9600 gal/yr
	Main Engine 2	Cat 3608	Propulsion	ULSD	60 hr/yr	160 gal/hr	2529 kW	21.1 MMBtu/hr	9600 gal/yr
	Generator 1	Cat 3406	Propulsion	ULSD	60 hr/yr	25 gal/hr	380 kW	3.3 MMBtu/hr	1500 gal/yr
	Generator 2	Cat 3406	Propulsion	ULSD	12 hr/yr	25 gal/hr	380 kW	3.3 MMBtu/hr	300 gal/yr
	Generator 3	Cat 3406	Propulsion	ULSD	0 hr/yr	25 gal/hr	380 kW	3.3 MMBtu/hr	0 gal/yr
	Emergency Generator	Cat 3306	Propulsion	ULSD	6 hr/yr	6 gal/hr	170 kW	0.7 MMBtu/hr	34 gal/yr
Offshore Supply Vessels (OSV1 & OSV2)			**Up to 60 trips per year (6 hrs transit and 6 hrs DP for offloading per trip)**						
	Main Engine 1	Caterpillar 3516C	Propulsion -cruising	ULSD	360 hr/yr	75 gal/hr	3000 bhp	9.9 MMBtu/hr	27000 gal/yr
	Main Engine 1	Caterpillar 3516C	Propulsion-idling	ULSD	100 hr/yr	67 gal/hr	3000 bhp	8.9 MMBtu/hr	6700 gal/yr
	Main Engine 2	Caterpillar 3516C	Propulsion -cruising	ULSD	360 hr/yr	75 gal/hr	3000 bhp	9.9 MMBtu/hr	27000 gal/yr
	Main Engine 2	Caterpillar 3516C	Propulsion-idling	ULSD	100 hr/yr	67 gal/hr	3000 bhp	8.9 MMBtu/hr	6700 gal/yr
	Thruster Engine 1	Caterpillar C32	dynamic positioning	ULSD	360 hr/yr	58 gal/hr	950 bhp	7.7 MMBtu/hr	20880 gal/yr
	Thruster Engine 2	Caterpillar C32	dynamic positioning	ULSD	360 hr/yr	58 gal/hr	950 bhp	7.7 MMBtu/hr	20880 gal/yr
	Thruster Engine 3	Caterpillar C32	dynamic positioning	ULSD	360 hr/yr	58 gal/hr	950 hp	7.7 MMBtu/hr	20880 gal/yr
	Generator	Caterpillar C18	Propulsion	ULSD	820 hr/yr	27 gal/hr	400 kW	3.6 MMBtu/hr	22140 gal/yr
	Generator	Caterpillar C18	Propulsion	ULSD	120 hr/yr	27 gal/hr	400 kW	3.6 MMBtu/hr	3240 gal/yr
	Generator	Caterpillar C18	Propulsion	ULSD	0 hr/yr	27 gal/hr	400 kW	3.6 MMBtu/hr	0 gal/yr
	Emergency Generator	Caterpillar C4.4	Propulsion	ULSD	30 hr/yr	8 gal/hr	99 kW	1.1 MMBtu/hr	240 gal/yr
Ware Vessel (WV) w/ OSV backup			**Up to 50 trips per year (6 hrs transit and 6 hrs DP for offloading per trip)**						
	Main Engine 1	Caterpillar 3516C	Propulsion Cruising	ULSD	300 hr/yr	87 gal/hr	3200 hp	11.5 MMBtu/hr	26100 gal/yr
	Main Engine 2	Caterpillar 3516C	Propulsion-Cruising	ULSD	300 hr/yr	87 gal/hr	3200 hp	11.5 MMBtu/hr	26100 gal/yr
	Main Engine 3	Caterpillar 3516C	DP and Idling	ULSD	400 hr/yr	81 gal/hr	3200 hp	10.7 MMBtu/hr	32400 gal/yr
	Main Engine 4	Caterpillar 3516C	DP and Idling	ULSD	400 hr/yr	81 gal/hr	3200 hp	10.7 MMBtu/hr	32400 gal/yr
	Generator 1	Caterpillar C18	Propulsion	ULSD	700 hr/yr	32 gal/hr	500 kW	4.2 MMBtu/hr	22400 gal/yr
	Generator 2	Caterpillar C18	Propulsion	ULSD	100 hr/yr	32 gal/hr	500 kW	4.2 MMBtu/hr	3200 gal/yr
	Generator 3	Caterpillar C18	Propulsion	ULSD	0 hr/yr	32 gal/hr	500 kW	4.2 MMBtu/hr	0 gal/yr
	Emergency Generator	Caterpillar 3306	Propulsion	ULSD	30 hr/yr	12 gal/hr	170 kW	1.6 MMBtu/hr	360 gal/yr
34' boom work boats - 4			**48 hours for spill exercises**						
	WB-1 Propulsion Engine 1	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp	4.0 MMBtu/hr	1440 gal/yr
	WB-1 Propulsion Engine 2	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp	4.0 MMBtu/hr	1440 gal/yr
	WB-2 Propulsion Engine 1	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp	4.0 MMBtu/hr	1440 gal/yr
	WB-2 Propulsion Engine 2	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp	4.0 MMBtu/hr	1440 gal/yr
	WB-3 Propulsion Engine 1	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp	4.0 MMBtu/hr	1440 gal/yr
	WB-3 Propulsion Engine 2	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp	4.0 MMBtu/hr	1440 gal/yr
	WB-4 Propulsion Engine 1	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp	4.0 MMBtu/hr	1440 gal/yr
	WB-4 Propulsion Engine 2	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp	4.0 MMBtu/hr	1440 gal/yr

Devil's Paw Prospect Proposed Allowable Emissions

Emissions Unit Inventory

Emissions Unit			Classification /	Fuel	Allowable	Maximum	Maximum	Form EUD Maximum	Form EUD Maximum
	Description	Type	Mode	Type	Operation	Fuel Usage	Output Capacity	Heat Input	Annual Fuel usage
								(fuel usage x fuel heat content)	
Marine Research Vessel			**600 hours per year**						
	Main Engine	Caterpillar	Propulsion	ULSD	600 hr/yr	45 gal/hr	850 hp	6.0 MMBtu/hr	27026 gal/yr
	Generator 1	Caterpillar	Propulsion	ULSD	600 hr/yr	10 gal/hr	135 kW	1.3 MMBtu/hr	5754 gal/yr
	Generator 2	Caterpillar	Propulsion	ULSD	600 hr/yr	6 gal/hr	90 kW	0.8 MMBtu/hr	3836 gal/yr
	Generator 3	Caterpillar	Propulsion	ULSD	600 hr/yr	3 gal/hr	40 kW	0.4 MMBtu/hr	1705 gal/yr
Spill Storage Tanker			**48 hours for spill exercises**						
	Main Engine 1	Panamax class sized	Propulsion	ULSD	12 hr/yr	89 gal/hr	1674 hp	11.7 MMBtu/hr	1064 gal/yr
	Main Engine 2	Panamax class sized	Propulsion	ULSD	12 hr/yr	89 gal/hr	1674 hp	11.7 MMBtu/hr	1064 gal/yr
	Generator 1	Panamax class sized	Propulsion	ULSD	48 hr/yr	41 gal/hr	576 kW	5.4 MMBtu/hr	1965 gal/yr
	Boiler 1	Panamax class sized	Propulsion	ULSD	48 hr/yr	109.2 gal/hr	14.4 MMBtu/hr	14.4 MMBtu/hr	5240 gal/yr
All Vessels Fuel Tanks									
	Fuel Tank	100,000 gallons	Propulsion	ULSD	2400 hr/yr	2703975 gal/yr*	N A	N A	2703975 gal/yr*

*Max throughput

Notes:

Seasonal drilling days= **100**

1 I kW = 1.3405 hp; 1 lb = 454 g; assumed break specific fuel consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1) and fuel heat content of 132,096 Btu/gal ULSD #1 (Tesoro/Kenai Refinery).
2 Assumed well gas heat content of 1,085 Btu/scf for test flare (email from Dan Lowe 1/7/09) and propane heat content of 2,516 Btu/scf for flare pilot & purge (National Propane Gas Association http://www.npga.org/i4a/pages/index.cfm?pageic
3 ULSD #1 has a density of 0.8094 kg/L (Tesoro/Kenai Refinery); so assume 6.74 lbs/ gal diesel
4 Incinerator waste fuel heat content is assumed 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17).
5 Fuel Usage is back calculated from Max Output capacity when not available from manufacturer specifications (see calculations below).
6 Incinerators will burn ULSD for ignition purposes only.
7 An equivalent of 2 main drilling engines at 100% load will operate continuously for up to 100 days per season (4800 hrs).
8 Mud degassing emission rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977)
9 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 6 times per year).
10 Drill Rig incinerator operating hours calculated in the following way: (840 cubic feet of waste/week)/(27 cubic feet/cubic yard)*(14 weeks/season)*(300 lbs/cubic yard (EPA factor))/(2,000 lb/ton) = 65 tons/season

Calculations:

Max Fuel Usage (gal/hr) = Max output Capacity (hp)*(7,000 Btu/hp-h)/(132096 Btu/gal)
Max Fuel Usage (gal/hr) = Max output Capacity (kW)*(1.3405 hp/kW)*(7,000 Btu/hp-h)/(132096 Btu/gal)
Max Heat Input (MMBtu/hr) = Max output Capacity (kW)*Max fuel usage (g fuel/kWh)/(1000 g/Kg)/(0.8094 Kg/L)/(3.78 L/gal)*(132096 Btu/gal)/(1000000 Btu/MMBtu)
Max Heat Input (MMBtu/hr) = Max fuel usage (gal/hr)*(132096 Btu/gal)/1000000
Max Heat Input (MMBtu/hr) = Max fuel usage (lb/hr)*(6203 Btu/lb)/1000000

Devil's Paw Prospect Proposed Allowable Emissions

Emissions Unit Inventory - Annual PTE Options Summary

	Option Description	Potential Emissions Totals (tpy)								
		NO_x	CO	$PM_{10}/PM_{2.5}$	PM	VOC	SO_2	H2S	Pb	H2SO4
1	Ware Barge/Tug and 2 OSVs	225.3	173.6	13.7	22.8	25.6	0.6	0.02	0.03	0.04
2	Ware Vessel (w/ 2 backup OSVs)	222.7	172.8	13.6	22.7	25.6	0.6	0.02	0.03	0.04

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Option 1 - Ware Barge/Tug and 2 OSV's

Source Description	Potential Emissions Totals (tpy)								
	NO_X	CO	$PM_{10}/PM_{2.5}$	PM	VOC	SO_2	H2S	Pb	H2SO4
Drill Rig Equipment	34.84	47.27	3.74	6.12	10.38	1.9E-01	0.02	8.8E-03	0.01
Ice Breaker 1	46.28	52.71	4.05	6.91	6.32	1.8E-01	0.00	8.2E-03	0.01
Ice Breaker 2	46.28	52.71	4.05	6.92	6.32	1.8E-01	0.00	8.2E-03	0.01
Oil Spill Response Vessel 1 (Dedicated OSRV)	44.74	8.94	0.86	1.25	1.20	2.1E-02	0.00	4.0E-04	0.00
Oil Spill Response Vessel 2	4.19	1.02	0.08	0.13	0.11	2.0E-03	0.00	3.8E-05	0.00
Anchor Handling Supply Tug (AHST)	4.45	1.11	0.08	0.14	0.12	2.1E-03	0.00	4.0E-05	0.00
Offshore Supply Vessels (OSV1 & OSV2)	33.01	7.74	0.61	0.98	0.86	1.6E-02	0.00	3.0E-04	0.00
34' boom work boats - 4	2.48	0.20	0.05	0.05	0.07	1.2E-03	0.00	2.2E-05	0.00
Marine Research Vessel	8.15	1.71	0.15	0.23	0.22	3.9E-03	0.00	7.3E-05	0.00
Spill Storage Tanker	0.93	0.17	0.02	0.03	0.02	9.4E-04	0.00	1.1E-05	0.00
All Vessels Fuel Tanks	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Totals	**225.34**	**173.56**	**13.69**	**22.75**	**25.64**	**0.59**	**0.02**	**0.03**	**0.04**

Source Description	Non- OCS Source Emissions (tpy)								
	NO_X	CO	$PM_{10}/PM_{2.5}$	PM	VOC	SO_2	H2S	Pb	H2SO4
Drill Rig Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ice Breaker 1	46.28	52.71	4.05	6.91	6.32	1.8E-01	0.00	8.2E-03	0.01
Ice Breaker 2	46.28	52.71	4.05	6.92	6.32	1.8E-01	0.00	8.2E-03	0.01
Oil Spill Response Vessel 1 (Dedicated OSRV)	44.74	8.94	0.86	1.25	1.20	2.1E-02	0.00	4.0E-04	0.00
Oil Spill Response Vessel 2	4.19	1.02	0.08	0.13	0.11	2.0E-03	0.00	3.8E-05	0.00
Anchor Handling Supply Tug (AHST)	4.45	1.11	0.08	0.14	0.12	2.1E-03	0.00	4.0E-05	0.00
Offshore Supply Vessels (OSV1 & OSV2)	33.01	7.74	0.61	0.98	0.86	1.6E-02	0.00	3.0E-04	0.00
34' boom work boats - 4	2.48	0.20	0.05	0.05	0.07	1.2E-03	0.00	2.2E-05	0.00
Marine Research Vessel	8.15	1.71	0.15	0.23	0.22	3.9E-03	0.00	7.3E-05	0.00
Spill Storage Tanker	0.93	0.17	0.02	0.03	0.02	9.4E-04	0.00	1.1E-05	0.00
All Vessels Fuel Tanks	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Totals	**190.50**	**126.29**	**9.96**	**16.63**	**15.25**	**0.41**	**0.00**	**0.02**	**0.03**

Source Description	OCS Source Emissions (tpy)								
	NO_X	CO	$PM_{10}/PM_{2.5}$	PM	VOC	SO_2	H2S	Pb	H2SO4
Drill Rig Equipment	34.84	47.27	3.74	6.12	10.38	0.19	0.02	0.01	0.01
Ice Breaker 1	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
Ice Breaker 2	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
Oil Spill Response Vessel 1 (Dedicated OSRV)	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
Oil Spill Response Vessel 2	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
Anchor Handling Supply Tug (AHST)	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
Offshore Supply Vessels (OSV1 & OSV2)	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
34' boom work boats - 4	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
Marine Research Vessel	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
Spill Storage Tanker	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
All Vessels Fuel Tanks	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
Totals	**34.84**	**47.27**	**3.74**	**6.12**	**10.38**	**0.19**	**0.02**	**0.01**	**0.01**

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Option 2 - Ware Vessel (w/ 2 backup OSVs)

Source Description	Potential Emissions Totals (tpy)								
	NO_X	CO	$PM_{10}/PM_{2.5}$	PM	VOC	SO_2	H2S	Pb	H2SO4
Drill Rig Equipment	34.84	47.27	3.74	6.12	10.38	1.9E-01	0.02	8.8E-03	0.01
Ice Breaker 1	46.28	52.71	4.05	6.91	6.32	1.8E-01	0.00	8.2E-03	0.01
Ice Breaker 2	46.28	52.71	4.05	6.92	6.32	1.8E-01	0.00	8.2E-03	0.01
Oil Spill Response Vessel 1 (Dedicated OSRV)	44.74	8.94	0.86	1.25	1.20	2.1E-02	0.00	4.0E-04	0.00
Oil Spill Response Vessel 2	4.19	1.02	0.08	0.13	0.11	2.0E-03	0.00	3.8E-05	0.00
Anchor Handling Supply Tug (AHST)	4.45	1.11	0.08	0.14	0.12	2.1E-03	0.00	4.0E-05	0.00
Ware Vessel (WV) w/ OSV backup	30.32	7.01	0.56	0.89	0.79	1.4E-02	0.00	2.7E-04	0.00
34' boom work boats - 4	2.48	0.20	0.05	0.05	0.07	1.2E-03	0.00	2.2E-05	0.00
Marine Research Vessel	8.15	1.71	0.15	0.23	0.22	3.9E-03	0.00	7.3E-05	0.00
Spill Storage Tanker	0.93	0.17	0.02	0.03	0.02	9.4E-04	0.00	1.1E-05	0.00
All Vessels Fuel Tanks	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Totals	222.66	172.84	13.65	22.66	25.57	0.59	0.02	0.03	0.04

Source Description	Non- OCS Source Emissions (tpy)								
	NO_X	CO	$PM_{10}/PM_{2.5}$	PM	VOC	SO_2	H2S	Pb	H2SO4
Drill Rig Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ice Breaker 1	46.28	52.71	4.05	6.91	6.32	1.8E-01	0.00	8.2E-03	0.01
Ice Breaker 2	46.28	52.71	4.05	6.92	6.32	1.8E-01	0.00	8.2E-03	0.01
Oil Spill Response Vessel 1 (Dedicated OSRV)	44.74	8.94	0.86	1.25	1.20	2.1E-02	0.00	4.0E-04	0.00
Oil Spill Response Vessel 2	4.19	1.02	0.08	0.13	0.11	2.0E-03	0.00	3.8E-05	0.00
Anchor Handling Supply Tug (AHST)	4.45	1.11	0.08	0.14	0.12	2.1E-03	0.00	4.0E-05	0.00
Ware Vessel (WV) w/ OSV backup	30.32	7.01	0.56	0.89	0.79	1.4E-02	0.00	2.7E-04	0.00
34' boom work boats - 4	2.48	0.20	0.05	0.05	0.07	1.2E-03	0.00	2.2E-05	0.00
Marine Research Vessel	8.15	1.71	0.15	0.23	0.22	3.9E-03	0.00	7.3E-05	0.00
Spill Storage Tanker	0.93	0.17	0.02	0.03	0.02	9.4E-04	0.00	1.1E-05	0.00
All Vessels Fuel Tanks	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Totals	187.82	125.57	9.91	16.54	15.19	0.41	0.00	0.02	0.03

Source Description	OCS Source Emissions (tpy)								
	NO_X	CO	$PM_{10}/PM_{2.5}$	PM	VOC	SO_2	H2S	Pb	H2SO4
Drill Rig Equipment	34.84	47.27	3.74	6.12	10.38	0.19	0.02	0.01	0.01
Ice Breaker 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ice Breaker 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oil Spill Response Vessel 1 (Dedicated OSRV)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oil Spill Response Vessel 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Anchor Handling Supply Tug (AHST)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ware Vessel (WV) w/ OSV backup	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34' boom work boats - 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Marine Research Vessel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Spill Storage Tanker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
All Vessels Fuel Tanks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Totals	34.84	47.27	3.74	6.12	10.38	0.19	0.02	0.01	0.01

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Uncontrolled Emissions Summary

Source Description	Option 1 - Ware Barge/Tug and 2 OSV's Emissions Totals (tpy)								
	NO_X	CO	$PM_{10}/PM_{2.5}$	PM	VOC	SO_2	H2S	Pb	H2SO4
Drill Rig Equipment	114.98	47.27	3.74	6.12	10.38	1.85E-01	0.02	8.77E-03	0.01
Ice Breaker 1	212.90	52.71	4.05	6.91	6.32	1.80E-01	0.00	8.25E-03	0.01
Ice Breaker 2	212.90	52.71	4.05	6.92	6.32	1.80E-01	0.00	8.25E-03	0.01
Oil Spill Response Vessel 1 (Dedicated OSRV)	44.74	8.94	0.86	1.25	1.20	2.13E-02	0.00	4.03E-04	0.00
Oil Spill Response Vessel 2	4.19	1.02	0.08	0.13	0.11	2.00E-03	0.00	3.79E-05	0.00
Anchor Handling Supply Tug (AHST)	4.45	1.11	0.08	0.14	0.12	2.13E-03	0.00	4.03E-05	0.00
Offshore Supply Vessels (OSV1 & OSV2)	33.01	7.74	0.61	0.98	0.86	1.57E-02	0.00	2.98E-04	0.00
34' boom work boats - 4	2.48	0.20	0.05	0.05	0.07	1.16E-03	0.00	2.21E-05	0.00
Marine Research Vessel	8.15	1.71	0.15	0.23	0.22	3.87E-03	0.00	7.34E-05	0.00
Spill Storage Tanker	0.93	0.17	0.02	0.03	0.02	9.44E-04	0.00	1.10E-05	0.00
All Vessels Fuel Tanks	0.00	0.00	0.00	0.00	0.01	0.00E+00	0.00	0.00E+00	0.00
Totals	638.73	173.56	13.69	22.75	25.64	0.59	0.02	0.03	0.04

Source Description	Option 2 - Ware Vessel (w/ 2 backup OSVs) Emissions Totals (tpy)								
	NO_X	CO	$PM_{10}/PM_{2.5}$	PM	VOC	SO_2	H2S	Pb	H2SO4
Drill Rig Equipment	114.98	47.27	3.74	6.12	10.38	1.85E-01	0.02	8.77E-03	0.01
Ice Breaker 1	212.90	52.71	4.05	6.91	6.32	1.80E-01	0.00	8.25E-03	0.01
Ice Breaker 2	212.90	52.71	4.05	6.92	6.32	1.80E-01	0.00	8.25E-03	0.01
Oil Spill Response Vessel 1 (Dedicated OSRV)	44.74	8.94	0.86	1.25	1.20	2.13E-02	0.00	4.03E-04	0.00
Oil Spill Response Vessel 2	4.19	1.02	0.08	0.13	0.11	2.00E-03	0.00	3.79E-05	0.00
Anchor Handling Supply Tug (AHST)	4.45	1.11	0.08	0.14	0.12	2.13E-03	0.00	4.03E-05	0.00
Ware Vessel (WV) w/ OSV backup	30.32	7.01	0.56	0.89	0.79	1.45E-02	0.00	2.74E-04	0.00
34' boom work boats - 4	2.48	0.20	0.05	0.05	0.07	1.16E-03	0.00	2.21E-05	0.00
Marine Research Vessel	8.15	1.71	0.15	0.23	0.22	3.87E-03	0.00	7.34E-05	0.00
Spill Storage Tanker	0.00	0.17	0.02	0.03	0.02	9.44E-04	0.00	1.10E-05	0.00
All Vessels Fuel Tanks	0.00	0.00	0.00	0.00	0.01	0.00E+00	0.00	0.00E+00	0.00
Totals	635.12	172.84	13.65	22.66	25.57	0.59	0.02	0.03	0.04

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit		Allowable	Maximum	Maximum	Potential NO_X Emissions			Potential CO Emissions		
	Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Drill Rig Equipment										
	Main Drill Rig Engine 1	1200 hr/yr	206 g fuel/kWh	2480 kW		6.00E+00	6.00E+00		1.10E+01	1.10E+01
	Main Drill Rig Engine 2	1200 hr/yr	206 g fuel/kWh	2480 kW		6.00E+00	6.00E+00		1.10E+01	1.10E+01
	Main Drill Rig Engine 3	1200 hr/yr	206 g fuel/kWh	2480 kW		6.00E+00	6.00E+00		1.10E+01	1.10E+01
	Main Drill Rig Engine 4	1200 hr/yr	206 g fuel/kWh	2480 kW		6.00E+00	6.00E+00		1.10E+01	1.10E+01
	Main Engine Uncontrolled 1	125 hr/yr	206 g fuel/kWh	2480 kW		2.99E+00	2.99E+00		1.14E+00	1.14E+00
	Main Engine Uncontrolled 2	125 hr/yr	206 g fuel/kWh	2480 kW		2.99E+00	2.99E+00		1.14E+00	1.14E+00
	Emergency Back-up Engine	75 hr/yr	205 g fuel/kWh	968 kW		1.09E+00	1.09E+00		2.68E-01	2.68E-01
	Cement Engine 1	131 hr/yr	29 gal/hr	403 kW		8.08E-01	8.08E-01		6.39E-02	6.39E-02
	Cement Engine 2	131 hr/yr	29 gal/hr	403 kW		8.08E-01	8.08E-01		6.39E-02	6.39E-02
	Logging Winch	273 hr/yr	13 gal/hr	187 kW		7.82E-01	7.82E-01		6.18E-02	6.18E-02
	Heater 1	2400 hr/yr	26 gal/hr	4 MMBtu/hr a		6.36E-01	6.36E-01		1.59E-01	1.59E-01
	Heater 2	2400 hr/yr	26 gal/hr	4 MMBtu/hr a		6.36E-01	6.36E-01		1.59E-01	1.59E-01
	Incinerator	65 tons/yr	276 lbs/hr	N A		9.80E-02	9.80E-02		3.27E-01	3.27E-01
	Fuel Tank 1	2400 hrs/yr	492790 gal/yr*	N A		N	N		N	N
	Fuel Tank 2	2400 hrs/yr	492790 gal/yr*	N A		N	N		N	N
	Mud Degassing	100 days/yr	N A	20000 scf/day		N	N		N	N
			*max throughput		0.00E+00	3.48E+01	3.48E+01	0.00E+00	4.73E+01	4.73E+01
Ice Breaker 1										
	Main Engine 1	675 hr/yr	426 gal/hr	8046 bhp	1.29E+01		1.29E+01	1.49E+01		1.49E+01
	Main Engine 2	675 hr/yr	426 gal/hr	8046 bhp	1.29E+01		1.29E+01	1.49E+01		1.49E+01
	Main Engine 3	675 hr/yr	320 gal/hr	6035 bhp	9.71E+00		9.71E+00	1.12E+01		1.12E+01
	Main Engine 4	675 hr/yr	320 gal/hr	6035 bhp	9.71E+00		9.71E+00	1.12E+01		1.12E+01
	Harbor Generator	33.75 hr/yr	50 gal/hr	952 bhp	3.67E-01		3.67E-01	2.90E-02		2.90E-02
	Emergency Generator	33.75 hr/yr	21 gal/hr	402 bhp	1.55E-01		1.55E-01	1.23E-02		1.23E-02
	Boiler 1	675 hr/yr	28 gal/hr	4 MMBtu/hr a	1.89E-01		1.89E-01	4.73E-02		4.73E-02
	Boiler 2	675 hr/yr	28 gal/hr	4 MMBtu/hr a	1.89E-01		1.89E-01	4.73E-02		4.73E-02
	Incinerator	675 hr/yr	175 lb/hr	N A	8.86E-02		8.86E-02	2.95E-01		2.95E-01
					4.63E+01	0.00E+00	4.63E+01	5.27E+01	0.00E+00	5.27E+01
Ice Breaker 2										
	Main Engine 1	675 hr/yr	426 gal/hr	8046 bhp	1.29E+01		1.29E+01	1.49E+01		1.49E+01
	Main Engine 2	675 hr/yr	426 gal/hr	8046 bhp	1.29E+01		1.29E+01	1.49E+01		1.49E+01
	Main Engine 3	675 hr/yr	320 gal/hr	6035 bhp	9.71E+00		9.71E+00	1.12E+01		1.12E+01
	Main Engine 4	675 hr/yr	320 gal/hr	6035 bhp	9.71E+00		9.71E+00	1.12E+01		1.12E+01
	Harbor Generator	33.75 hr/yr	50 gal/hr	952 bhp	3.67E-01		3.67E-01	2.90E-02		2.90E-02
	Emergency Generator	33.75 hr/yr	21 gal/hr	402 bhp	1.55E-01		1.55E-01	1.23E-02		1.23E-02
	Boiler 1	675 hr/yr	28 gal/hr	4 MMBtu/hr a	1.89E-01		1.89E-01	4.73E-02		4.73E-02
	Boiler 2	675 hr/yr	28 gal/hr	4 MMBtu/hr a	1.89E-01		1.89E-01	4.73E-02		4.73E-02
	Incinerator	675 hr/yr	175 lb/hr	N A	8.86E-02		8.86E-02	2.95E-01		2.95E-01
					4.63E+01	0.00E+00	4.63E+01	5.27E+01	0.00E+00	5.27E+01
Oil Spill Response Vessel 1 (Dedicated OSRV)										
	Main Engine 1	900 hr/yr	75 gal/hr	3000 bhp	1.43E+01		1.43E+01	3.79E+00		3.79E+00
	Main Engine 2	900 hr/yr	75 gal/hr	3000 bhp	1.43E+01		1.43E+01	3.79E+00		3.79E+00
	Thruster Engine 1	12 hr/yr	58 gal/hr	950 hp	1.47E-01		1.47E-01	3.91E-02		3.91E-02
	Thruster Engine 2	12 hr/yr	58 gal/hr	950 hp	1.47E-01		1.47E-01	3.91E-02		3.91E-02
	Thruster Engine 3	12 hr/yr	58 gal/hr	950 hp	1.47E-01		1.47E-01	3.91E-02		3.91E-02
	Generator 1	2400 hr/yr	27 gal/hr	400 kW	1.40E+01		1.40E+01	1.11E+00		1.11E+00
	Generator 2	300 hr/yr	27 gal/hr	400 kW	1.75E+00		1.75E+00	1.38E-01		1.38E-01
	Generator 3	0 hr/yr	27 gal/hr	400 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	5.17E-02		5.17E-02	4.09E-03		4.09E-03
					4.47E+01	0.00E+00	4.47E+01	8.94E+00	0.00E+00	8.94E+00

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit		Allowable	Maximum	Maximum	Potential $PM_{10}/PM_{2.5}$ Emissions			Potential PM Emissions		
	Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Drill Rig Equipment										
	Main Drill Rig Engine 1	1200 hr/yr	206 g fuel/kWh	2480 kW		8.00E-01	8.00E-01		1.40E+00	1.40E+00
	Main Drill Rig Engine 2	1200 hr/yr	206 g fuel/kWh	2480 kW		8.00E-01	8.00E-01		1.40E+00	1.40E+00
	Main Drill Rig Engine 3	1200 hr/yr	206 g fuel/kWh	2480 kW		8.00E-01	8.00E-01		1.40E+00	1.40E+00
	Main Drill Rig Engine 4	1200 hr/yr	206 g fuel/kWh	2480 kW		8.00E-01	8.00E-01		1.40E+00	1.40E+00
	Main Engine Uncontrolled 1	125 hr/yr	206 g fuel/kWh	2480 kW		8.33E-02	8.33E-02		1.45E-01	1.45E-01
	Main Engine Uncontrolled 2	125 hr/yr	206 g fuel/kWh	2480 kW		8.33E-02	8.33E-02		1.45E-01	1.45E-01
	Emergency Back-up Engine	75 hr/yr	205 g fuel/kWh	968 kW		1.95E-02	1.95E-02		3.41E-02	3.41E-02
	Cement Engine 1	131 hr/yr	29 gal/hr	403 kW		1.75E-02	1.75E-02		1.74E-02	1.74E-02
	Cement Engine 2	131 hr/yr	29 gal/hr	403 kW		1.75E-02	1.75E-02		1.74E-02	1.74E-02
	Logging Winch	273 hr/yr	13 gal/hr	187 kW		1.69E-02	1.69E-02		1.69E-02	1.69E-02
	Heater 1	2400 hr/yr	26 gal/hr	4 MMBtu/hr a		3.43E-02	3.43E-02		6.36E-02	6.36E-02
	Heater 2	2400 hr/yr	26 gal/hr	4 MMBtu/hr a		3.43E-02	3.43E-02		6.36E-02	6.36E-02
	Incinerator	65 tons/yr	276 lbs/hr	N A		2.29E-01	2.29E-01		3.16E-02	3.16E-02
	Fuel Tank 1	2400 hrs/yr	492790 gal/yr*	N A		N	N		N	N
	Fuel Tank 2	2400 hrs/yr	492790 gal/yr*	N A		N	N		N	N
	Mud Degassing	100 days/yr	N A	20000 scf/day		N	N		N	N
			*max throughput		0.00E+00	3.74E+00	3.74E+00	0.00E+00	6.12E+00	6.12E+00
Ice Breaker 1										
	Main Engine 1	675 hr/yr	426 gal/hr	8046 bhp	1.09E+00		1.09E+00	1.90E+00		1.90E+00
	Main Engine 2	675 hr/yr	426 gal/hr	8046 bhp	1.09E+00		1.09E+00	1.90E+00		1.90E+00
	Main Engine 3	675 hr/yr	320 gal/hr	6035 bhp	8.17E-01		8.17E-01	1.43E+00		1.43E+00
	Main Engine 4	675 hr/yr	320 gal/hr	6035 bhp	8.17E-01		8.17E-01	1.43E+00		1.43E+00
	Harbor Generator	33.75 hr/yr	50 gal/hr	952 bhp	7.92E-03		7.92E-03	7.92E-03		7.92E-03
	Emergency Generator	33.75 hr/yr	21 gal/hr	402 bhp	3.35E-03		3.35E-03	3.35E-03		3.35E-03
	Boiler 1	675 hr/yr	28 gal/hr	4 MMBtu/hr a	1.02E-02		1.02E-02	1.89E-02		1.89E-02
	Boiler 2	675 hr/yr	28 gal/hr	4 MMBtu/hr a	1.02E-02		1.02E-02	1.89E-02		1.89E-02
	Incinerator	675 hr/yr	175 lb/hr	N A	2.07E-01		2.07E-01	2.07E-01		2.07E-01
					4.05E+00	0.00E+00	4.05E+00	6.91E+00	0.00E+00	6.91E+00
Ice Breaker 2										
	Main Engine 1	675 hr/yr	426 gal/hr	8046 bhp	1.09E+00		1.09E+00	1.90E+00		1.90E+00
	Main Engine 2	675 hr/yr	426 gal/hr	8046 bhp	1.09E+00		1.09E+00	1.90E+00		1.90E+00
	Main Engine 3	675 hr/yr	320 gal/hr	6035 bhp	8.17E-01		8.17E-01	1.43E+00		1.43E+00
	Main Engine 4	675 hr/yr	320 gal/hr	6035 bhp	8.17E-01		8.17E-01	1.43E+00		1.43E+00
	Harbor Generator	33.75 hr/yr	50 gal/hr	952 bhp	7.92E-03		7.92E-03	1.42E-02		1.42E-02
	Emergency Generator	33.75 hr/yr	21 gal/hr	402 bhp	3.35E-03		3.35E-03	6.01E-03		6.01E-03
	Boiler 1	675 hr/yr	28 gal/hr	4 MMBtu/hr a	1.02E-02		1.02E-02	1.89E-02		1.89E-02
	Boiler 2	675 hr/yr	28 gal/hr	4 MMBtu/hr a	1.02E-02		1.02E-02	1.89E-02		1.89E-02
	Incinerator	675 hr/yr	175 lb/hr	N A	2.07E-01		2.07E-01	2.07E-01		2.07E-01
					4.05E+00	0.00E+00	4.05E+00	6.92E+00	0.00E+00	6.92E+00
Oil Spill Response Vessel 1 (Dedicated OSRV)										
	Main Engine 1	900 hr/yr	75 gal/hr	3000 bhp	2.55E-01		2.55E-01	4.46E-01		4.46E-01
	Main Engine 2	900 hr/yr	75 gal/hr	3000 bhp	2.55E-01		2.55E-01	4.46E-01		4.46E-01
	Thruster Engine 1	12 hr/yr	58 gal/hr	950 hp	2.63E-03		2.63E-03	4.60E-03		4.60E-03
	Thruster Engine 2	12 hr/yr	58 gal/hr	950 hp	2.63E-03		2.63E-03	4.60E-03		4.60E-03
	Thruster Engine 3	12 hr/yr	58 gal/hr	950 hp	2.63E-03		2.63E-03	4.60E-03		4.60E-03
	Generator 1	2400 hr/yr	27 gal/hr	400 kW	3.01E-01		3.01E-01	3.01E-01		3.01E-01
	Generator 2	300 hr/yr	27 gal/hr	400 kW	3.77E-02		3.77E-02	3.77E-02		3.77E-02
	Generator 3	0 hr/yr	27 gal/hr	400 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	1.12E-03		1.12E-03	1.12E-03		1.12E-03
					8.59E-01	0.00E+00	8.59E-01	1.25E+00	0.00E+00	1.25E+00

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit		Allowable	Maximum	Maximum	Potential VOC Emissions			Potential SO_2 Emissions		
	Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Drill Rig Equipment										
	Main Drill Rig Engine 1	1200 hr/yr	206 g fuel/kWh	2480 kW		1.28E+00	1.28E+00		2.14E-02	2.14E-02
	Main Drill Rig Engine 2	1200 hr/yr	206 g fuel/kWh	2480 kW		1.28E+00	1.28E+00		2.14E-02	2.14E-02
	Main Drill Rig Engine 3	1200 hr/yr	206 g fuel/kWh	2480 kW		1.28E+00	1.28E+00		2.14E-02	2.14E-02
	Main Drill Rig Engine 4	1200 hr/yr	206 g fuel/kWh	2480 kW		1.28E+00	1.28E+00		2.14E-02	2.14E-02
	Main Engine Uncontrolled 1	125 hr/yr	206 g fuel/kWh	2480 kW		1.33E-01	1.33E-01		2.23E-03	2.23E-03
	Main Engine Uncontrolled 2	125 hr/yr	206 g fuel/kWh	2480 kW		1.33E-01	1.33E-01		2.23E-03	2.23E-03
	Emergency Back-up Engine	75 hr/yr	205 g fuel/kWh	968 kW		3.12E-02	3.12E-02		5.21E-04	5.21E-04
	Cement Engine 1	131 hr/yr	29 gal/hr	403 kW		2.32E-02	2.32E-02		2.93E-06	2.93E-06
	Cement Engine 2	131 hr/yr	29 gal/hr	403 kW		2.32E-02	2.32E-02		2.93E-06	2.93E-06
	Logging Winch	273 hr/yr	13 gal/hr	187 kW		2.25E-02	2.25E-02		3.67E-04	3.67E-04
	Heater 1	2400 hr/yr	26 gal/hr	4 MMBtu/hr a		6.36E-03	6.36E-03		6.43E-03	6.43E-03
	Heater 2	2400 hr/yr	26 gal/hr	4 MMBtu/hr a		6.36E-03	6.36E-03		6.43E-03	6.43E-03
	Incinerator	65 tons/yr	276 lbs/hr	N A		3.16E-02	3.16E-02		8.17E-02	8.17E-02
	Fuel Tank 1	2400 hrs/yr	492790 gal/yr*	N A		3.44E-03	3.44E-03		N	N
	Fuel Tank 2	2400 hrs/yr	492790 gal/yr*	N A		3.44E-03	3.44E-03		N	N
	Mud Degassing	100 days/yr	N A	20000 scf/day		4.85E+00	4.85E+00		N	N
			*max throughput		0.00E+00	1.04E+01	1.04E+01	0.00E+00	1.85E-01	1.85E-01
Ice Breaker 1										
	Main Engine 1	675 hr/yr	426 gal/hr	8046 bhp	1.74E+00		1.74E+00	2.91E-02		2.91E-02
	Main Engine 2	675 hr/yr	426 gal/hr	8046 bhp	1.74E+00		1.74E+00	2.91E-02		2.91E-02
	Main Engine 3	675 hr/yr	320 gal/hr	6035 bhp	1.31E+00		1.31E+00	2.18E-02		2.18E-02
	Main Engine 4	675 hr/yr	320 gal/hr	6035 bhp	1.31E+00		1.31E+00	2.18E-02		2.18E-02
	Harbor Generator	33.75 hr/yr	50 gal/hr	952 bhp	1.06E-02		1.06E-02	1.72E-04		1.72E-04
	Emergency Generator	33.75 hr/yr	21 gal/hr	402 bhp	4.46E-03		4.46E-03	7.27E-05		7.27E-05
	Boiler 1	675 hr/yr	28 gal/hr	4 MMBtu/hr a	1.89E-03		1.89E-03	1.91E-03		1.91E-03
	Boiler 2	675 hr/yr	28 gal/hr	4 MMBtu/hr a	1.89E-03		1.89E-03	1.91E-03		1.91E-03
	Incinerator	675 hr/yr	175 lb/hr	N A	2.07E-01		2.07E-01	7.38E-02		7.38E-02
					6.32E+00	0.00E+00	6.32E+00	1.80E-01	0.00E+00	1.80E-01
Ice Breaker 2										
	Main Engine 1	675 hr/yr	426 gal/hr	8046 bhp	1.74E+00		1.74E+00	2.91E-02		2.91E-02
	Main Engine 2	675 hr/yr	426 gal/hr	8046 bhp	1.74E+00		1.74E+00	2.91E-02		2.91E-02
	Main Engine 3	675 hr/yr	320 gal/hr	6035 bhp	1.31E+00		1.31E+00	2.18E-02		2.18E-02
	Main Engine 4	675 hr/yr	320 gal/hr	6035 bhp	1.31E+00		1.31E+00	2.18E-02		2.18E-02
	Harbor Generator	33.75 hr/yr	50 gal/hr	952 bhp	1.06E-02		1.06E-02	1.72E-04		1.72E-04
	Emergency Generator	33.75 hr/yr	21 gal/hr	402 bhp	4.46E-03		4.46E-03	7.27E-05		7.27E-05
	Boiler 1	675 hr/yr	28 gal/hr	4 MMBtu/hr a	1.89E-03		1.89E-03	1.91E-03		1.91E-03
	Boiler 2	675 hr/yr	28 gal/hr	4 MMBtu/hr a	1.89E-03		1.89E-03	1.91E-03		1.91E-03
	Incinerator	675 hr/yr	175 lb/hr	N A	2.07E-01		2.07E-01	7.38E-02		7.38E-02
					6.32E+00	0.00E+00	6.32E+00	1.80E-01	0.00E+00	1.80E-01
Oil Spill Response Vessel 1 (Dedicated OSRV)										
	Main Engine 1	900 hr/yr	75 gal/hr	3000 bhp	3.65E-01		3.65E-01	6.82E-03		6.82E-03
	Main Engine 2	900 hr/yr	75 gal/hr	3000 bhp	3.65E-01		3.65E-01	6.82E-03		6.82E-03
	Thruster Engine 1	12 hr/yr	58 gal/hr	950 hp	3.76E-03		3.76E-03	7.04E-05		7.04E-05
	Thruster Engine 2	12 hr/yr	58 gal/hr	950 hp	3.76E-03		3.76E-03	7.04E-05		7.04E-05
	Thruster Engine 3	12 hr/yr	58 gal/hr	950 hp	3.76E-03		3.76E-03	7.04E-05		7.04E-05
	Generator 1	2400 hr/yr	27 gal/hr	400 kW	4.02E-01		4.02E-01	6.55E-03		6.55E-03
	Generator 2	300 hr/yr	27 gal/hr	400 kW	5.02E-02		5.02E-02	8.19E-04		8.19E-04
	Generator 3	0 hr/yr	27 gal/hr	400 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	1.49E-03		1.49E-03	2.43E-05		2.43E-05
					1.20E+00	0.00E+00	1.20E+00	2.13E-02	0.00E+00	2.13E-02

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit		Allowable	Maximum	Maximum	Potential H2S Emissions			Potential Pb Emissions		
	Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Drill Rig Equipment										
	Main Drill Rig Engine 1	1200 hr/yr	206 g fuel/kWh	2480 kW		NA	NA		4.05E-04	4.05E-04
	Main Drill Rig Engine 2	1200 hr/yr	206 g fuel/kWh	2480 kW		NA	NA		4.05E-04	4.05E-04
	Main Drill Rig Engine 3	1200 hr/yr	206 g fuel/kWh	2480 kW		NA	NA		4.05E-04	4.05E-04
	Main Drill Rig Engine 4	1200 hr/yr	206 g fuel/kWh	2480 kW		NA	NA		4.05E-04	4.05E-04
	Main Engine Uncontrolled 1	125 hr/yr	206 g fuel/kWh	2480 kW		NA	NA		4.22E-05	4.22E-05
	Main Engine Uncontrolled 2	125 hr/yr	206 g fuel/kWh	2480 kW		NA	NA		4.22E-05	4.22E-05
	Emergency Back-up Engine	75 hr/yr	205 g fuel/kWh	968 kW		NA	NA		9.88E-06	9.88E-06
	Cement Engine 1	131 hr/yr	29 gal/hr	403 kW		NA	NA		7.18E-06	7.18E-06
	Cement Engine 2	131 hr/yr	29 gal/hr	403 kW		NA	NA		7.18E-06	7.18E-06
	Logging Winch	273 hr/yr	13 gal/hr	187 kW		NA	NA		6.95E-06	6.95E-06
	Heater 1	2400 hr/yr	26 gal/hr	4 MMBtu/hr a		NA	NA		3.78E-05	3.78E-05
	Heater 2	2400 hr/yr	26 gal/hr	4 MMBtu/hr a		NA	NA		3.78E-05	3.78E-05
	Incinerator	65 tons/yr	276 lbs/hr	N A		NA	NA		6.96E-03	6.96E-03
	Fuel Tank 1	2400 hrs/yr	492790 gal/yr*	N A		NA	NA		N	N
	Fuel Tank 2	2400 hrs/yr	492790 gal/yr*	N A		NA	NA		N	N
	Mud Degassing	100 days/yr	N A	20000 scf/day		2.17E-02	2.17E-02		N	N
			*max throughput		0.00E+00	2.17E-02	2.17E-02	0.00E+00	8.77E-03	8.77E-03
Ice Breaker 1										
	Main Engine 1	675 hr/yr	426 gal/hr	8046 bhp	NA		NA	5.51E-04		5.51E-04
	Main Engine 2	675 hr/yr	426 gal/hr	8046 bhp	NA		NA	5.51E-04		5.51E-04
	Main Engine 3	675 hr/yr	320 gal/hr	6035 bhp	NA		NA	4.13E-04		4.13E-04
	Main Engine 4	675 hr/yr	320 gal/hr	6035 bhp	NA		NA	4.13E-04		4.13E-04
	Harbor Generator	33.75 hr/yr	50 gal/hr	952 bhp	NA		NA	3.26E-06		3.26E-06
	Emergency Generator	33.75 hr/yr	21 gal/hr	402 bhp	NA		NA	1.38E-06		1.38E-06
	Boiler 1	675 hr/yr	28 gal/hr	4 MMBtu/hr a	NA		NA	1.12E-05		1.12E-05
	Boiler 2	675 hr/yr	28 gal/hr	4 MMBtu/hr a	NA		NA	1.12E-05		1.12E-05
	Incinerator	675 hr/yr	175 lb/hr	N A	NA		NA	6.29E-03		6.29E-03
					0.00E+00	0.00E+00	0.00E+00	8.25E-03	0.00E+00	8.25E-03
Ice Breaker 2										
	Main Engine 1	675 hr/yr	426 gal/hr	8046 bhp	NA		NA	5.51E-04		5.51E-04
	Main Engine 2	675 hr/yr	426 gal/hr	8046 bhp	NA		NA	5.51E-04		5.51E-04
	Main Engine 3	675 hr/yr	320 gal/hr	6035 bhp	NA		NA	4.13E-04		4.13E-04
	Main Engine 4	675 hr/yr	320 gal/hr	6035 bhp	NA		NA	4.13E-04		4.13E-04
	Harbor Generator	33.75 hr/yr	50 gal/hr	952 bhp	NA		NA	3.26E-06		3.26E-06
	Emergency Generator	33.75 hr/yr	21 gal/hr	402 bhp	NA		NA	1.38E-06		1.38E-06
	Boiler 1	675 hr/yr	28 gal/hr	4 MMBtu/hr a	NA		NA	1.12E-05		1.12E-05
	Boiler 2	675 hr/yr	28 gal/hr	4 MMBtu/hr a	NA		NA	1.12E-05		1.12E-05
	Incinerator	675 hr/yr	175 lb/hr	N A	NA		NA	6.29E-03		6.29E-03
					0.00E+00	0.00E+00	0.00E+00	8.25E-03	0.00E+00	8.25E-03
Oil Spill Response Vessel 1 (Dedicated OSRV)										
	Main Engine 1	900 hr/yr	75 gal/hr	3000 bhp	NA		NA	1.29E-04		1.29E-04
	Main Engine 2	900 hr/yr	75 gal/hr	3000 bhp	NA		NA	1.29E-04		1.29E-04
	Thruster Engine 1	12 hr/yr	58 gal/hr	950 hp	NA		NA	1.33E-06		1.33E-06
	Thruster Engine 2	12 hr/yr	58 gal/hr	950 hp	NA		NA	1.33E-06		1.33E-06
	Thruster Engine 3	12 hr/yr	58 gal/hr	950 hp	NA		NA	1.33E-06		1.33E-06
	Generator 1	2400 hr/yr	27 gal/hr	400 kW	NA		NA	1.24E-04		1.24E-04
	Generator 2	300 hr/yr	27 gal/hr	400 kW	NA		NA	1.55E-05		1.55E-05
	Generator 3	0 hr/yr	27 gal/hr	400 kW	NA		NA	0.00E+00		0.00E+00
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	NA		NA	4.60E-07		4.60E-07
					0.00E+00	0.00E+00	0.00E+00	4.03E-04	0.00E+00	4.03E-04

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit		Allowable	Maximum	Maximum	Potential H2SO4 Emissions		
	Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total
Drill Rig Equipment							
	Main Drill Rig Engine 1	1200 hr/yr	206 g fuel/kWh	2480 kW		2.95E-03	2.95E-03
	Main Drill Rig Engine 2	1200 hr/yr	206 g fuel/kWh	2480 kW		2.95E-03	2.95E-03
	Main Drill Rig Engine 3	1200 hr/yr	206 g fuel/kWh	2480 kW		2.95E-03	2.95E-03
	Main Drill Rig Engine 4	1200 hr/yr	206 g fuel/kWh	2480 kW		2.95E-03	2.95E-03
	Main Engine Uncontrolled 1	125 hr/yr	206 g fuel/kWh	2480 kW		NA	NA
	Main Engine Uncontrolled 2	125 hr/yr	206 g fuel/kWh	2480 kW		NA	NA
	Emergency Back-up Engine	75 hr/yr	205 g fuel/kWh	968 kW		NA	NA
	Cement Engine 1	131 hr/yr	29 gal/hr	403 kW		NA	NA
	Cement Engine 2	131 hr/yr	29 gal/hr	403 kW		NA	NA
	Logging Winch	273 hr/yr	13 gal/hr	187 kW		NA	NA
	Heater 1	2400 hr/yr	26 gal/hr	4 MMBtu/hr a		NA	NA
	Heater 2	2400 hr/yr	26 gal/hr	4 MMBtu/hr a		NA	NA
	Incinerator	65 tons/yr	276 lbs/hr	N A		NA	NA
	Fuel Tank 1	2400 hrs/yr	492790 gal/yr*	N A		NA	NA
	Fuel Tank 2	2400 hrs/yr	492790 gal/yr*	N A		NA	NA
	Mud Degassing	100 days/yr	N A	20000 scf/day		NA	NA
			*max throughput		0.00E+00	1.18E-02	1.18E-02
Ice Breaker 1							
	Main Engine 1	675 hr/yr	426 gal/hr	8046 bhp	4.01E-03		4.01E-03
	Main Engine 2	675 hr/yr	426 gal/hr	8046 bhp	4.01E-03		4.01E-03
	Main Engine 3	675 hr/yr	320 gal/hr	6035 bhp	3.01E-03		3.01E-03
	Main Engine 4	675 hr/yr	320 gal/hr	6035 bhp	3.01E-03		3.01E-03
	Harbor Generator	33.75 hr/yr	50 gal/hr	952 bhp	NA		NA
	Emergency Generator	33.75 hr/yr	21 gal/hr	402 bhp	NA		NA
	Boiler 1	675 hr/yr	28 gal/hr	4 MMBtu/hr a	NA		NA
	Boiler 2	675 hr/yr	28 gal/hr	4 MMBtu/hr a	NA		NA
	Incinerator	675 hr/yr	175 lb/hr	N A	NA		NA
					1.40E-02	0.00E+00	1.40E-02
Ice Breaker 2							
	Main Engine 1	675 hr/yr	426 gal/hr	8046 bhp	4.01E-03		4.01E-03
	Main Engine 2	675 hr/yr	426 gal/hr	8046 bhp	4.01E-03		4.01E-03
	Main Engine 3	675 hr/yr	320 gal/hr	6035 bhp	3.01E-03		3.01E-03
	Main Engine 4	675 hr/yr	320 gal/hr	6035 bhp	3.01E-03		3.01E-03
	Harbor Generator	33.75 hr/yr	50 gal/hr	952 bhp	NA		NA
	Emergency Generator	33.75 hr/yr	21 gal/hr	402 bhp	NA		NA
	Boiler 1	675 hr/yr	28 gal/hr	4 MMBtu/hr a	NA		NA
	Boiler 2	675 hr/yr	28 gal/hr	4 MMBtu/hr a	NA		NA
	Incinerator	675 hr/yr	175 lb/hr	N A	NA		NA
					1.40E-02	0.00E+00	1.40E-02
Oil Spill Response Vessel 1 (Dedicated OSRV)							
	Main Engine 1	900 hr/yr	75 gal/hr	3000 bhp	NA		NA
	Main Engine 2	900 hr/yr	75 gal/hr	3000 bhp	NA		NA
	Thruster Engine 1	12 hr/yr	58 gal/hr	950 hp	NA		NA
	Thruster Engine 2	12 hr/yr	58 gal/hr	950 hp	NA		NA
	Thruster Engine 3	12 hr/yr	58 gal/hr	950 hp	NA		NA
	Generator 1	2400 hr/yr	27 gal/hr	400 kW	NA		NA
	Generator 2	300 hr/yr	27 gal/hr	400 kW	NA		NA
	Generator 3	0 hr/yr	27 gal/hr	400 kW	NA		NA
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	NA		NA
					0.00E+00	0.00E+00	0.00E+00

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit		Allowable	Maximum	Maximum	Potential NO_X Emissions			Potential CO Emissions		
	Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Oil Spill Response Vessel 2										
	Main Engine 1	60 hr/yr	75 gal/hr	3000 bhp	9.51E-01		9.51E-01	2.53E-01		2.53E-01
	Main Engine 2	60 hr/yr	75 gal/hr	3000 bhp	9.51E-01		9.51E-01	2.53E-01		2.53E-01
	Thruster Engine 1	48 hr/yr	58 gal/hr	950 hp	5.88E-01		5.88E-01	1.56E-01		1.56E-01
	Thruster Engine 2	48 hr/yr	58 gal/hr	950 hp	5.88E-01		5.88E-01	1.56E-01		1.56E-01
	Thruster Engine 3	48 hr/yr	58 gal/hr	950 hp	5.88E-01		5.88E-01	1.56E-01		1.56E-01
	Generator 1	60 hr/yr	27 gal/hr	400 kW	3.49E-01		3.49E-01	2.76E-02		2.76E-02
	Generator 2	30 hr/yr	27 gal/hr	400 kW	1.75E-01		1.75E-01	1.38E-02		1.38E-02
	Generator 3	0 hr/yr	27 gal/hr	400 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	2 hr/yr	8 gal/hr	99 kW	3.45E-03		3.45E-03	2.73E-04		2.73E-04
					4.19E+00	**0.00E+00**	**4.19E+00**	**1.02E+00**	**0.00E+00**	**1.02E+00**
Anchor Handling Supply Tug (AHST)										
	Main Engine 1	60 hr/yr	160 gal/hr	2529 kW	2.03E+00		2.03E+00	5.39E-01		5.39E-01
	Main Engine 2	60 hr/yr	160 gal/hr	2529 kW	2.03E+00		2.03E+00	5.39E-01		5.39E-01
	Generator 1	60 hr/yr	25 gal/hr	380 kW	3.23E-01		3.23E-01	2.56E-02		2.56E-02
	Generator 2	12 hr/yr	25 gal/hr	380 kW	6.47E-02		6.47E-02	5.12E-03		5.12E-03
	Generator 3	0 hr/yr	25 gal/hr	380 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	6 hr/yr	6 gal/hr	170 kW	7.24E-03		7.24E-03	5.73E-04		5.73E-04
					4.45E+00	**0.00E+00**	**4.45E+00**	**1.11E+00**	**0.00E+00**	**1.11E+00**
Offshore Supply Vessels (OSV1 & OSV2)										
	Main Engine 1	360 hr/yr	75 gal/hr	3000 bhp	5.71E+00		5.71E+00	1.52E+00		1.52E+00
	Main Engine 1	100 hr/yr	67 gal/hr	3000 bhp	1.42E+00		1.42E+00	3.76E-01		3.76E-01
	Main Engine 2	360 hr/yr	75 gal/hr	3000 bhp	5.71E+00		5.71E+00	1.52E+00		1.52E+00
	Main Engine 2	100 hr/yr	67 gal/hr	3000 bhp	1.42E+00		1.42E+00	3.76E-01		3.76E-01
	Thruster Engine 1	360 hr/yr	58 gal/hr	950 bhp	4.41E+00		4.41E+00	1.17E+00		1.17E+00
	Thruster Engine 2	360 hr/yr	58 gal/hr	950 bhp	4.41E+00		4.41E+00	1.17E+00		1.17E+00
	Thruster Engine 3	360 hr/yr	58 gal/hr	950 hp	4.41E+00		4.41E+00	1.17E+00		1.17E+00
	Generator	820 hr/yr	27 gal/hr	400 kW	4.77E+00		4.77E+00	3.78E-01		3.78E-01
	Generator	120 hr/yr	27 gal/hr	400 kW	6.98E-01		6.98E-01	5.53E-02		5.53E-02
	Generator	0 hr/yr	27 gal/hr	400 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	5.17E-02		5.17E-02	4.09E-03		4.09E-03
					3.30E+01	**0.00E+00**	**3.30E+01**	**7.74E+00**	**0.00E+00**	**7.74E+00**
Ware Vessel (WV) w/ OSV backup										
	Main Engine 1	300 hr/yr	87 gal/hr	3200 hp	5.52E+00		5.52E+00	1.47E+00		1.47E+00
	Main Engine 2	300 hr/yr	87 gal/hr	3200 hp	5.52E+00		5.52E+00	1.47E+00		1.47E+00
	Main Engine 3	400 hr/yr	81 gal/hr	3200 hp	6.85E+00		6.85E+00	1.82E+00		1.82E+00
	Main Engine 4	400 hr/yr	81 gal/hr	3200 hp	6.85E+00		6.85E+00	1.82E+00		1.82E+00
	Generator 1	700 hr/yr	32 gal/hr	500 kW	4.83E+00		4.83E+00	3.82E-01		3.82E-01
	Generator 2	100 hr/yr	32 gal/hr	500 kW	6.90E-01		6.90E-01	5.46E-02		5.46E-02
	Generator 3	0 hr/yr	32 gal/hr	500 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	30 hr/yr	12 gal/hr	170 kW	7.76E-02		7.76E-02	6.14E-03		6.14E-03
					3.03E+01	**0.00E+00**	**3.03E+01**	**7.01E+00**	**0.00E+00**	**7.01E+00**
34' boom work boats - 4										
	WB-1 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	3.10E-01		3.10E-01	2.46E-02		2.46E-02
	WB-1 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	3.10E-01		3.10E-01	2.46E-02		2.46E-02
	WB-2 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	3.10E-01		3.10E-01	2.46E-02		2.46E-02
	WB-2 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	3.10E-01		3.10E-01	2.46E-02		2.46E-02
	WB-3 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	3.10E-01		3.10E-01	2.46E-02		2.46E-02
	WB-3 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	3.10E-01		3.10E-01	2.46E-02		2.46E-02
	WB-4 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	3.10E-01		3.10E-01	2.46E-02		2.46E-02
	WB-4 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	3.10E-01		3.10E-01	2.46E-02		2.46E-02
					2.48E+00		**2.48E+00**	**1.96E-01**	**0.00E+00**	**1.96E-01**

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit		Allowable	Maximum	Maximum	Potential $PM_{10}/PM_{2.5}$ Emissions			Potential PM Emissions		
	Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Oil Spill Response Vessel 2										
	Main Engine 1	60 hr/yr	75 gal/hr	3000 bhp	1.70E-02		1.70E-02	2.97E-02		2.97E-02
	Main Engine 2	60 hr/yr	75 gal/hr	3000 bhp	1.70E-02		1.70E-02	2.97E-02		2.97E-02
	Thruster Engine 1	48 hr/yr	58 gal/hr	950 hp	1.05E-02		1.05E-02	1.84E-02		1.84E-02
	Thruster Engine 2	48 hr/yr	58 gal/hr	950 hp	1.05E-02		1.05E-02	1.84E-02		1.84E-02
	Thruster Engine 3	48 hr/yr	58 gal/hr	950 hp	1.05E-02		1.05E-02	1.84E-02		1.84E-02
	Generator 1	60 hr/yr	27 gal/hr	400 kW	7.53E-03		7.53E-03	7.53E-03		7.53E-03
	Generator 2	30 hr/yr	27 gal/hr	400 kW	3.77E-03		3.77E-03	3.77E-03		3.77E-03
	Generator 3	0 hr/yr	27 gal/hr	400 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	2 hr/yr	8 gal/hr	99 kW	7.44E-05		7.44E-05	7.44E-05		7.44E-05
					7.70E-02	**0.00E+00**	**7.70E-02**	**1.26E-01**	**0.00E+00**	**1.26E-01**
Anchor Handling Supply Tug (AHST)										
	Main Engine 1	60 hr/yr	160 gal/hr	2529 kW	3.63E-02		3.63E-02	6.34E-02		6.34E-02
	Main Engine 2	60 hr/yr	160 gal/hr	2529 kW	3.63E-02		3.63E-02	6.34E-02		6.34E-02
	Generator 1	60 hr/yr	25 gal/hr	380 kW	6.98E-03		6.98E-03	7.53E-03		7.53E-03
	Generator 2	12 hr/yr	25 gal/hr	380 kW	1.40E-03		1.40E-03	1.51E-03		1.51E-03
	Generator 3	0 hr/yr	25 gal/hr	380 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	6 hr/yr	6 gal/hr	170 kW	1.56E-04		1.56E-04	1.56E-04		1.56E-04
					8.12E-02	**0.00E+00**	**8.12E-02**	**1.36E-01**	**0.00E+00**	**1.36E-01**
Offshore Supply Vessels (OSV1 & OSV2)										
	Main Engine 1	360 hr/yr	75 gal/hr	3000 bhp	1.02E-01		1.02E-01	1.78E-01		1.78E-01
	Main Engine 1	100 hr/yr	67 gal/hr	3000 bhp	2.54E-02		2.54E-02	4.43E-02		4.43E-02
	Main Engine 2	360 hr/yr	75 gal/hr	3000 bhp	1.02E-01		1.02E-01	1.78E-01		1.78E-01
	Main Engine 2	100 hr/yr	67 gal/hr	3000 bhp	2.54E-02		2.54E-02	4.43E-02		4.43E-02
	Thruster Engine 1	360 hr/yr	58 gal/hr	950 bhp	7.90E-02		7.90E-02	1.38E-01		1.38E-01
	Thruster Engine 2	360 hr/yr	58 gal/hr	950 bhp	7.90E-02		7.90E-02	1.38E-01		1.38E-01
	Thruster Engine 3	360 hr/yr	58 gal/hr	950 hp	7.90E-02		7.90E-02	1.38E-01		1.38E-01
	Generator	820 hr/yr	27 gal/hr	400 kW	1.03E-01		1.03E-01	1.08E-01		1.08E-01
	Generator	120 hr/yr	27 gal/hr	400 kW	1.51E-02		1.51E-02	1.59E-02		1.59E-02
	Generator	0 hr/yr	27 gal/hr	400 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	1.12E-03		1.12E-03	9.81E-04		9.81E-04
					6.11E-01	**0.00E+00**	**6.11E-01**	**9.84E-01**	**0.00E+00**	**9.84E-01**
Ware Vessel (WV) w/ OSV backup										
	Main Engine 1	300 hr/yr	87 gal/hr	3200 hp	9.88E-02		9.88E-02	1.72E-01		1.72E-01
	Main Engine 2	300 hr/yr	87 gal/hr	3200 hp	9.88E-02		9.88E-02	1.72E-01		1.72E-01
	Main Engine 3	400 hr/yr	81 gal/hr	3200 hp	1.23E-01		1.23E-01	2.14E-01		2.14E-01
	Main Engine 4	400 hr/yr	81 gal/hr	3200 hp	1.23E-01		1.23E-01	2.14E-01		2.14E-01
	Generator 1	700 hr/yr	32 gal/hr	500 kW	1.04E-01		1.04E-01	1.04E-01		1.04E-01
	Generator 2	100 hr/yr	32 gal/hr	500 kW	1.49E-02		1.49E-02	1.49E-02		1.49E-02
	Generator 3	0 hr/yr	32 gal/hr	500 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	30 hr/yr	12 gal/hr	170 kW	1.67E-03		1.67E-03	1.67E-03		1.67E-03
					5.64E-01	**0.00E+00**	**5.64E-01**	**8.94E-01**	**0.00E+00**	**8.94E-01**
34' boom work boats - 4										
	WB-1 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	6.70E-03		6.70E-03	6.70E-03		6.70E-03
	WB-1 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	6.70E-03		6.70E-03	6.70E-03		6.70E-03
	WB-2 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	6.70E-03		6.70E-03	6.70E-03		6.70E-03
	WB-2 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	6.70E-03		6.70E-03	6.70E-03		6.70E-03
	WB-3 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	6.70E-03		6.70E-03	6.70E-03		6.70E-03
	WB-3 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	6.70E-03		6.70E-03	6.70E-03		6.70E-03
	WB-4 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	6.70E-03		6.70E-03	6.70E-03		6.70E-03
	WB-4 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	6.70E-03		6.70E-03	6.70E-03		6.70E-03
					5.36E-02	**0.00E+00**	**5.36E-02**	**5.36E-02**	**0.00E+00**	**5.36E-02**

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit		Allowable	Maximum	Maximum	Potential VOC Emissions			Potential SO_2 Emissions		
	Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Oil Spill Response Vessel 2										
	Main Engine 1	60 hr/yr	75 gal/hr	3000 bhp	2.43E-02		2.43E-02	4.55E-04		4.55E-04
	Main Engine 2	60 hr/yr	75 gal/hr	3000 bhp	2.43E-02		2.43E-02	4.55E-04		4.55E-04
	Thruster Engine 1	48 hr/yr	58 gal/hr	950 hp	1.51E-02		1.51E-02	2.81E-04		2.81E-04
	Thruster Engine 2	48 hr/yr	58 gal/hr	950 hp	1.51E-02		1.51E-02	2.81E-04		2.81E-04
	Thruster Engine 3	48 hr/yr	58 gal/hr	950 hp	1.51E-02		1.51E-02	2.81E-04		2.81E-04
	Generator 1	60 hr/yr	27 gal/hr	400 kW	1.00E-02		1.00E-02	1.64E-04		1.64E-04
	Generator 2	30 hr/yr	27 gal/hr	400 kW	5.02E-03		5.02E-03	8.19E-05		8.19E-05
	Generator 3	0 hr/yr	27 gal/hr	400 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	2 hr/yr	8 gal/hr	99 kW	9.92E-05		9.92E-05	1.62E-06		1.62E-06
					1.09E-01	**0.00E+00**	**1.09E-01**	**2.00E-03**	**0.00E+00**	**2.00E-03**
Anchor Handling Supply Tug (AHST)										
	Main Engine 1	60 hr/yr	160 gal/hr	2529 kW	5.19E-02		5.19E-02	9.71E-04		9.71E-04
	Main Engine 2	60 hr/yr	160 gal/hr	2529 kW	5.19E-02		5.19E-02	9.71E-04		9.71E-04
	Generator 1	60 hr/yr	25 gal/hr	380 kW	9.30E-03		9.30E-03	1.52E-04		1.52E-04
	Generator 2	12 hr/yr	25 gal/hr	380 kW	1.86E-03		1.86E-03	3.03E-05		3.03E-05
	Generator 3	0 hr/yr	25 gal/hr	380 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	6 hr/yr	6 gal/hr	170 kW	2.08E-04		2.08E-04	3.40E-06		3.40E-06
					1.15E-01	**0.00E+00**	**1.15E-01**	**2.13E-03**	**0.00E+00**	**2.13E-03**
Offshore Supply Vessels (OSV1 & OSV2)										
	Main Engine 1	360 hr/yr	75 gal/hr	3000 bhp	1.46E-01		1.46E-01	2.73E-03		2.73E-03
	Main Engine 1	100 hr/yr	67 gal/hr	3000 bhp	3.62E-02		3.62E-02	6.77E-04		6.77E-04
	Main Engine 2	360 hr/yr	75 gal/hr	3000 bhp	1.46E-01		1.46E-01	2.73E-03		2.73E-03
	Main Engine 2	100 hr/yr	67 gal/hr	3000 bhp	3.62E-02		3.62E-02	6.77E-04		6.77E-04
	Thruster Engine 1	360 hr/yr	58 gal/hr	950 bhp	1.13E-01		1.13E-01	2.11E-03		2.11E-03
	Thruster Engine 2	360 hr/yr	58 gal/hr	950 bhp	1.13E-01		1.13E-01	2.11E-03		2.11E-03
	Thruster Engine 3	360 hr/yr	58 gal/hr	950 hp	1.13E-01		1.13E-01	2.11E-03		2.11E-03
	Generator	820 hr/yr	27 gal/hr	400 kW	1.37E-01		1.37E-01	2.24E-03		2.24E-03
	Generator	120 hr/yr	27 gal/hr	400 kW	2.01E-02		2.01E-02	3.28E-04		3.28E-04
	Generator	0 hr/yr	27 gal/hr	400 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	1.49E-03		1.49E-03	2.43E-05		2.43E-05
					8.62E-01	**0.00E+00**	**8.62E-01**	**1.57E-02**	**0.00E+00**	**1.57E-02**
Ware Vessel (WV) w/ OSV backup										
	Main Engine 1	300 hr/yr	87 gal/hr	3200 hp	1.41E-01		1.41E-01	2.64E-03		2.64E-03
	Main Engine 2	300 hr/yr	87 gal/hr	3200 hp	1.41E-01		1.41E-01	2.64E-03		2.64E-03
	Main Engine 3	400 hr/yr	81 gal/hr	3200 hp	1.75E-01		1.75E-01	3.28E-03		3.28E-03
	Main Engine 4	400 hr/yr	81 gal/hr	3200 hp	1.75E-01		1.75E-01	3.28E-03		3.28E-03
	Generator 1	700 hr/yr	32 gal/hr	500 kW	1.39E-01		1.39E-01	2.26E-03		2.26E-03
	Generator 2	100 hr/yr	32 gal/hr	500 kW	1.98E-02		1.98E-02	3.24E-04		3.24E-04
	Generator 3	0 hr/yr	32 gal/hr	500 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	30 hr/yr	12 gal/hr	170 kW	2.23E-03		2.23E-03	3.64E-05		3.64E-05
					7.94E-01	**0.00E+00**	**7.94E-01**	**1.45E-02**	**0.00E+00**	**1.45E-02**
34' boom work boats - 4										
	WB-1 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	8.93E-03		8.93E-03	1.46E-04		1.46E-04
	WB-1 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	8.93E-03		8.93E-03	1.46E-04		1.46E-04
	WB-2 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	8.93E-03		8.93E-03	1.46E-04		1.46E-04
	WB-2 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	8.93E-03		8.93E-03	1.46E-04		1.46E-04
	WB-3 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	8.93E-03		8.93E-03	1.46E-04		1.46E-04
	WB-3 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	8.93E-03		8.93E-03	1.46E-04		1.46E-04
	WB-4 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	8.93E-03		8.93E-03	1.46E-04		1.46E-04
	WB-4 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	8.93E-03		8.93E-03	1.46E-04		1.46E-04
					7.14E-02	**0.00E+00**	**7.14E-02**	**1.16E-03**	**0.00E+00**	**1.16E-03**

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit		Allowable	Maximum	Maximum	Potential H2S Emissions			Potential Pb Emissions		
	Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Oil Spill Response Vessel 2										
	Main Engine 1	60 hr/yr	75 gal/hr	3000 bhp	NA		NA	8.62E-06		8.62E-06
	Main Engine 2	60 hr/yr	75 gal/hr	3000 bhp	NA		NA	8.62E-06		8.62E-06
	Thruster Engine 1	48 hr/yr	58 gal/hr	950 hp	NA		NA	5.33E-06		5.33E-06
	Thruster Engine 2	48 hr/yr	58 gal/hr	950 hp	NA		NA	5.33E-06		5.33E-06
	Thruster Engine 3	48 hr/yr	58 gal/hr	950 hp	NA		NA	5.33E-06		5.33E-06
	Generator 1	60 hr/yr	27 gal/hr	400 kW	NA		NA	3.10E-06		3.10E-06
	Generator 2	30 hr/yr	27 gal/hr	400 kW	NA		NA	1.55E-06		1.55E-06
	Generator 3	0 hr/yr	27 gal/hr	400 kW	NA		NA	0.00E+00		0.00E+00
	Emergency Generator	2 hr/yr	8 gal/hr	99 kW	NA		NA	3.06E-08		3.06E-08
					0.00E+00	0.00E+00	0.00E+00	3.79E-05	0.00E+00	3.79E-05
Anchor Handling Supply Tug (AHST)										
	Main Engine 1	60 hr/yr	160 gal/hr	2529 kW	NA		NA	1.84E-05		1.84E-05
	Main Engine 2	60 hr/yr	160 gal/hr	2529 kW	NA		NA	1.84E-05		1.84E-05
	Generator 1	60 hr/yr	25 gal/hr	380 kW	NA		NA	2.87E-06		2.87E-06
	Generator 2	12 hr/yr	25 gal/hr	380 kW	NA		NA	5.75E-07		5.75E-07
	Generator 3	0 hr/yr	25 gal/hr	380 kW	NA		NA	0.00E+00		0.00E+00
	Emergency Generator	6 hr/yr	6 gal/hr	170 kW	NA		NA	6.44E-08		6.44E-08
					0.00E+00	0.00E+00	0.00E+00	4.03E-05	0.00E+00	4.03E-05
Offshore Supply Vessels (OSV1 & OSV2)										
	Main Engine 1	360 hr/yr	75 gal/hr	3000 bhp	NA		NA	5.17E-05		5.17E-05
	Main Engine 1	100 hr/yr	67 gal/hr	3000 bhp	NA		NA	1.28E-05		1.28E-05
	Main Engine 2	360 hr/yr	75 gal/hr	3000 bhp	NA		NA	5.17E-05		5.17E-05
	Main Engine 2	100 hr/yr	67 gal/hr	3000 bhp	NA		NA	1.28E-05		1.28E-05
	Thruster Engine 1	360 hr/yr	58 gal/hr	950 bhp	NA		NA	4.00E-05		4.00E-05
	Thruster Engine 2	360 hr/yr	58 gal/hr	950 bhp	NA		NA	4.00E-05		4.00E-05
	Thruster Engine 3	360 hr/yr	58 gal/hr	950 hp	NA		NA	4.00E-05		4.00E-05
	Generator	820 hr/yr	27 gal/hr	400 kW	NA		NA	4.24E-05		4.24E-05
	Generator	120 hr/yr	27 gal/hr	400 kW	NA		NA	6.21E-06		6.21E-06
	Generator	0 hr/yr	27 gal/hr	400 kW	NA		NA	0.00E+00		0.00E+00
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	NA		NA	4.60E-07		4.60E-07
					0.00E+00	0.00E+00	0.00E+00	2.98E-04	0.00E+00	2.98E-04
Ware Vessel (WV) w/ OSV backup										
	Main Engine 1	300 hr/yr	87 gal/hr	3200 hp	NA		NA	5.00E-05		5.00E-05
	Main Engine 2	300 hr/yr	87 gal/hr	3200 hp	NA		NA	5.00E-05		5.00E-05
	Main Engine 3	400 hr/yr	81 gal/hr	3200 hp	NA		NA	6.21E-05		6.21E-05
	Main Engine 4	400 hr/yr	81 gal/hr	3200 hp	NA		NA	6.21E-05		6.21E-05
	Generator 1	700 hr/yr	32 gal/hr	500 kW	NA		NA	4.29E-05		4.29E-05
	Generator 2	100 hr/yr	32 gal/hr	500 kW	NA		NA	6.13E-06		6.13E-06
	Generator 3	0 hr/yr	32 gal/hr	500 kW	NA		NA	0.00E+00		0.00E+00
	Emergency Generator	30 hr/yr	12 gal/hr	170 kW	NA		NA	6.90E-07		6.90E-07
					0.00E+00	0.00E+00	0.00E+00	2.74E-04	0.00E+00	2.74E-04
34' boom work boats - 4										
	WB-1 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	NA		NA	2.76E-06		2.76E-06
	WB-1 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	NA		NA	2.76E-06		2.76E-06
	WB-2 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	NA		NA	2.76E-06		2.76E-06
	WB-2 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	NA		NA	2.76E-06		2.76E-06
	WB-3 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	NA		NA	2.76E-06		2.76E-06
	WB-3 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	NA		NA	2.76E-06		2.76E-06
	WB-4 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	NA		NA	2.76E-06		2.76E-06
	WB-4 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	NA		NA	2.76E-06		2.76E-06
					0.00E+00	0.00E+00	0.00E+00	2.21E-05	0.00E+00	2.21E-05

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit		Allowable	Maximum	Maximum	Potential H2SO4 Emissions		
	Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total
Oil Spill Response Vessel 2							
	Main Engine 1	60 hr/yr	75 gal/hr	3000 bhp	NA		NA
	Main Engine 2	60 hr/yr	75 gal/hr	3000 bhp	NA		NA
	Thruster Engine 1	48 hr/yr	58 gal/hr	950 hp	NA		NA
	Thruster Engine 2	48 hr/yr	58 gal/hr	950 hp	NA		NA
	Thruster Engine 3	48 hr/yr	58 gal/hr	950 hp	NA		NA
	Generator 1	60 hr/yr	27 gal/hr	400 kW	NA		NA
	Generator 2	30 hr/yr	27 gal/hr	400 kW	NA		NA
	Generator 3	0 hr/yr	27 gal/hr	400 kW	NA		NA
	Emergency Generator	2 hr/yr	8 gal/hr	99 kW	NA		NA
					0.00E+00	0.00E+00	0.00E+00
Anchor Handling Supply Tug (AHST)							
	Main Engine 1	60 hr/yr	160 gal/hr	2529 kW	NA		NA
	Main Engine 2	60 hr/yr	160 gal/hr	2529 kW	NA		NA
	Generator 1	60 hr/yr	25 gal/hr	380 kW	NA		NA
	Generator 2	12 hr/yr	25 gal/hr	380 kW	NA		NA
	Generator 3	0 hr/yr	25 gal/hr	380 kW	NA		NA
	Emergency Generator	6 hr/yr	6 gal/hr	170 kW	NA		NA
					0.00E+00	0.00E+00	0.00E+00
Offshore Supply Vessels (OSV1 & OSV2)							
	Main Engine 1	360 hr/yr	75 gal/hr	3000 bhp	NA		NA
	Main Engine 1	100 hr/yr	67 gal/hr	3000 bhp	NA		NA
	Main Engine 2	360 hr/yr	75 gal/hr	3000 bhp	NA		NA
	Main Engine 2	100 hr/yr	67 gal/hr	3000 bhp	NA		NA
	Thruster Engine 1	360 hr/yr	58 gal/hr	950 bhp	NA		NA
	Thruster Engine 2	360 hr/yr	58 gal/hr	950 bhp	NA		NA
	Thruster Engine 3	360 hr/yr	58 gal/hr	950 hp	NA		NA
	Generator	820 hr/yr	27 gal/hr	400 kW	NA		NA
	Generator	120 hr/yr	27 gal/hr	400 kW	NA		NA
	Generator	0 hr/yr	27 gal/hr	400 kW	NA		NA
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	NA		NA
					0.00E+00	0.00E+00	0.00E+00
Ware Vessel (WV) w/ OSV backup							
	Main Engine 1	300 hr/yr	87 gal/hr	3200 hp	NA		NA
	Main Engine 2	300 hr/yr	87 gal/hr	3200 hp	NA		NA
	Main Engine 3	400 hr/yr	81 gal/hr	3200 hp	NA		NA
	Main Engine 4	400 hr/yr	81 gal/hr	3200 hp	NA		NA
	Generator 1	700 hr/yr	32 gal/hr	500 kW	NA		NA
	Generator 2	100 hr/yr	32 gal/hr	500 kW	NA		NA
	Generator 3	0 hr/yr	32 gal/hr	500 kW	NA		NA
	Emergency Generator	30 hr/yr	12 gal/hr	170 kW	NA		NA
					0.00E+00	0.00E+00	0.00E+00
34' boom work boats - 4							
	WB-1 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	NA		NA
	WB-1 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	NA		NA
	WB-2 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	NA		NA
	WB-2 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	NA		NA
	WB-3 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	NA		NA
	WB-3 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	NA		NA
	WB-4 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	NA		NA
	WB-4 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	NA		NA
					0.00E+00	0.00E+00	0.00E+00

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit		Allowable	Maximum	Maximum	Potential NO_X Emissions			Potential CO Emissions		
	Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Marine Research Vessel										
	Main Engine	600 hr/yr	45 gal/hr	850 hp	5.71E+00		5.71E+00	1.52E+00		1.52E+00
	Generator 1	600 hr/yr	10 gal/hr	135 kW	1.24E+00		1.24E+00	9.81E-02		9.81E-02
	Generator 2	600 hr/yr	6 gal/hr	90 kW	8.27E-01		8.27E-01	6.54E-02		6.54E-02
	Generator 3	600 hr/yr	3 gal/hr	40 kW	3.67E-01		3.67E-01	2.91E-02		2.91E-02
					8.15E+00	**0.00E+00**	**8.15E+00**	**1.71E+00**	**0.00E+00**	**1.71E+00**
Spill Storage Tanker										
	Main Engine 1	12 hr/yr	89 gal/hr	1674 hp	2.25E-01		2.25E-01	5.98E-02		5.98E-02
	Main Engine 2	12 hr/yr	89 gal/hr	1674 hp	2.25E-01		2.25E-01	5.98E-02		5.98E-02
	Generator 1	48 hr/yr	41 gal/hr	576 kW	4.24E-01		4.24E-01	3.35E-02		3.35E-02
	Boiler 1	48 hr/yr	109 gal/hr	14 MMBtu/hr	5.24E-02		5.24E-02	1.31E-02		1.31E-02
					9.26E-01	**0.00E+00**	**9.26E-01**	**1.66E-01**	**0.00E+00**	**1.66E-01**
All Vessels Fuel Tanks										
	Fuel Tank	2400 hr/yr	2703975 gal/yr*	N A	N		N	N		N
			*max throughput		**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit		Allowable	Maximum	Maximum	Potential $PM_{10}/PM_{2.5}$ Emissions			Potential PM Emissions		
	Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Marine Research Vessel										
	Main Engine	600 hr/yr	45 gal/hr	850 hp	1.02E-01		1.02E-01	1.79E-01		1.79E-01
	Generator 1	600 hr/yr	10 gal/hr	135 kW	2.68E-02		2.68E-02	2.68E-02		2.68E-02
	Generator 2	600 hr/yr	6 gal/hr	90 kW	1.79E-02		1.79E-02	1.78E-02		1.78E-02
	Generator 3	600 hr/yr	3 gal/hr	40 kW	7.94E-03		7.94E-03	7.93E-03		7.93E-03
					1.55E-01	0.00E+00	1.55E-01	2.31E-01	0.00E+00	2.31E-01
Spill Storage Tanker										
	Main Engine 1	12 hr/yr	89 gal/hr	1674 hp	4.03E-03		4.03E-03	7.03E-03		7.03E-03
	Main Engine 2	12 hr/yr	89 gal/hr	1674 hp	4.03E-03		4.03E-03	7.03E-03		7.03E-03
	Generator 1	48 hr/yr	41 gal/hr	576 kW	9.15E-03		9.15E-03	9.14E-03		9.14E-03
	Boiler 1	48 hr/yr	109 gal/hr	14 MMBtu/hr	2.83E-03		2.83E-03	5.24E-03		5.24E-03
					2.00E-02	0.00E+00	2.00E-02	2.84E-02	0.00E+00	2.84E-02
All Vessels Fuel Tanks										
	Fuel Tank	2400 hr/yr	2703975 gal/yr*	N A	N		N	N		N
			*max throughput		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit		Allowable	Maximum	Maximum	Potential VOC Emissions			Potential SO_2 Emissions		
	Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Marine Research Vessel										
	Main Engine	600 hr/yr	45 gal/hr	850 hp	1.46E-01		1.46E-01	2.73E-03		2.73E-03
	Generator 1	600 hr/yr	10 gal/hr	135 kW	3.57E-02		3.57E-02	5.82E-04		5.82E-04
	Generator 2	600 hr/yr	6 gal/hr	90 kW	2.38E-02		2.38E-02	3.88E-04		3.88E-04
	Generator 3	600 hr/yr	3 gal/hr	40 kW	1.06E-02		1.06E-02	1.72E-04		1.72E-04
					2.16E-01	**0.00E+00**	**2.16E-01**	**3.87E-03**	**0.00E+00**	**3.87E-03**
Spill Storage Tanker										
	Main Engine 1	12 hr/yr	89 gal/hr	1674 hp	5.76E-03		5.76E-03	1.08E-04		1.08E-04
	Main Engine 2	12 hr/yr	89 gal/hr	1674 hp	5.76E-03		5.76E-03	1.08E-04		1.08E-04
	Generator 1	48 hr/yr	41 gal/hr	576 kW	1.22E-02		1.22E-02	1.99E-04		1.99E-04
	Boiler 1	48 hr/yr	109 gal/hr	14 MMBtu/hr	5.24E-04		5.24E-04	5.30E-04		5.30E-04
					2.42E-02	**0.00E+00**	**2.42E-02**	**9.44E-04**	**0.00E+00**	**9.44E-04**
All Vessels Fuel Tanks										
	Fuel Tank	2400 hr/yr	2703975 gal/yr*	N A	1.40E-02		1.40E-02	N		N
			*max throughput		**1.40E-02**	**0.00E+00**	**1.40E-02**	**0.00E+00**	**0.00E+00**	**0.00E+00**

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit		Allowable	Maximum	Maximum	Potential H2S Emissions			Potential Pb Emissions		
	Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Marine Research Vessel										
	Main Engine	600 hr/yr	45 gal/hr	850 hp	NA		NA	5.18E-05		5.18E-05
	Generator 1	600 hr/yr	10 gal/hr	135 kW	NA		NA	1.10E-05		1.10E-05
	Generator 2	600 hr/yr	6 gal/hr	90 kW	NA		NA	7.35E-06		7.35E-06
	Generator 3	600 hr/yr	3 gal/hr	40 kW	NA		NA	3.27E-06		3.27E-06
					0.00E+00	0.00E+00	0.00E+00	7.34E-05	0.00E+00	7.34E-05
Spill Storage Tanker										
	Main Engine 1	12 hr/yr	89 gal/hr	1674 hp	NA		NA	2.04E-06		2.04E-06
	Main Engine 2	12 hr/yr	89 gal/hr	1674 hp	NA		NA	2.04E-06		2.04E-06
	Generator 1	48 hr/yr	41 gal/hr	576 kW	NA		NA	3.76E-06		3.76E-06
	Boiler 1	48 hr/yr	109 gal/hr	14 MMBtu/hr	NA		NA	3.12E-06		3.12E-06
					0.00E+00	0.00E+00	0.00E+00	1.10E-05	0.00E+00	1.10E-05
All Vessels Fuel Tanks										
	Fuel Tank	2400 hr/yr	2703975 gal/yr*	N A	NA		NA	N		N
			*max throughput		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit		Allowable	Maximum	Maximum	Potential H2SO4 Emissions		
	Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total
Marine Research Vessel							
	Main Engine	600 hr/yr	45 gal/hr	850 hp	NA		NA
	Generator 1	600 hr/yr	10 gal/hr	135 kW	NA		NA
	Generator 2	600 hr/yr	6 gal/hr	90 kW	NA		NA
	Generator 3	600 hr/yr	3 gal/hr	40 kW	NA		NA
					0.00E+00	0.00E+00	0.00E+00
Spill Storage Tanker							
	Main Engine 1	12 hr/yr	89 gal/hr	1674 hp	NA		NA
	Main Engine 2	12 hr/yr	89 gal/hr	1674 hp	NA		NA
	Generator 1	48 hr/yr	41 gal/hr	576 kW	NA		NA
	Boiler 1	48 hr/yr	109 gal/hr	14 MMBtu/hr	NA		NA
					0.00E+00	0.00E+00	0.00E+00
All Vessels Fuel Tanks							
	Fuel Tank	2400 hr/yr	2703975 gal/yr*	N A	NA		NA
			*max throughput		0.00E+00	0.00E+00	0.00E+00

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Nitrogen Oxides

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential NOx Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly Emission Rate	Annual Emission Rate
Drill Rig Equipment										
	Main Drill Rig Engine 1	1200 hr/yr	206 g fuel/kWh	2480 kW	1.83	g/kW-h	Wartsila SCR spec	18	10.0 lb/hr	6.0 tpy
	Main Drill Rig Engine 2	1200 hr/yr	206 g fuel/kWh	2480 kW	1.83	g/kW-h	Wartsila SCR spec	18	10.0 lb/hr	6.0 tpy
	Main Drill Rig Engine 3	1200 hr/yr	206 g fuel/kWh	2480 kW	1.83	g/kW-h	Wartsila SCR spec	18	10.0 lb/hr	6.0 tpy
	Main Drill Rig Engine 4	1200 hr/yr	206 g fuel/kWh	2480 kW	1.83	g/kW-h	Wartsila SCR spec	18	10.0 lb/hr	6.0 tpy
	Main Engine Uncontrolled 1	125 hr/yr	206 g fuel/kWh	2480 kW	8.8	g/kW-hr	Manufacturer's spec	18	47.9 lb/hr	3.0 tpy
	Main Engine Uncontrolled 2	125 hr/yr	206 g fuel/kWh	2480 kW	8.8	g/kW-hr	Manufacturer's spec	18	47.9 lb/hr	3.0 tpy
	Emergency Back-up Engine	75 hr/yr	205 g fuel/kWh	968 kW	3.2	lb/MMBtu	AP-42, Table 3.4-1	20	29.1 lb/hr	1.09 tpy
	Cement Engine 1	131 hr/yr	29 gal/hr	403 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	18	12.3 lb/hr	0.81 tpy
	Cement Engine 2	131 hr/yr	29 gal/hr	403 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	18	12.3 lb/hr	0.81 tpy
	Logging Winch	273 hr/yr	13 gal/hr	187 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	18	5.7 lb/hr	0.78 tpy
	Heater 1	2400 hr/yr	26 gal/hr	3.5 MMBtu/hr a	20	lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	23	0.53 lb/hr	0.64 tpy
	Heater 2	2400 hr/yr	26 gal/hr	3.5 MMBtu/hr a	20	lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	23	0.53 lb/hr	0.64 tpy
	Incinerator	65 tons/yr	276 lbs/hr	N A	3	lbs/ton	AP-42, Table 2.1-12	15	0.41 lb/hr	0.1 tpy
	Fuel Tank 1	2400 hrs/yr	492790 gal/yr*	N A	N A		NA		N A	N A
	Fuel Tank 2	2400 hrs/yr	492790 gal/yr*	N A	N A		NA		N A	N A
	Mud Degassing	100 days/yr	N A	20000 scf/day	N A		NA		N A	N A
				a Heat input rate						
Ice Breaker 1										
	Main Engine 1	675 hr/yr	426 gal/hr	8046 bhp	2.9	g/kW-h	Design Spec	19	38.3 lb/hr	12.94 tpy
	Main Engine 2	675 hr/yr	426 gal/hr	8046 bhp	2.9	g/kW-h	Design Spec	19	38.3 lb/hr	12.94 tpy
	Main Engine 3	675 hr/yr	320 gal/hr	6035 bhp	2.9	g/kW-h	Design Spec	19	28.8 lb/hr	9.71 tpy
	Main Engine 4	675 hr/yr	320 gal/hr	6035 bhp	2.9	g/kW-h	Design Spec	19	28.8 lb/hr	9.71 tpy
	Harbor Generator	34 hr/yr	50 gal/hr	952 bhp	13.9	g/kW-h	EPA Ocean Vessel Guidance	19	21.7 lb/hr	0.37 tpy
	Emergency Generator	34 hr/yr	21 gal/hr	402 bhp	13.9	g/kW-h	EPA Ocean Vessel Guidance	19	9.2 lb/hr	0.15 tpy
	Boiler 1	675 hr/yr	28 gal/hr	3.7 MMBtu/hr a	20	lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	16	0.6 lb/hr	0.19 tpy
	Boiler 2	675 hr/yr	28 gal/hr	3.7 MMBtu/hr a	20	lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	16	0.6 lb/hr	0.19 tpy
	Incinerator	675 hr/yr	175 lb/hr	N A	3	lbs/ton	AP-42, Table 2.1-12	15	0.3 lb/hr	0.09 tpy
				a Heat input rate						
Ice Breaker 2										
	Main Engine 1	675 hr/yr	426 gal/hr	8046 bhp	2.9	g/kW-h	Design Spec	19	38.3 lb/hr	12.94 tpy
	Main Engine 2	675 hr/yr	426 gal/hr	8046 bhp	2.9	g/kW-h	Design Spec	19	38.3 lb/hr	12.94 tpy
	Main Engine 3	675 hr/yr	320 gal/hr	6035 bhp	2.9	g/kW-h	Design Spec	19	28.8 lb/hr	9.71 tpy
	Main Engine 4	675 hr/yr	320 gal/hr	6035 bhp	2.9	g/kW-h	Design Spec	19	28.8 lb/hr	9.71 tpy
	Harbor Generator	34 hr/yr	50 gal/hr	952 bhp	13.9	g/kW-h	EPA Ocean Vessel Guidance	19	21.7 lb/hr	0.37 tpy
	Emergency Generator	34 hr/yr	21 gal/hr	402 bhp	13.9	g/kW-h	EPA Ocean Vessel Guidance	19	9.2 lb/hr	0.15 tpy
	Boiler 1	675 hr/yr	28 gal/hr	3.7 MMBtu/hr a	20	lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	16	0.6 lb/hr	0.19 tpy
	Boiler 2	675 hr/yr	28 gal/hr	3.7 MMBtu/hr a	20	lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	16	0.6 lb/hr	0.19 tpy
	Incinerator	675 hr/yr	175 lb/hr	N A	3	lbs/ton	AP-42, Table 2.1-12	15	0.3 lb/hr	0.09 tpy
				a Heat input rate						
Oil Spill Response Vessel 1 (Dedicated OSRV)										
	Main Engine 1	900 hr/yr	75 gal/hr	3000 bhp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	31.7 lb/hr	14.27 tpy
	Main Engine 2	900 hr/yr	75 gal/hr	3000 bhp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	31.7 lb/hr	14.27 tpy
	Thruster Engine 1	12 hr/yr	58 gal/hr	950 hp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	24.5 lb/hr	0.15 tpy
	Thruster Engine 2	12 hr/yr	58 gal/hr	950 hp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	24.5 lb/hr	0.15 tpy
	Thruster Engine 3	12 hr/yr	58 gal/hr	950 hp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	24.5 lb/hr	0.15 tpy
	Generator 1	2400 hr/yr	27 gal/hr	400 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	11.6 lb/hr	13.96 tpy
	Generator 2	300 hr/yr	27 gal/hr	400 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	11.6 lb/hr	1.75 tpy
	Generator 3	0 hr/yr	27 gal/hr	400 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	11.6 lb/hr	0.00 tpy
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	3.4 lb/hr	0.05 tpy

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Nitrogen Oxides

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential NOx Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly Emission Rate	Annual Emission Rate
Oil Spill Response Vessel 2										
	Main Engine 1	60 hr/yr	75 gal/hr	3000 bhp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	31.7 lb/hr	0.95 tpy
	Main Engine 2	60 hr/yr	75 gal/hr	3000 bhp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	31.7 lb/hr	0.95 tpy
	Thruster Engine 1	48 hr/yr	58 gal/hr	950 hp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	24.5 lb/hr	0.59 tpy
	Thruster Engine 2	48 hr/yr	58 gal/hr	950 hp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	24.5 lb/hr	0.59 tpy
	Thruster Engine 3	48 hr/yr	58 gal/hr	950 hp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	24.5 lb/hr	0.59 tpy
	Generator 1	60 hr/yr	27 gal/hr	400 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	11.6 lb/hr	0.35 tpy
	Generator 2	30 hr/yr	27 gal/hr	400 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	11.6 lb/hr	0.17 tpy
	Generator 3	0 hr/yr	27 gal/hr	400 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	11.6 lb/hr	0.00 tpy
	Emergency Generator	2 hr/yr	8 gal/hr	99 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	3.4 lb/hr	0.00 tpy
Anchor Handling Supply Tug (AHST)										
0	Main Engine 1	60 hr/yr	160 gal/hr	2529 kW	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	67.6 lb/hr	2.03 tpy
0	Main Engine 2	60 hr/yr	160 gal/hr	2529 kW	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	67.6 lb/hr	2.03 tpy
0	Generator 1	60 hr/yr	25 gal/hr	380 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	10.8 lb/hr	0.32 tpy
0	Generator 2	12 hr/yr	25 gal/hr	380 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	10.8 lb/hr	0.06 tpy
0	Generator 3	0 hr/yr	25 gal/hr	380 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	10.8 lb/hr	0.00 tpy
0	Emergency Generator	6 hr/yr	6 gal/hr	170 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	2.4 lb/hr	0.01 tpy
Offshore Supply Vessels (OSV1 & OSV2)										
	Main Engine 1	360 hr/yr	75 gal/hr	3000 bhp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	31.7 lb/hr	5.71 tpy
	Main Engine 1	100 hr/yr	67 gal/hr	3000 bhp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	28.3 lb/hr	1.42 tpy
	Main Engine 2	360 hr/yr	75 gal/hr	3000 bhp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	31.7 lb/hr	5.71 tpy
	Main Engine 2	100 hr/yr	67 gal/hr	3000 bhp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	28.3 lb/hr	1.42 tpy
	Thruster Engine 1	360 hr/yr	58 gal/hr	950 bhp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	24.5 lb/hr	4.41 tpy
	Thruster Engine 2	360 hr/yr	58 gal/hr	950 bhp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	24.5 lb/hr	4.41 tpy
	Thruster Engine 3	360 hr/yr	58 gal/hr	950 hp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	24.5 lb/hr	4.41 tpy
	Generator	820 hr/yr	27 gal/hr	400 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	11.6 lb/hr	4.77 tpy
	Generator	120 hr/yr	27 gal/hr	400 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	11.6 lb/hr	0.70 tpy
	Generator	0 hr/yr	27 gal/hr	400 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	11.6 lb/hr	0.00 tpy
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	3.4 lb/hr	0.05 tpy
Ware Vessel (WV) w/ OSV backup										
	Main Engine 1	300 hr/yr	87 gal/hr	3200 hp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	36.8 lb/hr	5.52 tpy
	Main Engine 2	300 hr/yr	87 gal/hr	3200 hp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	36.8 lb/hr	5.52 tpy
	Main Engine 3	400 hr/yr	81 gal/hr	3200 hp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	34.2 lb/hr	6.85 tpy
	Main Engine 4	400 hr/yr	81 gal/hr	3200 hp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	34.2 lb/hr	6.85 tpy
	Generator 1	700 hr/yr	32 gal/hr	500 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	13.8 lb/hr	4.83 tpy
	Generator 2	100 hr/yr	32 gal/hr	500 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	13.8 lb/hr	0.69 tpy
	Generator 3	0 hr/yr	32 gal/hr	500 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	13.8 lb/hr	0.00 tpy
	Emergency Generator	30 hr/yr	12 gal/hr	170 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	5.2 lb/hr	0.08 tpy
34' boom work boats - 4										
	WB-1 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	12.9 lb/hr	0.31 tpy
	WB-1 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	12.9 lb/hr	0.31 tpy
	WB-2 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	12.9 lb/hr	0.31 tpy
	WB-2 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	12.9 lb/hr	0.31 tpy
	WB-3 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	12.9 lb/hr	0.31 tpy
	WB-3 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	12.9 lb/hr	0.31 tpy
	WB-4 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	12.9 lb/hr	0.31 tpy
	WB-4 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	12.9 lb/hr	0.31 tpy

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Nitrogen Oxides

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential NOx Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly Emission Rate	Annual Emission Rate
Marine Research Vessel										
	Main Engine	600 hr/yr	45 gal/hr	850 hp	3.2	lb/MMBtu	AP-42, Table 3.4-1	21	19.0 lb/hr	5.7 tpy
	Generator 1	600 hr/yr	10 gal/hr	135 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	18	4.1 lb/hr	1.2 tpy
	Generator 2	600 hr/yr	6 gal/hr	90 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	18	2.8 lb/hr	0.8 tpy
	Generator 3	600 hr/yr	3 gal/hr	40 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	18	1.2 lb/hr	0.4 tpy
Spill Storage Tanker										
	Main Engine 1	12 hr/yr	89 gal/hr	1673.963038 hp	3.2	lb/MMBtu	AP-42, Table 3.4-1	21	37.5 lb/hr	0.2 tpy
	Main Engine 2	12 hr/yr	89 gal/hr	1674 hp	3.2	lb/MMBtu	AP-42, Table 3.4-1	21	37.5 lb/hr	0.2 tpy
	Generator 1	48 hr/yr	41 gal/hr	576 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	19	17.6 lb/hr	0.42 tpy
	Boiler 1	48 hr/yr	109 gal/hr	14 MMBtu/hr	20	lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	23	2.2 lb/hr	0.05 tpy
All Vessels Fuel Tanks										
	Fuel Tank	2400 hr/yr	2703975 gal/yr*	N A	N A		NA		N A	N A

Notes:

1 I kW = 1.3405 hp; 1 lb = 454 g; assumed break specific fuel consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1) and fuel heat content of 132,096 Btu/gal ULSD #1 (Tesoro/Kenai Refinery).
2 Assumed well gas heat content of 1,085 Btu/scf for test flare (email from Dan Lowe 1/7/09) and propane heat content of 2,516 Btu/scf for flare pilot & purge (National Propane Gas Association http://www.npga.org/i4a/pages/index.cfm?pageid=633).
3 ULSD #1 has a density of 0.8094 kg/L (Tesoro/Kenai Refinery); so assume 6.74 lbs/ gal diesel
4 Incinerator waste fuel heat content is assumed 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17).
5 Incinerators will burn ULSD for ignition purposes only.
6 An equivalent of 2 main drilling engines at 100% load will operate continuously for up to 100 days per season (4800 hrs).
7 Mud degassing emission rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977)
8 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 6 times per year).
9 The Ware Vessel will make up to 50 trips per season.
10 EPA Ocean Vessel Guidance is "Emission Inventories for Ocean-Going Vessels Using Category 3 Propulsion Engines In or Near the United States" (EPA420-D-07-007, December, 2007) - Table 3-55 Marine Distillate fuel
11 All drill rig main engines and all ice breaker engines use SCR emission controls.
12 Engines < 600 hp (< 448 kW) and all generators EF from EPA Ocean Vessel Guidance.
13 Engines > 600 hp EF are from AP-42.

NOx Calculations and Conversions:

14 PTE (lb/hr) = EF (lb/MMBtu)*Max Fuel Usage (gal/hour)*(132,096 Btu/gal)*(1MMBtu/1,000,000 Btu)
15 PTE (lb/hr) = EF (lb/ton)*Max Fuel Usage (lb/hr)/(2000 lbs/ton)
16 PTE (lb/hr) = EF (lb/1,000 gal)*Max Fuel Usage (gal/hr)/1,000 gallons
17 PTE (lb/hr) = EF (g/kW-h)*Max Fuel Usage (gal/hour)/(1.3405 hp/kW)/(7,000 Btu/hp-h)*(132,096 Btu/gal)/(454 g/lb)
18 PTE (lb/hr) = EF (g/kW-h)*Max Output Capacity (kW)*(1 lb/454 g)
19 PTE (lb/hr) = EF (g/kW-h)*Max Output Capacity (hp)/(454 g/lb)/(1.3405 hp/kW)
20 PTE (lb/hr) = EF (lb/MMBtu)*Max Output Capacity (kW)*(7,000 Btu/hp-h)*(1.3405 hp/kW)(1MMBtu/1,000,000 Btu)
21 PTE (lb/hr) = EF (lb/MMBtu)*Max Output Capacity (hp)*(7,000 Btu/hp-h)*(MMBtu/1,000,000 Btu)
22 PTE (lb/hr) = EF (lb/MMBtu)* Max Output Capacity (MMscf/day)*(1,085 Btu/scf)/(12 hr/day)
23 PTE (lb/hr) = EF (lb/1,000 gal)*Max Output Capacity (MMBtu/hr)/(1,000 gallons)*(1000000 Btu)/(132096 Btu/gal)
24 PTE (tpy) = Hourly Emission Rate (lb/hr)*Allowable Operation (hr/yr)/(2000 lb/ton)
25 PTE (tpy) = Hourly Emission Rate with Allowable Operation already incorporated (lb/hr)*(8765 hr/yr)/(2000 lb/ton)

brake horse power (bhp) ≈ horse power (hp)

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Carbon Monoxide

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential CO Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly Emission Rate	Annual Emission Rate
Drill Rig Equipment										
	Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 kW	5.50E-03	lb/hp-h	AP-42, Table 3.4-1	14	18.3 lb/hr	11.0 tpy
	Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 kW	5.50E-03	lb/hp-h	AP-42, Table 3.4-1	14	18.3 lb/hr	11.0 tpy
	Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 kW	5.50E-03	lb/hp-h	AP-42, Table 3.4-1	14	18.3 lb/hr	11.0 tpy
	Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 kW	5.50E-03	lb/hp-h	AP-42, Table 3.4-1	14	18.3 lb/hr	11.0 tpy
	Main Engine Uncontrolled 1	125 hr/yr	205.8 g fuel/kWh	2480 kW	5.50E-03	lb/hp-h	AP-42, Table 3.4-1	14	18.3 lb/hr	1.1 tpy
	Main Engine Uncontrolled 2	125 hr/yr	205.8 g fuel/kWh	2480 kW	5.50E-03	lb/hp-h	AP-42, Table 3.4-1	14	18.3 lb/hr	1.1 tpy
	Emergency Back-up Engine	75 hr/yr	205 g fuel/kWh	968 kW	5.50E-03	lb/hp-h	AP-42, Table 3.4-1	14	7.1 lb/hr	0.3 tpy
	Cement Engine 1	131 hr/yr	29 gal/hr	403 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	15	1.0 lb/hr	0.06 tpy
	Cement Engine 2	131 hr/yr	29 gal/hr	403 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	15	1.0 lb/hr	0.06 tpy
	Logging Winch	273 hr/yr	13 gal/hr	187 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	15	0.5 lb/hr	0.06 tpy
	Heater 1	2400 hr/yr	26 gal/hr	4 MMBtu/hr a	5	lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	25	0.13 lb/hr	0.16 tpy
	Heater 2	2400 hr/yr	26 gal/hr	4 MMBtu/hr a	5	lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	25	0.13 lb/hr	0.16 tpy
	Incinerator	65 tons/yr	276 lbs/hr	N A	10	lbs/ton	AP-42, Table 2.1-12	16	1.38 lb/hr	0.33 tpy
	Fuel Tank 1	2400 hrs/yr	492790 gal/yr*	N A	N A		NA		N A	N A
	Fuel Tank 2	2400 hrs/yr	492790 gal/yr*	N A	N A		NA		N A	N A
	Mud Degassing	100 days/yr	N A	20000 scf/day	N A		NA		N A	N A

a Heat input rate

Ice Breaker 1										
	Main Engine 1	675 hr/yr	426 gal/hr	8046 bhp	5.50E-03	lb/hp-h	AP-42, Table 3.4-1	17	44.3 lb/hr	14.94 tpy
	Main Engine 2	675 hr/yr	426 gal/hr	8046 bhp	5.50E-03	lb/hp-h	AP-42, Table 3.4-1	17	44.3 lb/hr	14.94 tpy
	Main Engine 3	675 hr/yr	320 gal/hr	6035 bhp	5.50E-03	lb/hp-h	AP-42, Table 3.4-1	17	33.2 lb/hr	11.20 tpy
	Main Engine 4	675 hr/yr	320 gal/hr	6035 bhp	5.50E-03	lb/hp-h	AP-42, Table 3.4-1	17	33.2 lb/hr	11.20 tpy
	Harbor Generator	33.75 hr/yr	50 gal/hr	952 bhp	1.1	g/kW-h	EPA Ocean Vessel Guidance	18	1.7 lb/hr	0.03 tpy
	Emergency Generator	33.75 hr/yr	21 gal/hr	402 bhp	1.1	g/kW-h	EPA Ocean Vessel Guidance	18	0.7 lb/hr	0.01 tpy
	Boiler 1	675 hr/yr	28 gal/hr	4 MMBtu/hr a	5	lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	19	0.1 lb/hr	0.05 tpy
	Boiler 2	675 hr/yr	28 gal/hr	4 MMBtu/hr a	5	lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	19	0.1 lb/hr	0.05 tpy
	Incinerator	675 hr/yr	175 lb/hr	N A	10	lbs/ton	AP-42, Table 2.1-12	16	0.9 lb/hr	0.30 tpy

a Heat input rate

Ice Breaker 2										
	Main Engine 1	675 hr/yr	426 gal/hr	8046 bhp	5.50E-03	lb/hp-h	AP-42, Table 3.4-1	17	44.3 lb/hr	14.94 tpy
	Main Engine 2	675 hr/yr	426 gal/hr	8046 bhp	5.50E-03	lb/hp-h	AP-42, Table 3.4-1	17	44.3 lb/hr	14.94 tpy
	Main Engine 3	675 hr/yr	320 gal/hr	6035 bhp	5.50E-03	lb/hp-h	AP-42, Table 3.4-1	17	33.2 lb/hr	11.20 tpy
	Main Engine 4	675 hr/yr	320 gal/hr	6035 bhp	5.50E-03	lb/hp-h	AP-42, Table 3.4-1	17	33.2 lb/hr	11.20 tpy
	Harbor Generator	33.75 hr/yr	50 gal/hr	952 bhp	1.1	g/kW-h	EPA Ocean Vessel Guidance	18	1.7 lb/hr	0.03 tpy
	Emergency Generator	33.75 hr/yr	21 gal/hr	402 bhp	1.1	g/kW-h	EPA Ocean Vessel Guidance	18	0.7 lb/hr	0.01 tpy
	Boiler 1	675 hr/yr	28 gal/hr	4 MMBtu/hr a	5	lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	19	0.1 lb/hr	0.05 tpy
	Boiler 2	675 hr/yr	28 gal/hr	4 MMBtu/hr a	5	lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	19	0.1 lb/hr	0.05 tpy
	Incinerator	675 hr/yr	175 lb/hr	N A	10	lbs/ton	AP-42, Table 2.1-12	16	0.9 lb/hr	0.30 tpy

a Heat input rate

Oil Spill Response Vessel 1 (Dedicated OSRV)										
	Main Engine 1	900 hr/yr	75 gal/hr	3000 bhp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	8.4 lb/hr	3.8 tpy
	Main Engine 2	900 hr/yr	75 gal/hr	3000 bhp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	8.4 lb/hr	3.8 tpy
	Thruster Engine 1	12 hr/yr	58 gal/hr	950 hp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	6.5 lb/hr	0.04 tpy
	Thruster Engine 2	12 hr/yr	58 gal/hr	950 hp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	6.5 lb/hr	0.04 tpy
	Thruster Engine 3	12 hr/yr	58 gal/hr	950 hp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	6.5 lb/hr	0.04 tpy
	Generator 1	2400 hr/yr	27 gal/hr	400 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	24	0.92 lb/hr	1.1 tpy
	Generator 2	300 hr/yr	27 gal/hr	400 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	24	0.92 lb/hr	0.1 tpy
	Generator 3	0 hr/yr	27 gal/hr	400 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	24	0.92 lb/hr	0.0 tpy
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	24	0.27 lb/hr	4.09E-03 tpy

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Carbon Monoxide

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential CO Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly Emission Rate	Annual Emission Rate
Oil Spill Response Vessel 2										
	Main Engine 1	60 hr/yr	75 gal/hr	3000 bhp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	8.4 lb/hr	0.3 tpy
	Main Engine 2	60 hr/yr	75 gal/hr	3000 bhp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	8.4 lb/hr	0.3 tpy
	Thruster Engine 1	48 hr/yr	58 gal/hr	950 hp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	6.5 lb/hr	0.2 tpy
	Thruster Engine 2	48 hr/yr	58 gal/hr	950 hp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	6.5 lb/hr	0.2 tpy
	Thruster Engine 3	48 hr/yr	58 gal/hr	950 hp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	6.5 lb/hr	0.2 tpy
	Generator 1	60 hr/yr	27 gal/hr	400 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	24	0.92 lb/hr	0.03 tpy
	Generator 2	30 hr/yr	27 gal/hr	400 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	24	0.92 lb/hr	0.01 tpy
	Generator 3	0 hr/yr	27 gal/hr	400 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	24	0.92 lb/hr	0.0 tpy
	Emergency Generator	2 hr/yr	8 gal/hr	99 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	24	0.27 lb/hr	2.73E-04 tpy
Anchor Handling Supply Tug (AHST)										
0	Main Engine 1	60 hr/yr	160 gal/hr	2529 kW	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	18.0 lb/hr	0.5 tpy
0	Main Engine 2	60 hr/yr	160 gal/hr	2529 kW	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	18.0 lb/hr	0.5 tpy
0	Generator 1	60 hr/yr	25 gal/hr	380 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	24	0.85 lb/hr	0.03 tpy
0	Generator 2	12 hr/yr	25 gal/hr	380 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	24	0.85 lb/hr	0.01 tpy
0	Generator 3	0 hr/yr	25 gal/hr	380 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	24	0.85 lb/hr	0.0 tpy
0	Emergency Generator	6 hr/yr	6 gal/hr	170 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	24	0.19 lb/hr	5.7E-04 tpy
Offshore Supply Vessels (OSV1 & OSV2)										
	Main Engine 1	360 hr/yr	75 gal/hr	3000 bhp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	8.4 lb/hr	1.5 tpy
	Main Engine 1	100 hr/yr	67 gal/hr	3000 bhp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	7.5 lb/hr	0.4 tpy
	Main Engine 2	360 hr/yr	75 gal/hr	3000 bhp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	8.4 lb/hr	1.5 tpy
	Main Engine 2	100 hr/yr	67 gal/hr	3000 bhp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	7.5 lb/hr	0.4 tpy
	Thruster Engine 1	360 hr/yr	58 gal/hr	950 bhp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	6.51 lb/hr	1.2 tpy
	Thruster Engine 2	360 hr/yr	58 gal/hr	950 bhp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	6.5 lb/hr	1.2 tpy
	Thruster Engine 3	360 hr/yr	58 gal/hr	950 hp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	6.5 lb/hr	1.2 tpy
	Generator	820 hr/yr	27 gal/hr	400 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	24	0.92 lb/hr	0.4 tpy
	Generator	120 hr/yr	27 gal/hr	400 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	24	0.92 lb/hr	0.1 tpy
	Generator	0 hr/yr	27 gal/hr	400 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	24	0.92 lb/hr	0.0 tpy
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	24	0.273 lb/hr	4.1E-03 tpy
Ware Vessel (WV) w/ OSV backup										
	Main Engine 1	300 hr/yr	87 gal/hr	3200 hp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	9.8 lb/hr	1.5 tpy
	Main Engine 2	300 hr/yr	87 gal/hr	3200 hp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	9.8 lb/hr	1.5 tpy
	Main Engine 3	400 hr/yr	81 gal/hr	3200 hp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	9.1 lb/hr	1.8 tpy
	Main Engine 4	400 hr/yr	81 gal/hr	3200 hp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	9.1 lb/hr	1.8 tpy
	Generator 1	700 hr/yr	32 gal/hr	500 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	24	1.09 lb/hr	0.4 tpy
	Generator 2	100 hr/yr	32 gal/hr	500 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	24	1.1 lb/hr	0.1 tpy
	Generator 3	0 hr/yr	32 gal/hr	500 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	24	1.1 lb/hr	0.0 tpy
	Emergency Generator	30 hr/yr	12 gal/hr	170 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	24	0.4 lb/hr	6.1E-03 tpy
34' boom work boats - 4										
	WB-1 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	1.1	g/kW-h	EPA Ocean Vessel Guidance	24	1.02 lb/hr	0.02 tpy
	WB-1 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	1.1	g/kW-h	EPA Ocean Vessel Guidance	24	1.0 lb/hr	0.02 tpy
	WB-2 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	1.1	g/kW-h	EPA Ocean Vessel Guidance	24	1.0 lb/hr	0.02 tpy
	WB-2 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	1.1	g/kW-h	EPA Ocean Vessel Guidance	24	1.0 lb/hr	0.02 tpy
	WB-3 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	1.1	g/kW-h	EPA Ocean Vessel Guidance	24	1.0 lb/hr	0.02 tpy
	WB-3 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	1.1	g/kW-h	EPA Ocean Vessel Guidance	24	1.0 lb/hr	0.02 tpy
	WB-4 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	1.1	g/kW-h	EPA Ocean Vessel Guidance	24	1.0 lb/hr	0.02 tpy
	WB-4 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	1.1	g/kW-h	EPA Ocean Vessel Guidance	24	1.0 lb/hr	0.02 tpy

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Carbon Monoxide

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential CO Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly Emission Rate	Annual Emission Rate
Marine Research Vessel										
	Main Engine	600 hr/yr	45 gal/hr	850 hp	0.85	lb/MMBtu	AP-42, Table 3.4-1	23	5.1 lb/hr	1.5 tpy
	Generator 1	600 hr/yr	10 gal/hr	135 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	15	0.3 lb/hr	0.1 tpy
	Generator 2	600 hr/yr	6 gal/hr	90 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	15	0.2 lb/hr	0.1 tpy
	Generator 3	600 hr/yr	3 gal/hr	40 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	15	0.1 lb/hr	2.91E-02 tpy
Spill Storage Tanker										
	Main Engine 1	12 hr/yr	89 gal/hr	1673.963 hp	0.85	lb/MMBtu	AP-42, Table 3.4-1	23	10.0 lb/hr	0.1 tpy
	Main Engine 2	12 hr/yr	89 gal/hr	1673.963 hp	0.85	lb/MMBtu	AP-42, Table 3.4-1	23	10.0 lb/hr	0.1 tpy
	Generator 1	48 hr/yr	41 gal/hr	576.3509 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	18	1.4 lb/hr	0.03 tpy
	Boiler 1	48 hr/yr	109 gal/hr	14.42184 MMBtu/hr	5	lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	25	0.55 lb/hr	0.01 tpy
All Vessels Fuel Tanks										
	Fuel Tank	2400 hr/yr	2703975 gal/yr*	N A	N A		NA		N A	N A

Notes:

1 I kW = 1.3405 hp; 1 lb = 454 g; assumed break specific fuel consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1) and fuel heat content of 132,096 Btu/gal ULSD #1 (Tesoro/Kenai Refinery).
2 Assumed well gas heat content of 1,085 Btu/scf for test flare (email from Dan Lowe 1/7/09) and propane heat content of 2,516 Btu/scf for flare pilot & purge (National Propane Gas Association http://www.npga.org/i4a/pages/index.cfm?pageid=633).
3 ULSD #1 has a density of 0.8094 kg/L (Tesoro/Kenai Refinery); so assume 6.74 lbs/ gal diesel
4 Incinerator waste fuel heat content is assumed 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17).
5 Incinerators will burn ULSD for ignition purposes only.
6 An equivalent of 2 main drilling engines at 100% load will operate continuously for up to 100 days per season (4800 hrs).
8 Mud degassing emission rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977)
9 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 6 times per year).
10 The Ware Vessel will make up to 50 trips per season.
11 EPA Ocean Vessel Guidance is "Emission Inventories for Ocean-Going Vessels Using Category 3 Propulsion Engines In or Near the United States" (EPA420-D-07-007, December, 2007) - Table 3-55 Marine Distillate fuel
12 Engines < 600 hp (< 448 kW) and all generators EF from EPA Ocean Vessel Guidance.
13 Engines > 600 hp EF are from AP-42.

CO Calculations and Conversions:

14 PTE (lb/hr) = EF (lb/hp-h)*Max Output Capacity (kW)*(1.3405 hp/kW)
15 PTE (lb/hr) = EF (g/kW-h)*Max Output Capacity (kW)/(454 g/lb)
16 PTE (lb/hr) = EF (lb/ton)*Max Fuel Usage (lb/hr)/(2000lb/ton)
17 PTE (lb/hr) = EF (lb/hp-h)*Max Output Capacity (bhp)
18 PTE (lb/hr) = EF (g/kW-h)*Max Output Capacity (hp)/(1.3405 hp/kW)/(454 g/lb)
19 PTE (lb/hr) = EF (lb/1,000 gal)*Max Fuel Usage (gal/hr)/1,000
20 PTE (lb/hr) = EF (lb/ton)*Allowable Operation (lb/hr)/(2000 lb/hr)
21 PTE (lb/hr) = EF (lb/hp-h)*Max Fuel Usage (gal/hr)/(7000 Btu/hp-h)*(132096 Btu/gal)
22 PTE (lb/hr) = EF (lb/MMBtu)*Max Fuel Usage (gal/hr)*(132096 Btu/gal)/(1,000,000)
23 PTE (lb/hr) = EF (lb/MMBtu)*Max Output Capacity (hp)*(7,000 Btu/hp-h)/(1,000,000)
24 PTE (lb/hr) = EF (g/kW-h)*Max Fuel Usage (gal/hr)/(7000 Btu/hp-h)*(132096 Btu/gal)/(1.3405 hp/kW)/(454 g/lb)
25 PTE (lb/hr) = EF (lb/1,000 gal)*Max Output Capacity (MMBtu/hr)/(132096 Btu/gal)*(1,000,000 Btu/1 MMBtu)/(1,000)
26 PTE (tpy) = Hourly Emission Rate (lb/hr)*Allowable Operation (hr/yr)/(2000 lb/ton)
27 PTE (tpy) = Hourly Emission Rate with Allowable Operation already incorporated (lb/hr)*(8765 hr/yr)/(2000 lb/ton)
brake horse power (bhp) ≈ horse power (hp)

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - PM10/2.5

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential PM10-PM2.5 Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly Emission Rate	Annual Emission Rate
Drill Rig Equipment										
	Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 kW	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	14	1.33 lb/hr	8.00E-01 tpy
	Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 kW	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	14	1.33 lb/hr	8.00E-01 tpy
	Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 kW	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	14	1.33 lb/hr	8.00E-01 tpy
	Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 kW	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	14	1.33 lb/hr	8.00E-01 tpy
	Main Engine Uncontrolled 1	125 hr/yr	205.8 g fuel/kWh	2480 kW	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	14	1.33 lb/hr	8.33E-02 tpy
	Main Engine Uncontrolled 2	125 hr/yr	205.8 g fuel/kWh	2480 kW	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	14	1.33 lb/hr	8.33E-02 tpy
	Emergency Back-up Engine	75 hr/yr	205 g fuel/kWh	968 kW	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	14	0.52 lb/hr	1.95E-02 tpy
	Cement Engine 1	131 hr/yr	29 gal/hr	403 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	20	0.27 lb/hr	1.75E-02 tpy
	Cement Engine 2	131 hr/yr	29 gal/hr	403 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	20	0.27 lb/hr	1.75E-02 tpy
	Logging Winch	273 hr/yr	13 gal/hr	187 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	20	0.12 lb/hr	1.69E-02 tpy
	Heater 1	2400 hr/yr	26 gal/hr	4 MMBtu/hr a	1.08	lbs/1000 gal	AP-42, Table 1.3-7 (9/1998)	19	0.03 lb/hr	3.43E-02 tpy
	Heater 2	2400 hr/yr	26 gal/hr	4 MMBtu/hr a	1.08	lbs/1000 gal	AP-42, Table 1.3-7 (9/1998)	19	0.03 lb/hr	3.43E-02 tpy
	Incinerator	65 tons/yr	276 lbs/hr	N A	7	lbs/ton	AP-42, Table 2.1-12	16	0.97 lb/hr	2.29E-01 tpy
	Fuel Tank 1	2400 hrs/yr	492790 gal/yr*	N A	N A		NA		N A	N A
	Fuel Tank 2	2400 hrs/yr	492790 gal/yr*	N A	N A		NA		N A	N A
	Mud Degassing	100 days/yr	N A	20000 scf/day	N A		NA		N A	N A
				a Heat input rate						
Ice Breaker 1										
	Main Engine 1	675 hr/yr	426 gal/hr	8046 bhp	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	17	3.23 lb/hr	1.09E+00 tpy
	Main Engine 2	675 hr/yr	426 gal/hr	8046 bhp	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	17	3.23 lb/hr	1.09E+00 tpy
	Main Engine 3	675 hr/yr	320 gal/hr	6035 bhp	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	17	2.42 lb/hr	8.17E-01 tpy
	Main Engine 4	675 hr/yr	320 gal/hr	6035 bhp	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	17	2.42 lb/hr	8.17E-01 tpy
	Harbor Generator	33.75 hr/yr	50 gal/hr	952 bhp	0.3	g/kW-h	EPA Ocean Vessel Guidance	18	0.47 lb/hr	7.92E-03 tpy
	Emergency Generator	33.75 hr/yr	21 gal/hr	402 bhp	0.3	g/kW-h	EPA Ocean Vessel Guidance	18	0.20 lb/hr	3.35E-03 tpy
	Boiler 1	675 hr/yr	28 gal/hr	4 MMBtu/hr a	1.08	lbs/1000 gal	AP-42, Table 1.3-7 (9/1998)	19	0.03 lb/hr	1.02E-02 tpy
	Boiler 2	675 hr/yr	28 gal/hr	4 MMBtu/hr a	1.08	lbs/1000 gal	AP-42, Table 1.3-7 (9/1998)	19	0.03 lb/hr	1.02E-02 tpy
	Incinerator	675 hr/yr	175 lb/hr	N A	7	lbs/ton	AP-42, Table 2.1-12	16	0.61 lb/hr	2.07E-01 tpy
				a Heat input rate						
Ice Breaker 2										
	Main Engine 1	675 hr/yr	426 gal/hr	8046 bhp	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	17	3.23 lb/hr	1.09E+00 tpy
	Main Engine 2	675 hr/yr	426 gal/hr	8046 bhp	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	17	3.23 lb/hr	1.09E+00 tpy
	Main Engine 3	675 hr/yr	320 gal/hr	6035 bhp	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	17	2.42 lb/hr	8.17E-01 tpy
	Main Engine 4	675 hr/yr	320 gal/hr	6035 bhp	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	17	2.42 lb/hr	8.17E-01 tpy
	Harbor Generator	33.75 hr/yr	50 gal/hr	952 bhp	0.3	g/kW-h	EPA Ocean Vessel Guidance	18	0.47 lb/hr	7.92E-03 tpy
	Emergency Generator	33.75 hr/yr	21 gal/hr	402 bhp	0.3	g/kW-h	EPA Ocean Vessel Guidance	18	0.20 lb/hr	3.35E-03 tpy
	Boiler 1	675 hr/yr	28 gal/hr	4 MMBtu/hr a	1.08	lbs/1000 gal	AP-42, Table 1.3-7 (9/1998)	19	0.03 lb/hr	1.02E-02 tpy
	Boiler 2	675 hr/yr	28 gal/hr	4 MMBtu/hr a	1.08	lbs/1000 gal	AP-42, Table 1.3-7 (9/1998)	19	0.03 lb/hr	1.02E-02 tpy
	Incinerator	675 hr/yr	175 lb/hr	N A	7	lbs/ton	AP-42, Table 2.1-12	16	0.61 lb/hr	2.07E-01 tpy
				a Heat input rate						
Oil Spill Response Vessel 1 (Dedicated OSRV)										
	Main Engine 1	900 hr/yr	75 gal/hr	3000 bhp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.57 lb/hr	2.55E-01 tpy
	Main Engine 2	900 hr/yr	75 gal/hr	3000 bhp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.57 lb/hr	2.55E-01 tpy
	Thruster Engine 1	12 hr/yr	58 gal/hr	950 hp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.44 lb/hr	2.63E-03 tpy
	Thruster Engine 2	12 hr/yr	58 gal/hr	950 hp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.44 lb/hr	2.63E-03 tpy
	Thruster Engine 3	12 hr/yr	58 gal/hr	950 hp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.44 lb/hr	2.63E-03 tpy
	Generator 1	2400 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.25 lb/hr	3.01E-01 tpy
	Generator 2	300 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.25 lb/hr	3.77E-02 tpy
	Generator 3	0 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.25 lb/hr	0.00E+00 tpy
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.07 lb/hr	1.12E-03 tpy

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - PM10/2.5

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential PM10-PM2.5 Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly Emission Rate	Annual Emission Rate
Oil Spill Response Vessel 2										
	Main Engine 1	60 hr/yr	75 gal/hr	3000 bhp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.57 lb/hr	1.70E-02 tpy
	Main Engine 2	60 hr/yr	75 gal/hr	3000 bhp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.57 lb/hr	1.70E-02 tpy
	Thruster Engine 1	48 hr/yr	58 gal/hr	950 hp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.44 lb/hr	1.05E-02 tpy
	Thruster Engine 2	48 hr/yr	58 gal/hr	950 hp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.44 lb/hr	1.05E-02 tpy
	Thruster Engine 3	48 hr/yr	58 gal/hr	950 hp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.44 lb/hr	1.05E-02 tpy
	Generator 1	60 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.25 lb/hr	7.53E-03 tpy
	Generator 2	30 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.25 lb/hr	3.77E-03 tpy
	Generator 3	0 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.25 lb/hr	0.00E+00 tpy
	Emergency Generator	2 hr/yr	8 gal/hr	99 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.07 lb/hr	7.44E-05 tpy
Anchor Handling Supply Tug (AHST)										
0	Main Engine 1	60 hr/yr	160 gal/hr	2529 kW	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	1.21 lb/hr	3.63E-02 tpy
0	Main Engine 2	60 hr/yr	160 gal/hr	2529 kW	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	1.21 lb/hr	3.63E-02 tpy
0	Generator 1	60 hr/yr	25 gal/hr	380 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.23 lb/hr	6.98E-03 tpy
0	Generator 2	12 hr/yr	25 gal/hr	380 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.23 lb/hr	1.40E-03 tpy
0	Generator 3	0 hr/yr	25 gal/hr	380 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.23 lb/hr	0.00E+00 tpy
0	Emergency Generator	6 hr/yr	5.6 gal/hr	170 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.05 lb/hr	1.56E-04 tpy
Offshore Supply Vessels (OSV1 & OSV2)										
	Main Engine 1	360 hr/yr	75 gal/hr	3000 bhp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.57 lb/hr	1.02E-01 tpy
	Main Engine 1	100 hr/yr	67 gal/hr	3000 bhp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.51 lb/hr	2.54E-02 tpy
	Main Engine 2	360 hr/yr	75 gal/hr	3000 bhp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.57 lb/hr	1.02E-01 tpy
	Main Engine 2	100 hr/yr	67 gal/hr	3000 bhp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.51 lb/hr	2.54E-02 tpy
	Thruster Engine 1	360 hr/yr	58 gal/hr	950 bhp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.44 lb/hr	7.90E-02 tpy
	Thruster Engine 2	360 hr/yr	58 gal/hr	950 bhp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.44 lb/hr	7.90E-02 tpy
	Thruster Engine 3	360 hr/yr	58 gal/hr	950 hp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.44 lb/hr	7.90E-02 tpy
	Generator	820 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.25 lb/hr	1.03E-01 tpy
	Generator	120 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.25 lb/hr	1.51E-02 tpy
	Generator	0 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.25 lb/hr	0.00E+00 tpy
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.07 lb/hr	1.12E-03 tpy
Ware Vessel (WV) w/ OSV backup										
	Main Engine 1	300 hr/yr	87 gal/hr	3200 hp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.66 lb/hr	9.88E-02 tpy
	Main Engine 2	300 hr/yr	87 gal/hr	3200 hp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.66 lb/hr	9.88E-02 tpy
	Main Engine 3	400 hr/yr	81 gal/hr	3200 hp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.61 lb/hr	1.23E-01 tpy
	Main Engine 4	400 hr/yr	81 gal/hr	3200 hp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.61 lb/hr	1.23E-01 tpy
	Generator 1	700 hr/yr	32 gal/hr	500 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.30 lb/hr	1.04E-01 tpy
	Generator 2	100 hr/yr	32 gal/hr	500 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.30 lb/hr	1.49E-02 tpy
	Generator 3	0 hr/yr	32 gal/hr	500 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.30 lb/hr	0.00E+00 tpy
	Emergency Generator	30 hr/yr	12 gal/hr	170 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.11 lb/hr	1.67E-03 tpy
34' boom work boats - 4										
	WB-1 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.28 lb/hr	6.70E-03 tpy
	WB-1 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.28 lb/hr	6.70E-03 tpy
	WB-2 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.28 lb/hr	6.70E-03 tpy
	WB-2 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.28 lb/hr	6.70E-03 tpy
	WB-3 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.28 lb/hr	6.70E-03 tpy
	WB-3 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.28 lb/hr	6.70E-03 tpy
	WB-4 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.28 lb/hr	6.70E-03 tpy
	WB-4 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.28 lb/hr	6.70E-03 tpy

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - PM10/2.5

Emission Unit		Allowable	Maximum	Maximum		Emission Factor		Reference		Potential PM10-PM2.5 Emissions	
	Description	Operation	Fuel Usage	Output Capacity		Factor	Unit		Note	Hourly Emission Rate	Annual Emission Rate
Marine Research Vessel											
	Main Engine	600 hr/yr	45 gal/hr	850	hp	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	17	0.34 lb/hr	1.02E-01 tpy
	Generator 1	600 hr/yr	10 gal/hr	135	kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	20	0.09 lb/hr	2.68E-02 tpy
	Generator 2	600 hr/yr	6 gal/hr	90	kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	20	0.06 lb/hr	1.79E-02 tpy
	Generator 3	600 hr/yr	3 gal/hr	40	kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	20	0.03 lb/hr	7.94E-03 tpy
Spill Storage Tanker											
	Main Engine 1	12 hr/yr	89 gal/hr	1674	hp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.67 lb/hr	4.03E-03 tpy
	Main Engine 2	12 hr/yr	89 gal/hr	1674	hp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.67 lb/hr	4.03E-03 tpy
	Generator 1	48 hr/yr	41 gal/hr	576	kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	20	0.38 lb/hr	9.15E-03 tpy
	Boiler 1	48 hr/yr	109 gal/hr	14	MMBtu/hr	1.08	lbs/1000 gal	AP-42, Table 1.3-7 (9/1998)	19	0.12 lb/hr	2.83E-03 tpy
All Vessels Fuel Tanks											
	Fuel Tank	2400 hr/yr	2703975 gal/yr*	N	A	N	A	NA		N A	N A

Notes:

1 1 kW = 1.3405 hp; 1 lb = 454 g; 28.32 L/scf; assumed break specific fuel consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1) and fuel heat content of 132,096 Btu/gal ULSD #1 (Tesoro/Kenai Refinery).
2 Assumed well gas heat content of 1,085 Btu/scf for test flare (email from Dan Lowe 1/7/09) and propane heat content of 2,516 Btu/scf for flare pilot & purge (National Propane Gas Association http://www.npga.org/i4a/pages/index.cfm?pageid=633).
3 A wet F-Factor of 10,610 scf/MMBtu is used for flare PTE calcs.
4 ULSD #1 has a density of 0.8094 kg/L (Tesoro/Kenai Refinery); so assume 6.74 lbs/ gal diesel
5 Incinerator waste fuel heat content is assumed 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17).
6 Incinerators will burn ULSD for ignition purposes only.
7 An equivalent of 2 main drilling engines at 100% load will operate continuously for up to 100 days per season (4800 hrs).
8 Mud degassing emission rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977)
9 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 6 times per year).
10 The Ware Vessel will make up to 50 trips per season.
11 EPA Ocean Vessel Guidance is "Emission Inventories for Ocean-Going Vessels Using Category 3 Propulsion Engines In or Near the United States" (EPA420-D-07-007, December, 2007) - Table 3-55 Marine Distillate fuel
12 Engines < 600 hp (< 448 kW) and all generators EF from EPA Ocean Vessel Guidance.
13 Engines > 600 hp EF are from AP-42.

PM 10-2.5 Calculations and Conversions:

14 PTE (lb/hr) = EF (lb/MMBtu)*Max Output Capacity (kW)*(7,000 Btu/hp-h)*(1.3405 hp/kW)(1MMBtu/1,000,000 Btu)
15 PTE (lb/hr) = EF (lb/hp-h)*Max Output Capacity (kW)*(1.3405 hp/kW)
16 PTE (lb/hr) = EF (lb/ton)*Max Fuel Usage (lb/hr)/(2000 lbs/ton)
17 PTE (lb/hr) = EF (lb/MMBtu)*Max Output Capacity (hp)*7,000 Btu/hp-h)*1MMBtu/1,000,000 Btu)
18 PTE (lb/hr) = EF (g/kW-h)*Max Output Capacity (bhp)*(1 lb/454 g)*(1.3405 hp/kW)
19 PTE (lb/hr) = EF (lb/1,000 gal)*Max Output Capacity (MMBtu/hr)/1,000*(1,000,000 Btu/1MMBtu)/(132096 Btu/gal)
20 PTE (lb/hr) = EF (g/kW-h)*Max Output Capacity (kW)/(454 g/lb)
21 PTE (lb/hr) = EF (lb/MMBtu)*Max Fuel Usage (gal/hr)*(132096 Btu/gal)/(1,000,000)
22 PTE (lb/hr) = EF (lb/1,000 gal)*Max Fuel Usage (gal/hr)/1000
23 PTE (lb/hr) = EF (g/kW-h)*Max Fuel Usage (gal/hr)/(7000 Btu/hp-h)*(132096 Btu/gal)/(1.3405 hp/kW)/(454 g/lb)
24 PTE (tpy) = Hourly Emission Rate (lb/hr)*Allowable Operation (hr/yr)/(2000 lb/ton)
25 PTE (tpy) = Hourly Emission Rate with Allowable Operation already incorporated (lb/hr)*(8765 hr/yr)/(2000 lb/ton)
brake horse power (bhp) ≈ horse power (hp)

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - PM

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential PM Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly Emission	Annual Emission Rate
Drill Rig Equipment										
	Main Drill Rig Engine 1	1200 hr/yr	206 g fuel/kWh	2480 kW	0.0007	lb/hp-hr	AP-42 Table 3.4-1	14	2.33 lb/hr	1.40 tpy
	Main Drill Rig Engine 2	1200 hr/yr	206 g fuel/kWh	2480 kW	0.0007	lb/hp-hr	AP-42 Table 3.4-1	14	2.33 lb/hr	1.40 tpy
	Main Drill Rig Engine 3	1200 hr/yr	206 g fuel/kWh	2480 kW	0.0007	lb/hp-hr	AP-42 Table 3.4-1	14	2.33 lb/hr	1.40 tpy
	Main Drill Rig Engine 4	1200 hr/yr	206 g fuel/kWh	2480 kW	0.0007	lb/hp-hr	AP-42 Table 3.4-1	14	2.33 lb/hr	1.40 tpy
	Main Engine Uncontrolled 1	125 hr/yr	206 g fuel/kWh	2480 kW	0.0007	lb/hp-hr	AP-42 Table 3.4-1	14	2.33 lb/hr	0.15 tpy
	Main Engine Uncontrolled 2	125 hr/yr	206 g fuel/kWh	2480 kW	0.0007	lb/hp-hr	AP-42 Table 3.4-1	14	2.33 lb/hr	0.15 tpy
	Emergency Back-up Engine	75 hr/yr	205 g fuel/kWh	968 kW	0.0007	lb/hp-hr	AP-42 Table 3.4-1	14	0.91 lb/hr	0.03 tpy
	Cement Engine 1	131 hr/yr	29 gal/hr	403 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	19	0.27 lb/hr	1.74E-02 tpy
	Cement Engine 2	131 hr/yr	29 gal/hr	403 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	19	0.27 lb/hr	1.74E-02 tpy
	Logging Winch	273 hr/yr	13 gal/hr	187 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	19	0.12 lb/hr	1.69E-02 tpy
	Heater 1	2400 hr/yr	26 gal/hr	4 MMBtu/hr a	2	lb/1,000 gal	AP-42 Table 1.3-1	23	0.05 lb/hr	6.36E-02 tpy
	Heater 2	2400 hr/yr	26 gal/hr	4 MMBtu/hr a	2	lb/1,000 gal	AP-42 Table 1.3-1	23	0.05 lb/hr	6.36E-02 tpy
	Incinerator	65 tons/yr	276 lbs/hr	N A	7	lbs/ton	AP-42, Table 2.1-12	16	0.97 lb/hr	0.03 tpy
	Fuel Tank 1	2400 hrs/yr	492790 gal/yr*	N A	N A		NA		N A	N A
	Fuel Tank 2	2400 hrs/yr	492790 gal/yr*	N A	N A		NA		N A	N A
	Mud Degassing	100 days/yr	N A	20000 scf/day	N A		NA		N A	N A

a Heat input rate

Ice Breaker 1

	Main Engine 1	675 hr/yr	426 gal/hr	8046 bhp	0.0007	lb/hp-hr	AP-42 Table 3.4-1	15	5.63 lb/hr	1.90 tpy
	Main Engine 2	675 hr/yr	426 gal/hr	8046 bhp	0.0007	lb/hp-hr	AP-42 Table 3.4-1	15	5.63 lb/hr	1.90 tpy
	Main Engine 3	675 hr/yr	320 gal/hr	6035 bhp	0.0007	lb/hp-hr	AP-42 Table 3.4-1	15	4.22 lb/hr	1.43 tpy
	Main Engine 4	675 hr/yr	320 gal/hr	6035 bhp	0.0007	lb/hp-hr	AP-42 Table 3.4-1	15	4.22 lb/hr	1.43 tpy
	Harbor Generator	33.75 hr/yr	50 gal/hr	952 bhp	0.3	g/kW-h	EPA Ocean Vessel Guidance	17	0.47 lb/hr	7.92E-03 tpy
	Emergency Generator	33.75 hr/yr	21 gal/hr	402 bhp	0.3	g/kW-h	EPA Ocean Vessel Guidance	17	0.20 lb/hr	3.35E-03 tpy
	Boiler 1	675 hr/yr	28 gal/hr	4 MMBtu/hr a	2	lb/1,000 gal	AP-42 Table 1.3-1	18	0.06 lb/hr	0.02 tpy
	Boiler 2	675 hr/yr	28 gal/hr	4 MMBtu/hr a	2	lb/1,000 gal	AP-42 Table 1.3-1	18	0.06 lb/hr	0.02 tpy
	Incinerator	675 hr/yr	175 lb/hr	N A	7	lbs/ton	AP-42, Table 2.1-12	16	0.61 lb/hr	0.21 tpy

a Heat input rate

Ice Breaker 2

	Main Engine 1	675 hr/yr	426 gal/hr	8046 bhp	0.0007	lb/hp-hr	AP-42 Table 3.4-1	15	5.63 lb/hr	1.90 tpy
	Main Engine 2	675 hr/yr	426 gal/hr	8046 bhp	0.0007	lb/hp-hr	AP-42 Table 3.4-1	15	5.63 lb/hr	1.90 tpy
	Main Engine 3	675 hr/yr	320 gal/hr	6035 bhp	0.0007	lb/hp-hr	AP-42 Table 3.4-1	15	4.22 lb/hr	1.43 tpy
	Main Engine 4	675 hr/yr	320 gal/hr	6035 bhp	0.0007	lb/hp-hr	AP-42 Table 3.4-1	15	4.22 lb/hr	1.43 tpy
	Harbor Generator	33.75 hr/yr	50 gal/hr	952 bhp	0.3	g/kW-h	EPA Ocean Vessel Guidance	17	0.84 lb/hr	1.42E-02 tpy
	Emergency Generator	33.75 hr/yr	21 gal/hr	402 bhp	0.3	g/kW-h	EPA Ocean Vessel Guidance	17	0.36 lb/hr	6.01E-03 tpy
	Boiler 1	675 hr/yr	28 gal/hr	4 MMBtu/hr a	2	lb/1,000 gal	AP-42 Table 1.3-1	18	0.06 lb/hr	0.02 tpy
	Boiler 2	675 hr/yr	28 gal/hr	4 MMBtu/hr a	2	lb/1,000 gal	AP-42 Table 1.3-1	18	0.06 lb/hr	0.02 tpy
	Incinerator	675 hr/yr	175 lb/hr	N A	7	lbs/ton	AP-42, Table 2.1-12	16	0.61 lb/hr	0.21 tpy

a Heat input rate

Oil Spill Response Vessel 1 (Dedicated OSRV)

	Main Engine 1	900 hr/yr	75 gal/hr	3000 bhp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	1.0 lb/hr	0.45 tpy
	Main Engine 2	900 hr/yr	75 gal/hr	3000 bhp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	0.99 lb/hr	0.45 tpy
	Thruster Engine 1	12 hr/yr	58 gal/hr	950 hp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	0.77 lb/hr	0.005 tpy
	Thruster Engine 2	12 hr/yr	58 gal/hr	950 hp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	0.77 lb/hr	0.005 tpy
	Thruster Engine 3	12 hr/yr	58 gal/hr	950 hp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	0.77 lb/hr	0.005 tpy
	Generator 1	2400 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.25 lb/hr	0.30 tpy
	Generator 2	300 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.25 lb/hr	0.04 tpy
	Generator 3	0 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.25 lb/hr	0.0 tpy
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.07 lb/hr	1.12E-03 tpy

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - PM

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential PM Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly Emission	Annual Emission Rate
Oil Spill Response Vessel 2										
	Main Engine 1	60 hr/yr	75 gal/hr	3000 bhp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	1.0 lb/hr	0.03 tpy
	Main Engine 2	60 hr/yr	75 gal/hr	3000 bhp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	0.99 lb/hr	0.03 tpy
	Thruster Engine 1	48 hr/yr	58 gal/hr	950 hp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	0.77 lb/hr	0.02 tpy
	Thruster Engine 2	48 hr/yr	58 gal/hr	950 hp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	0.77 lb/hr	0.02 tpy
	Thruster Engine 3	48 hr/yr	58 gal/hr	950 hp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	0.77 lb/hr	0.02 tpy
	Generator 1	60 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.25 lb/hr	0.01 tpy
	Generator 2	30 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.25 lb/hr	0.004 tpy
	Generator 3	0 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.25 lb/hr	0.0 tpy
	Emergency Generator	2 hr/yr	8 gal/hr	99 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.07 lb/hr	7.44E-05 tpy
Anchor Handling Supply Tug (AHST)										
0	Main Engine 1	60 hr/yr	160 gal/hr	2529 kW	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	2.1 lb/hr	0.06 tpy
0	Main Engine 2	60 hr/yr	160 gal/hr	2529 kW	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	2.11 lb/hr	0.06 tpy
0	Generator 1	60 hr/yr	25 gal/hr	380 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	20	0.25 lb/hr	0.01 tpy
0	Generator 2	12 hr/yr	25 gal/hr	380 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	20	0.25 lb/hr	0.00 tpy
0	Generator 3	0 hr/yr	25 gal/hr	380 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	20	0.25 lb/hr	0.00 tpy
0	Emergency Generator	6 hr/yr	6 gal/hr	170 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.05 lb/hr	1.56E-04 tpy
Offshore Supply Vessels (OSV1 & OSV2)										
	Main Engine 1	360 hr/yr	75 gal/hr	3000 bhp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	1.0 lb/hr	0.18 tpy
	Main Engine 1	100 hr/yr	67 gal/hr	3000 bhp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	0.89 lb/hr	0.04 tpy
	Main Engine 2	360 hr/yr	75 gal/hr	3000 bhp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	0.99 lb/hr	0.18 tpy
	Main Engine 2	100 hr/yr	67 gal/hr	3000 bhp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	0.89 lb/hr	0.04 tpy
	Thruster Engine 1	360 hr/yr	58 gal/hr	950 bhp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	0.77 lb/hr	0.14 tpy
	Thruster Engine 2	360 hr/yr	58 gal/hr	950 bhp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	0.77 lb/hr	0.14 tpy
	Thruster Engine 3	360 hr/yr	58 gal/hr	950 hp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	0.77 lb/hr	0.14 tpy
	Generator	820 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	20	0.26 lb/hr	0.11 tpy
	Generator	120 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	20	0.26 lb/hr	0.02 tpy
	Generator	0 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	20	0.26 lb/hr	0.00 tpy
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	20	0.07 lb/hr	9.81E-04 tpy
Ware Vessel (WV) w/ OSV backup										
	Main Engine 1	300 hr/yr	87 gal/hr	3200 hp	0.1	lb/MMBtu	AP-42, Table 3.4-1	17	1.15 lb/hr	0.17 tpy
	Main Engine 2	300 hr/yr	87 gal/hr	3200 hp	0.1	lb/MMBtu	AP-42, Table 3.4-1	17	1.15 lb/hr	0.17 tpy
	Main Engine 3	400 hr/yr	81 gal/hr	3200 hp	0.1	lb/MMBtu	AP-42, Table 3.4-1	17	1.07 lb/hr	0.21 tpy
	Main Engine 4	400 hr/yr	81 gal/hr	3200 hp	0.1	lb/MMBtu	AP-42, Table 3.4-1	17	1.07 lb/hr	0.21 tpy
	Generator 1	700 hr/yr	32 gal/hr	500 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.30 lb/hr	0.10 tpy
	Generator 2	100 hr/yr	32 gal/hr	500 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.30 lb/hr	0.01 tpy
	Generator 3	0 hr/yr	32 gal/hr	500 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.30 lb/hr	0.00 tpy
	Emergency Generator	30 hr/yr	12 gal/hr	170 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.11 lb/hr	1.67E-03 tpy
34' boom work boats - 4										
	WB-1 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.28 lb/hr	6.70E-03 tpy
	WB-1 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.28 lb/hr	6.70E-03 tpy
	WB-2 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.28 lb/hr	6.70E-03 tpy
	WB-2 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.28 lb/hr	6.70E-03 tpy
	WB-3 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.28 lb/hr	6.70E-03 tpy
	WB-3 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.28 lb/hr	6.70E-03 tpy
	WB-4 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.28 lb/hr	6.70E-03 tpy
	WB-4 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.28 lb/hr	6.70E-03 tpy

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - PM

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential PM Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly Emission	Annual Emission Rate
Marine Research Vessel										
	Main Engine	600 hr/yr	45 gal/hr	850 hp	0.0007	lb/hp-hr	AP-42 Table 3.4-1	15	0.60 lb/hr	0.18 tpy
	Generator 1	600 hr/yr	10 gal/hr	135 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	19	0.09 lb/hr	0.03 tpy
	Generator 2	600 hr/yr	6 gal/hr	90 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	19	0.06 lb/hr	0.02 tpy
	Generator 3	600 hr/yr	3 gal/hr	40 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	19	0.03 lb/hr	0.01 tpy
Spill Storage Tanker										
	Main Engine 1	12 hr/yr	89 gal/hr	1673.963 hp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	1.17 lb/hr	0.01 tpy
	Main Engine 2	12 hr/yr	89 gal/hr	1673.963 hp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	1.17 lb/hr	0.01 tpy
	Generator 1	48 hr/yr	41 gal/hr	576.3509 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	19	0.38 lb/hr	9.14E-03 tpy
	Boiler 1	48 hr/yr	109 gal/hr	14.42184 MMBtu/hr	2	lb/1,000 gal	AP-42 Table 1.3-1	23	0.22 lb/hr	5.24E-03 tpy
All Vessels Fuel Tanks										
	Fuel Tank	2400 hr/yr	2703975 gal/yr*	N A	N A		NA		N A	N A

Notes:

1 I kW = 1.3405 hp; 1 lb = 454 g; 28.32 L/scf; assumed break specific fuel consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1) and fuel heat content of 132,096 Btu/gal ULSD #1 (Tesoro/Kenai Refinery).
2 Assumed well gas heat content of 1,085 Btu/scf for test flare (email from Dan Lowe 1/7/09) and propane heat content of 2,516 Btu/scf for flare pilot & purge (National Propane Gas Association http://www.npga.org/i4a/pages/index.cfm?pageid=633).
3 A wet F-Factor of 10,610 scf/MMBtu is used for flare PTE calcs.
4 ULSD #1 has a density of 0.8094 kg/L (Tesoro/Kenai Refinery); so assume 6.74 lbs/ gal diesel
5 Incinerator waste fuel heat content is assumed 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17).
6 Incinerators will burn ULSD for ignition purposes only.
7 An equivalent of 2 main drilling engines at 100% load will operate continuously for up to 100 days per season (4800 hrs).
8 Mud degassing emission rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977)
9 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 6 times per year).
10 The Ware Vessel will make up to 50 trips per season.
11 EPA Ocean Vessel Guidance is "Emission Inventories for Ocean-Going Vessels Using Category 3 Propulsion Engines In or Near the United States" (EPA420-D-07-007, December, 2007) - Table 3-55 Marine Distillate fuel
12 Engines < 600 hp (< 448 kW) and all generators EF from EPA Ocean Vessel Guidance.
13 Engines > 600 hp EF are from AP-42.

PM Calculations and Conversions:

14 PTE (lb/hr) = EF (lb/hp-h)*Max Output Capacity (kW)*(1.3405 hp/kW)
15 PTE (lb/hr) = EF (lb/hp-h)*Max Output Capacity (hp)
16 PTE (lb/hr) = EF (lb/ton)*Max Fuel Usage (lb/hr)/(2000 lbs/ton)
17 PTE (lb/hr) = EF (g/kW-h)*Max Output Capacity (bhp)*(1 lb/454 g)*(1.3405 hp/kW)
18 PTE (lb/hr) = EF (lb/1,000 gal)*Max Fuel Usage (gal/hr)/1,000
19 PTE (lb/hr) = EF (g/kW-h)*Max Output Capacity (kW)/(454 g/lb)
20 PTE (lb/hr) = EF (lb/hp-h)*Max Fuel Usage (gal/hr)*(132096 Btu/gal)/(7000 Btu/hp-h)
21 PTE (lb/hr) = EF (g/kW-h)*Max Fuel Usage (gal/hr)/(7000 Btu/hp-h)*(132096 Btu/gal)/(1.3405 hp/kW)/(454 g/lb)
22 PTE (lb/hr) = EF (lb/MMBtu)*Max Fuel Usage (gal/hr)*(132096 Btu/gal)*(1 MMBtu/1,000,000 Btu)
23 PTE (lb/hr) = EF (lb/1,000 gal)*Max Output Capacity (MMBtu/hr)/(132096 Btu/gal)*(1,000,000 Btu/1 MMBtu)/(1,000)
24 PTE (tpy) = Hourly Emission Rate (lb/hr)*Allowable Operation (hr/yr)/(2000 lb/ton)
25 PTE (tpy) = Hourly Emission Rate with Allowable Operation already incorporated (lb/hr)*(8765 hr/yr)/(2000 lb/ton)
brake horse power (bhp) ≈ horse power (hp)

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Volatile Organic Compounds

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential VOC Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly	Annual Rate
Drill Rig Equipment										
	Main Drill Rig Engine 1	1200 hr/yr	206 g fuel/kWh	2480 kW	6.42E-04	lb/hp-hr	AP-42, Table 3.4-1	16	2.13 lb/hr	1.28 tpy
	Main Drill Rig Engine 2	1200 hr/yr	206 g fuel/kWh	2480 kW	6.42E-04	lb/hp-hr	AP-42, Table 3.4-1	16	2.13 lb/hr	1.28 tpy
	Main Drill Rig Engine 3	1200 hr/yr	206 g fuel/kWh	2480 kW	6.42E-04	lb/hp-hr	AP-42, Table 3.4-1	16	2.13 lb/hr	1.28 tpy
	Main Drill Rig Engine 4	1200 hr/yr	206 g fuel/kWh	2480 kW	6.42E-04	lb/hp-hr	AP-42, Table 3.4-1	16	2.13 lb/hr	1.28 tpy
	Main Engine Uncontrolled 1	125 hr/yr	206 g fuel/kWh	2480 kW	6.42E-04	lb/hp-hr	AP-42, Table 3.4-1	16	2.13 lb/hr	0.13 tpy
	Main Engine Uncontrolled 2	125 hr/yr	206 g fuel/kWh	2480 kW	6.42E-04	lb/hp-hr	AP-42, Table 3.4-1	16	2.13 lb/hr	0.13 tpy
	Emergency Back-up Engine	75 hr/yr	205 g fuel/kWh	968 kW	6.42E-04	lb/hp-hr	AP-42, Table 3.4-1	16	0.83 lb/hr	0.03 tpy
	Cement Engine 1	131 hr/yr	29 gal/hr	403 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	17	0.35 lb/hr	2.32E-02 tpy
	Cement Engine 2	131 hr/yr	29 gal/hr	403 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	17	0.35 lb/hr	2.32E-02 tpy
	Logging Winch	273 hr/yr	13 gal/hr	187 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	17	0.16 lb/hr	2.25E-02 tpy
	Heater 1	2400 hr/yr	26 gal/hr	4 MMBtu/hr a	0.2	lb/10^3 gal	AP-42 Table 1.3-3	23	5.30E-03 lb/hr	6.36E-03 tpy
	Heater 2	2400 hr/yr	26 gal/hr	4 MMBtu/hr a	0.2	lb/10^3 gal	AP-42 Table 1.3-3	23	5.30E-03 lb/hr	6.36E-03 tpy
	Incinerator	65 tons/yr	276 lbs/hr	N A	7	lbs/ton	AP-42, Table 2.1-12	18	0.97 lb/hr	0.03 tpy
	Fuel Tank 1	2400 hrs/yr	492790 gal/yr*	N A	N A		EPA TANKS	15	2.86E-03 lb/hr	3.44E-03 tpy
	Fuel Tank 2	2400 hrs/yr	492790 gal/yr*	N A	N A		EPA TANKS	15	2.86E-03 lb/hr	3.44E-03 tpy
	Mud Degassing	100 days/yr	N A	20000 scf/day	97	lb/day	EPA-450/3-77-026	19,20	1.11 lb/hr	4.85 tpy

a Heat input rate

Ice Breaker 1

	Main Engine 1	675 hr/yr	426 gal/hr	8046 bhp	6.42E-04	lb/hp-hr	AP-42, Table 3.4-1	21	5.16 lb/hr	1.74 tpy
	Main Engine 2	675 hr/yr	426 gal/hr	8046 bhp	6.42E-04	lb/hp-hr	AP-42, Table 3.4-1	21	5.16 lb/hr	1.74 tpy
	Main Engine 3	675 hr/yr	320 gal/hr	6035 bhp	6.42E-04	lb/hp-hr	AP-42, Table 3.4-1	21	3.87 lb/hr	1.31 tpy
	Main Engine 4	675 hr/yr	320 gal/hr	6035 bhp	6.42E-04	lb/hp-hr	AP-42, Table 3.4-1	21	3.87 lb/hr	1.31 tpy
	Harbor Generator	33.75 hr/yr	50 gal/hr	952 bhp	0.4	g/kW-h	EPA Ocean Vessel Guidance	22	0.63 lb/hr	1.06E-02 tpy
	Emergency Generator	33.75 hr/yr	21 gal/hr	402 bhp	0.4	g/kW-h	EPA Ocean Vessel Guidance	22	0.26 lb/hr	4.46E-03 tpy
	Boiler 1	675 hr/yr	28 gal/hr	4 MMBtu/hr a	0.2	lb/10^3 gal	AP-42 Table 1.3-3	23	5.60E-03 lb/hr	1.89E-03 tpy
	Boiler 2	675 hr/yr	28 gal/hr	4 MMBtu/hr a	0.2	lb/10^3 gal	AP-42 Table 1.3-3	23	5.60E-03 lb/hr	1.89E-03 tpy
	Incinerator	675 hr/yr	175 lb/hr	N A	7	lbs/ton	AP-42, Table 2.1-12	18	0.61 lb/hr	0.21 tpy

a Heat input rate

Ice Breaker 2

	Main Engine 1	675 hr/yr	426 gal/hr	8046 bhp	6.42E-04	lb/hp-hr	AP-42, Table 3.4-1	21	5.16 lb/hr	1.74 tpy
	Main Engine 2	675 hr/yr	426 gal/hr	8046 bhp	6.42E-04	lb/hp-hr	AP-42, Table 3.4-1	21	5.16 lb/hr	1.74 tpy
	Main Engine 3	675 hr/yr	320 gal/hr	6035 bhp	6.42E-04	lb/hp-hr	AP-42, Table 3.4-1	21	3.87 lb/hr	1.31 tpy
	Main Engine 4	675 hr/yr	320 gal/hr	6035 bhp	6.42E-04	lb/hp-hr	AP-42, Table 3.4-1	21	3.87 lb/hr	1.31 tpy
	Harbor Generator	33.75 hr/yr	50 gal/hr	952 bhp	0.4	g/kW-h	EPA Ocean Vessel Guidance	22	0.63 lb/hr	1.06E-02 tpy
	Emergency Generator	33.75 hr/yr	21 gal/hr	402 bhp	0.4	g/kW-h	EPA Ocean Vessel Guidance	22	0.26 lb/hr	4.46E-03 tpy
	Boiler 1	675 hr/yr	28 gal/hr	4 MMBtu/hr a	0.2	lb/10^3 gal	AP-42 Table 1.3-3	23	5.60E-03 lb/hr	1.89E-03 tpy
	Boiler 2	675 hr/yr	28 gal/hr	4 MMBtu/hr a	0.2	lb/10^3 gal	AP-42 Table 1.3-3	23	5.60E-03 lb/hr	1.89E-03 tpy
	Incinerator	675 hr/yr	175 lb/hr	N A	7	lbs/ton	AP-42, Table 2.1-12	18	0.61 lb/hr	0.21 tpy

a Heat input rate

Oil Spill Response Vessel 1 (Dedicated OSRV)

	Main Engine 1	900 hr/yr	75 gal/hr	3000 bhp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.81 lb/hr	0.37 tpy
	Main Engine 2	900 hr/yr	75 gal/hr	3000 bhp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.81 lb/hr	0.37 tpy
	Thruster Engine 1	12 hr/yr	58 gal/hr	950 hp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.63 lb/hr	3.76E-03 tpy
	Thruster Engine 2	12 hr/yr	58 gal/hr	950 hp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.63 lb/hr	3.76E-03 tpy
	Thruster Engine 3	12 hr/yr	58 gal/hr	950 hp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.63 lb/hr	3.76E-03 tpy
	Generator 1	2400 hr/yr	27 gal/hr	400 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.33 lb/hr	0.40 tpy
	Generator 2	300 hr/yr	27 gal/hr	400 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.33 lb/hr	0.05 tpy
	Generator 3	0 hr/yr	27 gal/hr	400 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.33 lb/hr	0.00 tpy
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.10 lb/hr	1.49E-03 tpy

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Volatile Organic Compounds

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential VOC Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly	Annual Rate
Oil Spill Response Vessel 2										
	Main Engine 1	60 hr/yr	75 gal/hr	3000 bhp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.81 lb/hr	0.02 tpy
	Main Engine 2	60 hr/yr	75 gal/hr	3000 bhp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.81 lb/hr	0.02 tpy
	Thruster Engine 1	48 hr/yr	58 gal/hr	950 hp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.63 lb/hr	1.51E-02 tpy
	Thruster Engine 2	48 hr/yr	58 gal/hr	950 hp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.63 lb/hr	1.51E-02 tpy
	Thruster Engine 3	48 hr/yr	58 gal/hr	950 hp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.63 lb/hr	1.51E-02 tpy
	Generator 1	60 hr/yr	27 gal/hr	400 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.33 lb/hr	0.01 tpy
	Generator 2	30 hr/yr	27 gal/hr	400 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.33 lb/hr	0.01 tpy
	Generator 3	0 hr/yr	27 gal/hr	400 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.33 lb/hr	0.00 tpy
	Emergency Generator	2 hr/yr	8 gal/hr	99 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.10 lb/hr	9.92E-05 tpy
Anchor Handling Supply Tug (AHST)										
0	Main Engine 1	60 hr/yr	160 gal/hr	2529 kW	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	1.73 lb/hr	0.05 tpy
0	Main Engine 2	60 hr/yr	160 gal/hr	2529 kW	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	1.73 lb/hr	0.05 tpy
0	Generator 1	60 hr/yr	25 gal/hr	380 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.31 lb/hr	0.01 tpy
0	Generator 2	12 hr/yr	25 gal/hr	380 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.31 lb/hr	0.00 tpy
0	Generator 3	0 hr/yr	25 gal/hr	380 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.31 lb/hr	0.00 tpy
0	Emergency Generator	6 hr/yr	6 gal/hr	170 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.07 lb/hr	2.08E-04 tpy
Offshore Supply Vessels (OSV1 & OSV2)										
	Main Engine 1	360 hr/yr	75 gal/hr	3000 bhp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.81 lb/hr	0.15 tpy
	Main Engine 1	100 hr/yr	67 gal/hr	3000 bhp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.72 lb/hr	0.04 tpy
	Main Engine 2	360 hr/yr	75 gal/hr	3000 bhp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.81 lb/hr	0.15 tpy
	Main Engine 2	100 hr/yr	67 gal/hr	3000 bhp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.72 lb/hr	0.04 tpy
	Thruster Engine 1	360 hr/yr	58 gal/hr	950 bhp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.63 lb/hr	0.11 tpy
	Thruster Engine 2	360 hr/yr	58 gal/hr	950 bhp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.63 lb/hr	0.11 tpy
	Thruster Engine 3	360 hr/yr	58 gal/hr	950 hp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.63 lb/hr	0.11 tpy
	Generator	820 hr/yr	27 gal/hr	400 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.33 lb/hr	0.14 tpy
	Generator	120 hr/yr	27 gal/hr	400 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.33 lb/hr	0.02 tpy
	Generator	0 hr/yr	27 gal/hr	400 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.33 lb/hr	0.00 tpy
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.10 lb/hr	1.49E-03 tpy
Ware Vessel (WV) w/ OSV backup										
	Main Engine 1	300 hr/yr	87 gal/hr	3200 hp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.94 lb/hr	0.14 tpy
	Main Engine 2	300 hr/yr	87 gal/hr	3200 hp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.94 lb/hr	0.14 tpy
	Main Engine 3	400 hr/yr	81 gal/hr	3200 hp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.88 lb/hr	0.18 tpy
	Main Engine 4	400 hr/yr	81 gal/hr	3200 hp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.88 lb/hr	0.18 tpy
	Generator 1	700 hr/yr	32 gal/hr	500 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.40 lb/hr	0.14 tpy
	Generator 2	100 hr/yr	32 gal/hr	500 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.40 lb/hr	0.02 tpy
	Generator 3	0 hr/yr	32 gal/hr	500 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.40 lb/hr	0.00 tpy
	Emergency Generator	30 hr/yr	12 gal/hr	170 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.15 lb/hr	2.23E-03 tpy
34' boom work boats - 4										
	WB-1 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.37 lb/hr	8.93E-03 tpy
	WB-1 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.37 lb/hr	8.93E-03 tpy
	WB-2 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.37 lb/hr	8.93E-03 tpy
	WB-2 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.37 lb/hr	8.93E-03 tpy
	WB-3 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.37 lb/hr	8.93E-03 tpy
	WB-3 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.37 lb/hr	8.93E-03 tpy
	WB-4 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.37 lb/hr	8.93E-03 tpy
	WB-4 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.37 lb/hr	8.93E-03 tpy

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Volatile Organic Compounds

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential VOC Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly	Annual Rate
Marine Research Vessel										
	Main Engine	600 hr/yr	45.043 gal/hr	850 hp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	27	0.49 lb/hr	0.15 tpy
	Generator 1	600 hr/yr	9.589787 gal/hr	135 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	17	0.12 lb/hr	0.04 tpy
	Generator 2	600 hr/yr	6.393191 gal/hr	90 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	17	0.08 lb/hr	0.02 tpy
	Generator 3	600 hr/yr	2.841418 gal/hr	40 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	17	0.04 lb/hr	1.06E-02 tpy
Spill Storage Tanker										
	Main Engine 1	12 hr/yr	88.70625 gal/hr	1674 hp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.96 lb/hr	0.01 tpy
	Main Engine 2	12 hr/yr	88.70625 gal/hr	1674 hp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.96 lb/hr	0.01 tpy
	Generator 1	48 hr/yr	40.94135 gal/hr	576 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	17	0.51 lb/hr	1.22E-02 tpy
	Boiler 1	48 hr/yr	109.1769 gal/hr	14 MMBtu/hr	0.2	lb/10^3 gal	AP-42 Table 1.3-3	23	2.18E-02 lb/hr	5.24E-04 tpy
All Vessels Fuel Tanks										
	Fuel Tank	2400 hr/yr	2703975 gal/yr*	N A	N A		EPA TANKS	15	1.17E-02 lb/hr	1.40E-02 tpy

Notes:

1 I kW = 1.3405 hp; 1 lb = 454 g; assumed break specific fuel consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1) and fuel heat content of 132,096 Btu/gal ULSD #1 (Tesoro/Kenai Refinery).
2 Assumed well gas heat content of 1,085 Btu/scf for test flare (email from Dan Lowe 1/7/09) and propane heat content of 2,516 Btu/scf for flare pilot & purge (National Propane Gas Association http://www.npga.org/i4a/pages/index.cfm?pageid=633).
3 ULSD #1 has a density of 0.8094 kg/L (Tesoro/Kenai Refinery); so assume 6.74 lbs/ gal diesel
4 Incinerator waste fuel heat content is assumed 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17).
5 Fuel Usage is back calculated from Max Output capacity when not available from manufacturer specifications.
6 Incinerators will burn ULSD for ignition purposes only.
7 An equivalent of 2 main drilling engines at 100% load will operate continuously for up to 100 days per season (4800 hrs).
8 Mud degassing emission rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977)
9 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 6 times per year).
10 The Ware Vessel will make up to 50 trips per season.
11 EPA Ocean Vessel Guidance is "Emission Inventories for Ocean-Going Vessels Using Category 3 Propulsion Engines In or Near the United States" (EPA420-D-07-007, December, 2007) - Table 3-55 Marine Distillate fuel
12 Engines < 600 hp (< 448 kW) and all generators EF from EPA Ocean Vessel Guidance.
13 Engines > 600 hp EF are from AP-42.
14 AP-42 factors for TOC were used with methane subtracted for engines larger than 600 hp. Manufacturer factor used for HC. Methane data not available for engines smaller than 600 hp or HC.
15 Tank emissions are derived from EPA's TANKS Emissions Estimation Software, Version 4.09D: http://www.epa.gov/ttnchie1/software/tanks/index.html

VOC Calculations and Conversions

16 PTE (lb/hr) = EF (lb/hp-h)*Max Output Capacity (kW)*(1.3405 hp/kW)
17 PTE (lb/hr) = EF (g/kW-h)*Max Output Capacity (kW)/(454 g/lb)
18 PTE (lb/hr) = EF (lb/ton)*Max Fuel Usage (lb/hr)/(2000lb/ton)
19 PTE (tpy) = EF (lb/day)*Allowable Operation (day/yr)/(2,000 lbs/ton)
20 PTE (lb/hr) = PTE (ton/yr)/(8765 hr/yr)*(2000 lb/ton)
21 PTE (lb/hr) = EF (lb/hp-h)*Max Output Capacity (hp)
22 PTE (lb/hr) = EF (g/kW-h)*Max Output Capacity (hp)/(1.3405 hp/kW)/(454 g/lb)
23 PTE (lb/hr) = EF (lb/1,000 gal)*Max Fuel Usage (gal/hr)
24 PTE (lb/hr) = EF (lb/hp-h)*Max Fuel Usage (gal/hr)*(132096 Btu/gal)/(7,000 Btu/hp-h)
25 PTE (lb/hr) = EF (g/kW-h)*Max Fuel Usage (gal/hr)*(7,000 Btu/hp-h)*(132096 Btu/gal)/(1.3405 hp/kW)/(454 g/lb)
26 PTE (lb/hr) = EF (lb/MMBtu)*Max Fuel Usage (gal/hr)*132096 Btu/gal)/(1,000,000)
27 PTE (lb/hr) = EF (lb/MMBtu)*Max Output Capacity (kW)*(7,000 Btu/hp-h)*(1.3405 hp/kW)/(1,000,000)
28 PTE (tpy) = PTE (lb/hr)*Allowable Operation (hr/yr)/(2000 lb/ton)
29 Mud Degassing EF: 881 lb HC/day = (0.4 Mg HC emissions/day)*(1,000,000 g /Mg)/(454 g/lb)
96.9 lb VOC/day = (881 lb HC/day)*(11% VOC/100% HC)

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Sulfur Dioxide

Emission Unit		Fuel	Allowable	Maximum	Maximum	SO2 Emission Factor		Reference		Potential SO2 Emissions	
	Description	Sulfur Content	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly Emission Rate	Annual Emission Rate
Drill Rig Equipment											
	Main Drill Rig Engine 1	0.0015 wt. % S	1200 hr/yr	206 g fuel/kWh	2480 kW	2.02E-04	lb/gal	Mass Balance	14	3.56E-02 lb/hr	2.14E-02 tpy
	Main Drill Rig Engine 2	0.0015 wt. % S	1200 hr/yr	206 g fuel/kWh	2480 kW	2.02E-04	lb/gal	Mass Balance	14	3.56E-02 lb/hr	2.14E-02 tpy
	Main Drill Rig Engine 3	0.0015 wt. % S	1200 hr/yr	206 g fuel/kWh	2480 kW	2.02E-04	lb/gal	Mass Balance	14	3.56E-02 lb/hr	2.14E-02 tpy
	Main Drill Rig Engine 4	0.0015 wt. % S	1200 hr/yr	206 g fuel/kWh	2480 kW	2.02E-04	lb/gal	Mass Balance	14	3.56E-02 lb/hr	2.14E-02 tpy
	Main Engine Uncontrolled 1	0.0015 wt. % S	125 hr/yr	206 g fuel/kWh	2480 kW	2.02E-04	lb/gal	Mass Balance	14	3.56E-02 lb/hr	2.23E-03 tpy
	Main Engine Uncontrolled 2	0.0015 wt. % S	125 hr/yr	206 g fuel/kWh	2480 kW	2.02E-04	lb/gal	Mass Balance	14	3.56E-02 lb/hr	2.23E-03 tpy
	Emergency Back-up Engine	0.0015 wt. % S	75 hr/yr	205 g fuel/kWh	968 kW	2.02E-04	lb/gal	Mass Balance	14	1.39E-02 lb/hr	5.21E-04 tpy
	Cement Engine 1	0.0015 wt. % S	131 hr/yr	29 gal/hr	403 kW	2.02E-04	lb/gal	Mass Balance	14	5.79E-03 lb/hr	2.93E-06 tpy
	Cement Engine 2	0.0015 wt. % S	131 hr/yr	29 gal/hr	403 kW	2.02E-04	lb/gal	Mass Balance	14	5.79E-03 lb/hr	2.93E-06 tpy
	Logging Winch	0.0015 wt. % S	273 hr/yr	13 gal/hr	187 kW	2.02E-04	lb/gal	Mass Balance	14	2.69E-03 lb/hr	3.67E-04 tpy
	Heater 1	0.0015 wt. % S	2400 hr/yr	26 gal/hr	3.5 MMBtu/hr a	2.02E-04	lb/gal	Mass Balance	18	5.36E-03 lb/hr	6.43E-03 tpy
	Heater 2	0.0015 wt. % S	2400 hr/yr	26 gal/hr	3.5 MMBtu/hr a	2.02E-04	lb/gal	Mass Balance	18	5.36E-03 lb/hr	6.43E-03 tpy
	Incinerator	0.0015 wt. % S	65 tons/yr	276 lbs/hr	N A	2.5	lbs/ton	AP-42, Table 2.1-12	15	3.45E-01 lb/hr	8.17E-02 tpy
	Fuel Tank 1	0.0015 wt. % S	2400 hrs/yr	492790 gal/yr*	N A	N A		NA		N A	N A
	Fuel Tank 2	0.0015 wt. % S	2400 hrs/yr	492790 gal/yr*	N A	N A		NA		N A	N A
	Mud Degassing	0.0015 wt. % S	100 days/yr	N A	20000 scf/day	N A		NA		N A	N A
					a Heat input rate						
Ice Breaker 1											
	Main Engine 1	0.0015 wt. % S	675 hr/yr	426 gal/hr	8046 bhp	2.02E-04	lb/gal	Mass Balance	16	8.62E-02 lb/hr	2.91E-02 tpy
	Main Engine 2	0.0015 wt. % S	675 hr/yr	426 gal/hr	8046 bhp	2.02E-04	lb/gal	Mass Balance	16	8.62E-02 lb/hr	2.91E-02 tpy
	Main Engine 3	0.0015 wt. % S	675 hr/yr	320 gal/hr	6035 bhp	2.02E-04	lb/gal	Mass Balance	16	6.47E-02 lb/hr	2.18E-02 tpy
	Main Engine 4	0.0015 wt. % S	675 hr/yr	320 gal/hr	6035 bhp	2.02E-04	lb/gal	Mass Balance	16	6.47E-02 lb/hr	2.18E-02 tpy
	Harbor Generator	0.0015 wt. % S	33.75 hr/yr	50 gal/hr	952 bhp	2.02E-04	lb/gal	Mass Balance	16	1.02E-02 lb/hr	1.72E-04 tpy
	Emergency Generator	0.0015 wt. % S	33.75 hr/yr	21 gal/hr	402 bhp	2.02E-04	lb/gal	Mass Balance	16	4.31E-03 lb/hr	7.27E-05 tpy
	Boiler 1	0.0015 wt. % S	675 hr/yr	28 gal/hr	4 MMBtu/hr a	2.02E-04	lb/gal	Mass Balance	17	5.66E-03 lb/hr	1.91E-03 tpy
	Boiler 2	0.0015 wt. % S	675 hr/yr	28 gal/hr	4 MMBtu/hr a	2.02E-04	lb/gal	Mass Balance	17	5.66E-03 lb/hr	1.91E-03 tpy
	Incinerator	0.0015 wt. % S	675 hr/yr	175 lb/hr	N A	2.5	lbs/ton	AP-42, Table 2.1-12	15	2.19E-01 lb/hr	7.38E-02 tpy
					a Heat input rate						
Ice Breaker 2											
	Main Engine 1	0.0015 wt. % S	675 hr/yr	426 gal/hr	8046 bhp	2.02E-04	lb/gal	Mass Balance	16	8.62E-02 lb/hr	2.91E-02 tpy
	Main Engine 2	0.0015 wt. % S	675 hr/yr	426 gal/hr	8046 bhp	2.02E-04	lb/gal	Mass Balance	16	8.62E-02 lb/hr	2.91E-02 tpy
	Main Engine 3	0.0015 wt. % S	675 hr/yr	320 gal/hr	6035 bhp	2.02E-04	lb/gal	Mass Balance	16	6.47E-02 lb/hr	2.18E-02 tpy
	Main Engine 4	0.0015 wt. % S	675 hr/yr	320 gal/hr	6035 bhp	2.02E-04	lb/gal	Mass Balance	16	6.47E-02 lb/hr	2.18E-02 tpy
	Harbor Generator	0.0015 wt. % S	33.75 hr/yr	50 gal/hr	952 bhp	2.02E-04	lb/gal	Mass Balance	16	1.02E-02 lb/hr	1.72E-04 tpy
	Emergency Generator	0.0015 wt. % S	33.75 hr/yr	21 gal/hr	402 bhp	2.02E-04	lb/gal	Mass Balance	16	4.31E-03 lb/hr	7.27E-05 tpy
	Boiler 1	0.0015 wt. % S	675 hr/yr	28 gal/hr	4 MMBtu/hr a	2.02E-04	lb/gal	Mass Balance	17	5.66E-03 lb/hr	1.91E-03 tpy
	Boiler 2	0.0015 wt. % S	675 hr/yr	28 gal/hr	4 MMBtu/hr a	2.02E-04	lb/gal	Mass Balance	17	5.66E-03 lb/hr	1.91E-03 tpy
	Incinerator	0.0015 wt. % S	675 hr/yr	175 lb/hr	N A	2.5	lbs/ton	AP-42, Table 2.1-12	15	2.19E-01 lb/hr	7.38E-02 tpy
					a Heat input rate						
Oil Spill Response Vessel 1 (Dedicated OSRV)											
	Main Engine 1	0.0015 wt. % S	900 hr/yr	75 gal/hr	3000 bhp	2.0E-04	lb/gal	Mass Balance	17	1.52E-02 lb/hr	6.82E-03 tpy
	Main Engine 2	0.0015 wt. % S	900 hr/yr	75 gal/hr	3000 bhp	2.0E-04	lb/gal	Mass Balance	17	1.52E-02 lb/hr	6.82E-03 tpy
	Thruster Engine 1	0.0015 wt. % S	12 hr/yr	58 gal/hr	950 hp	2.0E-04	lb/gal	Mass Balance	17	1.17E-02 lb/hr	7.04E-05 tpy
	Thruster Engine 2	0.0015 wt. % S	12 hr/yr	58 gal/hr	950 hp	2.0E-04	lb/gal	Mass Balance	17	1.17E-02 lb/hr	7.04E-05 tpy
	Thruster Engine 3	0.0015 wt. % S	12 hr/yr	58 gal/hr	950 hp	2.0E-04	lb/gal	Mass Balance	17	1.17E-02 lb/hr	7.04E-05 tpy
	Generator 1	0.0015 wt. % S	2400 hr/yr	27 gal/hr	400 kW	2.0E-04	lb/gal	Mass Balance	17	5.46E-03 lb/hr	6.55E-03 tpy
	Generator 2	0.0015 wt. % S	300 hr/yr	27 gal/hr	400 kW	2.0E-04	lb/gal	Mass Balance	17	5.46E-03 lb/hr	8.19E-04 tpy
	Generator 3	0.0015 wt. % S	0 hr/yr	27 gal/hr	400 kW	2.0E-04	lb/gal	Mass Balance	17	5.46E-03 lb/hr	0.00E+00 tpy
	Emergency Generator	0.0015 wt. % S	30 hr/yr	8 gal/hr	99 kW	2.0E-04	lb/gal	Mass Balance	17	1.62E-03 lb/hr	2.43E-05 tpy

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Sulfur Dioxide

Emission Unit		Fuel	Allowable	Maximum	Maximum	SO2 Emission Factor		Reference		Potential SO2 Emissions	
	Description	Sulfur Content	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly Emission Rate	Annual Emission Rate
Oil Spill Response Vessel 2											
	Main Engine 1	0.0015 wt. % S	60 hr/yr	75 gal/hr	3000 bhp	2.0E-04	lb/gal	Mass Balance	17	1.52E-02 lb/hr	4.55E-04 tpy
	Main Engine 2	0.0015 wt. % S	60 hr/yr	75 gal/hr	3000 bhp	2.0E-04	lb/gal	Mass Balance	17	1.52E-02 lb/hr	4.55E-04 tpy
	Thruster Engine 1	0.0015 wt. % S	48 hr/yr	58 gal/hr	950 hp	2.0E-04	lb/gal	Mass Balance	17	1.17E-02 lb/hr	2.81E-04 tpy
	Thruster Engine 2	0.0015 wt. % S	48 hr/yr	58 gal/hr	950 hp	2.0E-04	lb/gal	Mass Balance	17	1.17E-02 lb/hr	2.81E-04 tpy
	Thruster Engine 3	0.0015 wt. % S	48 hr/yr	58 gal/hr	950 hp	2.0E-04	lb/gal	Mass Balance	17	1.17E-02 lb/hr	2.81E-04 tpy
	Generator 1	0.0015 wt. % S	60 hr/yr	27 gal/hr	400 kW	2.0E-04	lb/gal	Mass Balance	17	5.46E-03 lb/hr	1.64E-04 tpy
	Generator 2	0.0015 wt. % S	30 hr/yr	27 gal/hr	400 kW	2.0E-04	lb/gal	Mass Balance	17	5.46E-03 lb/hr	8.19E-05 tpy
	Generator 3	0.0015 wt. % S	0 hr/yr	27 gal/hr	400 kW	2.0E-04	lb/gal	Mass Balance	17	5.46E-03 lb/hr	0.00E+00 tpy
	Emergency Generator	0.0015 wt. % S	2 hr/yr	8 gal/hr	99 kW	2.0E-04	lb/gal	Mass Balance	17	1.62E-03 lb/hr	1.62E-06 tpy
Anchor Handling Supply Tug (AHST)											
0	Main Engine 1	0.0015 wt. % S	60 hr/yr	160 gal/hr	2529 kW	2.0E-04	lb/gal	Mass Balance	17	3.24E-02 lb/hr	9.71E-04 tpy
0	Main Engine 2	0.0015 wt. % S	60 hr/yr	160 gal/hr	2529 kW	2.0E-04	lb/gal	Mass Balance	17	3.24E-02 lb/hr	9.71E-04 tpy
0	Generator 1	0.0015 wt. % S	60 hr/yr	25 gal/hr	380 kW	2.0E-04	lb/gal	Mass Balance	17	5.06E-03 lb/hr	1.52E-04 tpy
0	Generator 2	0.0015 wt. % S	12 hr/yr	25 gal/hr	380 kW	2.0E-04	lb/gal	Mass Balance	17	5.06E-03 lb/hr	3.03E-05 tpy
0	Generator 3	0.0015 wt. % S	0 hr/yr	25 gal/hr	380 kW	2.0E-04	lb/gal	Mass Balance	17	5.06E-03 lb/hr	0.00E+00 tpy
0	Emergency Generator	0.0015 wt. % S	6 hr/yr	6 gal/hr	170 kW	2.0E-04	lb/gal	Mass Balance	17	1.13E-03 lb/hr	3.40E-06 tpy
Offshore Supply Vessels (OSV1 & OSV2)											
	Main Engine 1	0.0015 wt. % S	360 hr/yr	75 gal/hr	3000 bhp	2.0E-04	lb/gal	Mass Balance	17	1.52E-02 lb/hr	2.73E-03 tpy
	Main Engine 1	0.0015 wt. % S	100 hr/yr	67 gal/hr	3000 bhp	2.0E-04	lb/gal	Mass Balance	17	1.35E-02 lb/hr	6.77E-04 tpy
	Main Engine 2	0.0015 wt. % S	360 hr/yr	75 gal/hr	3000 bhp	2.0E-04	lb/gal	Mass Balance	17	1.52E-02 lb/hr	2.73E-03 tpy
	Main Engine 2	0.0015 wt. % S	100 hr/yr	67 gal/hr	3000 bhp	2.0E-04	lb/gal	Mass Balance	17	1.35E-02 lb/hr	6.77E-04 tpy
	Thruster Engine 1	0.0015 wt. % S	360 hr/yr	58 gal/hr	950 bhp	2.0E-04	lb/gal	Mass Balance	17	1.17E-02 lb/hr	2.11E-03 tpy
	Thruster Engine 2	0.0015 wt. % S	360 hr/yr	58 gal/hr	950 bhp	2.0E-04	lb/gal	Mass Balance	17	1.17E-02 lb/hr	2.11E-03 tpy
	Thruster Engine 3	0.0015 wt. % S	360 hr/yr	58 gal/hr	950 hp	2.0E-04	lb/gal	Mass Balance	17	1.17E-02 lb/hr	2.11E-03 tpy
	Generator	0.0015 wt. % S	820 hr/yr	27 gal/hr	400 kW	2.0E-04	lb/gal	Mass Balance	17	5.46E-03 lb/hr	2.24E-03 tpy
	Generator	0.0015 wt. % S	120 hr/yr	27 gal/hr	400 kW	2.0E-04	lb/gal	Mass Balance	17	5.46E-03 lb/hr	3.28E-04 tpy
	Generator	0.0015 wt. % S	0 hr/yr	27 gal/hr	400 kW	2.0E-04	lb/gal	Mass Balance	17	5.46E-03 lb/hr	0.00E+00 tpy
	Emergency Generator	0.0015 wt. % S	30 hr/yr	8 gal/hr	99 kW	2.0E-04	lb/gal	Mass Balance	17	1.62E-03 lb/hr	2.43E-05 tpy
Ware Vessel (WV) w/ OSV backup											
0	Main Engine 1	0.0015 wt. % S	300 hr/yr	87 gal/hr	3200 hp	2.0E-04	lb/gal	Mass Balance	17	1.76E-02 lb/hr	2.64E-03 tpy
	Main Engine 2	0.0015 wt. % S	300 hr/yr	87 gal/hr	3200 hp	2.0E-04	lb/gal	Mass Balance	17	1.76E-02 lb/hr	2.64E-03 tpy
	Main Engine 3	0.0015 wt. % S	400 hr/yr	81 gal/hr	3200 hp	2.0E-04	lb/gal	Mass Balance	17	1.64E-02 lb/hr	3.28E-03 tpy
	Main Engine 4	0.0015 wt. % S	400 hr/yr	81 gal/hr	3200 hp	2.0E-04	lb/gal	Mass Balance	17	1.64E-02 lb/hr	3.28E-03 tpy
	Generator 1	0.0015 wt. % S	700 hr/yr	32 gal/hr	500 kW	2.0E-04	lb/gal	Mass Balance	17	6.47E-03 lb/hr	2.26E-03 tpy
	Generator 2	0.0015 wt. % S	100 hr/yr	32 gal/hr	500 kW	2.0E-04	lb/gal	Mass Balance	17	6.47E-03 lb/hr	3.24E-04 tpy
	Generator 3	0.0015 wt. % S	0 hr/yr	32 gal/hr	500 kW	2.0E-04	lb/gal	Mass Balance	17	6.47E-03 lb/hr	0.00E+00 tpy
	Emergency Generator	0.0015 wt. % S	30 hr/yr	12 gal/hr	170 kW	2.0E-04	lb/gal	Mass Balance	17	2.43E-03 lb/hr	3.64E-05 tpy
34' boom work boats - 4											
	WB-1 Propulsion Engine 1	0.0015 wt. % S	48 hr/yr	30 gal/hr	566.12571 hp	2.02E-04	lb/gal	Mass Balance	17	6.07E-03 lb/hr	1.46E-04 tpy
	WB-1 Propulsion Engine 2	0.0015 wt. % S	48 hr/yr	30 gal/hr	566.12571 hp	2.02E-04	lb/gal	Mass Balance	17	6.07E-03 lb/hr	1.46E-04 tpy
	WB-2 Propulsion Engine 1	0.0015 wt. % S	48 hr/yr	30 gal/hr	566.12571 hp	2.02E-04	lb/gal	Mass Balance	17	6.07E-03 lb/hr	1.46E-04 tpy
	WB-2 Propulsion Engine 2	0.0015 wt. % S	48 hr/yr	30 gal/hr	566.12571 hp	2.02E-04	lb/gal	Mass Balance	17	6.07E-03 lb/hr	1.46E-04 tpy
	WB-3 Propulsion Engine 1	0.0015 wt. % S	48 hr/yr	30 gal/hr	566.12571 hp	2.02E-04	lb/gal	Mass Balance	17	6.07E-03 lb/hr	1.46E-04 tpy
	WB-3 Propulsion Engine 2	0.0015 wt. % S	48 hr/yr	30 gal/hr	566.12571 hp	2.02E-04	lb/gal	Mass Balance	17	6.07E-03 lb/hr	1.46E-04 tpy
	WB-4 Propulsion Engine 1	0.0015 wt. % S	48 hr/yr	30 gal/hr	566.12571 hp	2.02E-04	lb/gal	Mass Balance	17	6.07E-03 lb/hr	1.46E-04 tpy
	WB-4 Propulsion Engine 2	0.0015 wt. % S	48 hr/yr	30 gal/hr	566.12571 hp	2.02E-04	lb/gal	Mass Balance	17	6.07E-03 lb/hr	1.46E-04 tpy

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Sulfur Dioxide

Emission Unit		Fuel	Allowable	Maximum	Maximum	SO2 Emission Factor		Reference		Potential SO2 Emissions	
	Description	Sulfur Content	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly Emission Rate	Annual Emission Rate
Marine Research Vessel											
	Main Engine	0.0015 wt. % S	600 hr/yr	45.043 gal/hr	850 hp	2.02E-04	lb/gal	Mass Balance	16	9.11E-03 lb/hr	2.73E-03 tpy
	Generator 1	0.0015 wt. % S	600 hr/yr	9.589787 gal/hr	135 kW	2.02E-04	lb/gal	Mass Balance	14	1.94E-03 lb/hr	5.82E-04 tpy
	Generator 2	0.0015 wt. % S	600 hr/yr	6.393191 gal/hr	90 kW	2.02E-04	lb/gal	Mass Balance	14	1.29E-03 lb/hr	3.88E-04 tpy
	Generator 3	0.0015 wt. % S	600 hr/yr	2.841418 gal/hr	40 kW	2.02E-04	lb/gal	Mass Balance	14	5.75E-04 lb/hr	1.72E-04 tpy
Spill Storage Tanker											
	Main Engine 1	0.0015 wt. % S	12 hr/yr	88.70625 gal/hr	1673.963 hp	2.02E-04	lb/gal	Mass Balance	17	1.79E-02 lb/hr	1.08E-04 tpy
	Main Engine 2	0.0015 wt. % S	12 hr/yr	88.70625 gal/hr	1673.963 hp	2.02E-04	lb/gal	Mass Balance	17	1.79E-02 lb/hr	1.08E-04 tpy
	Generator 1	0.0015 wt. % S	48 hr/yr	40.94135 gal/hr	576.35086 kW	2.02E-04	lb/gal	Mass Balance	14	8.28E-03 lb/hr	1.99E-04 tpy
	Boiler 1	0.0015 wt. % S	48 hr/yr	109.1769 gal/hr	14.421835 MMBtu/hr	2.02E-04	lb/gal	Mass Balance	18	2.21E-02 lb/hr	5.30E-04 tpy
All Vessels Fuel Tanks											
	Fuel Tank	0.0015 wt. % S	2400 hr/yr	2703975 gal/yr*	N A	N A		NA		N A	N A

Notes:

1 l kW = 1.3405 hp; 1 lb = 454 g; assumed break specific fuel consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1) and fuel heat content of 132,096 Btu/gal ULSD #1 (Tesoro/Kenai Refinery).
2 Assumed well gas heat content of 1,085 Btu/scf for test flare (email from Dan Lowe 1/7/09) and propane heat content of 2,516 Btu/scf for flare pilot & purge (National Propane Gas Association http://www.npga.org/i4a/pages/index.cfm?pageid=633).
3 ULSD #1 has a density of 0.8094 kg/L (Tesoro/Kenai Refinery); so assume 6.74 lbs/ gal diesel
4 Incinerator waste fuel heat content is assumed 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17).
5 Fuel Usage is back calculated from Max Output capacity when not available from manufacturer specifications.
6 Incinerators will burn ULSD for ignition purposes only.
7 An equivalent of 2 main drilling engines at 100% load will operate continuously for up to 100 days per season (4800 hrs).
8 Mud degassing emission rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977)
9 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 6 times per year).
10 The Ware Vessel will make up to 50 trips per season.
11 Emissions units with SCR controls (drill rig and ice breaker engines), multiply PTE by .91 to account for the 9% SO2 that is converted to SO3 per email from Wartsila, Matts Andersson on 12/17/2009.

SO2 Calculations and Conversions:

SO2 EF Mass Balance Calculations:
12 lbs/gal = (weight% S/100%)*(6.74 lbs/gal)(64 lb/lb mol SO2)/(32 lb/lb mol S)
13 lbs/MMscf = (1 part H2S/1,000,000 parts fuel)/(379.9 scf/lb mol)/(64 lb/lb mol)*(1,000,000 scf/MMscf)
14 PTE (lb/hr) = EF (lb/gal)*Max Output Capacity (kW)*(1.3405 hp/kW)(*7,000 Btu/hp-h)/(132096 Btu/gal)
15 PTE (lb/hr) = EF (lb/ton)*Max Fuel Usage (lb/hr)/(2,000 lb/ton)
16 PTE (lb/hr) = EF (lb/gal)*Max Output Capacity (hp)*(7,000 Btu/hp-h)/(132096 Btu/gal)
17 PTE (lb/hr) = EF (lb/gal)*Max Fuel Usage (lb/hr)
18 PTE (lb/hr) = EF (lb/gal)*Max Output Capacity (MMBtu/hr)/(132096 Btu/gal)*(1,000,000 Btu/MMBtu)
19 PTE (tpy) = PTE (lb/hr)*Allowable Operation (hr/yr)/(2,000 lb/ton)

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Lead

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential Pb Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly	Annual Rate
Drill Rig Equipment										
	Main Drill Rig Engine 1	1200 hr/yr	206 g fuel/kWh	2480 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-006	14	6.75E-04 lb/hr	4.05E-04 tpy
	Main Drill Rig Engine 2	1200 hr/yr	206 g fuel/kWh	2480 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	14	6.75E-04 lb/hr	4.05E-04 tpy
	Main Drill Rig Engine 3	1200 hr/yr	206 g fuel/kWh	2480 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-008	14	6.75E-04 lb/hr	4.05E-04 tpy
	Main Drill Rig Engine 4	1200 hr/yr	206 g fuel/kWh	2480 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-009	14	6.75E-04 lb/hr	4.05E-04 tpy
	Main Engine Uncontrolled 1	125 hr/yr	206 g fuel/kWh	2480 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-009	14	6.75E-04 lb/hr	4.22E-05 tpy
	Main Engine Uncontrolled 2	125 hr/yr	206 g fuel/kWh	2480 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-009	14	6.75E-04 lb/hr	4.22E-05 tpy
	Emergency Back-up Engine	75 hr/yr	205 g fuel/kWh	968 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-011	14	2.63E-04 lb/hr	9.88E-06 tpy
	Cement Engine 1	131 hr/yr	29 gal/hr	403 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-012	14	1.10E-04 lb/hr	7.18E-06 tpy
	Cement Engine 2	131 hr/yr	29 gal/hr	403 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-013	14	1.10E-04 lb/hr	7.18E-06 tpy
	Logging Winch	273 hr/yr	13 gal/hr	187 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-013	14	5.09E-05 lb/hr	6.95E-06 tpy
	Heater 1	2400 hr/yr	26 gal/hr	4 MMBtu/hr a	9.00E+00	lb/10^{12} Btu	AP-42, Table 1.3-10	19	3.15E-05 lb/hr	3.78E-05 tpy
	Heater 2	2400 hr/yr	26 gal/hr	4 MMBtu/hr a	9.00E+00	lb/10^{12} Btu	AP-42, Table 1.3-10	19	3.15E-05 lb/hr	3.78E-05 tpy
	Incinerator	65 tons/yr	276 lbs/hr	N A	2.13E-01	lbs/ton	AP-42, Table 2.1-2	15	2.94E-02 lb/hr	6.96E-03 tpy
	Fuel Tank 1	2400 hrs/yr	492790 gal/yr*	N A	N A		NA		N A	N A
	Fuel Tank 2	2400 hrs/yr	492790 gal/yr*	N A	N A		NA		N A	N A
	Mud Degassing	100 days/yr	N A	20000 scf/day	N A		NA		N A	N A
				a Heat input rate						
Ice Breaker 1										
	Main Engine 1	675 hr/yr	426 gal/hr	8046 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-006	16	1.63E-03 lb/hr	5.51E-04 tpy
	Main Engine 2	675 hr/yr	426 gal/hr	8046 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	16	1.63E-03 lb/hr	5.51E-04 tpy
	Main Engine 3	675 hr/yr	320 gal/hr	6035 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	16	1.23E-03 lb/hr	4.13E-04 tpy
	Main Engine 4	675 hr/yr	320 gal/hr	6035 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	16	1.23E-03 lb/hr	4.13E-04 tpy
	Harbor Generator	33.75 hr/yr	50 gal/hr	952 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	16	1.93E-04 lb/hr	3.26E-06 tpy
	Emergency Generator	33.75 hr/yr	21 gal/hr	402 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	16	8.16E-05 lb/hr	1.38E-06 tpy
	Boiler 1	675 hr/yr	28 gal/hr	4 MMBtu/hr a	9.00E+00	lb/10^{12} Btu	AP-42, Table 1.3-10	20	3.33E-05 lb/hr	1.12E-05 tpy
	Boiler 2	675 hr/yr	28 gal/hr	4 MMBtu/hr a	9.00E+00	lb/10^{12} Btu	AP-42, Table 1.3-10	20	3.33E-05 lb/hr	1.12E-05 tpy
	Incinerator	675 hr/yr	175 lb/hr	N A	2.13E-01	lbs/ton	AP-42, Table 2.1-2	17	1.86E-02 lb/hr	6.29E-03 tpy
				a Heat input rate						
Ice Breaker 2										
	Main Engine 1	675 hr/yr	426 gal/hr	8046 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-006	16	1.63E-03 lb/hr	5.51E-04 tpy
	Main Engine 2	675 hr/yr	426 gal/hr	8046 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	16	1.63E-03 lb/hr	5.51E-04 tpy
	Main Engine 3	675 hr/yr	320 gal/hr	6035 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	16	1.23E-03 lb/hr	4.13E-04 tpy
	Main Engine 4	675 hr/yr	320 gal/hr	6035 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	16	1.23E-03 lb/hr	4.13E-04 tpy
	Harbor Generator	33.75 hr/yr	50 gal/hr	952 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	16	1.93E-04 lb/hr	3.26E-06 tpy
	Emergency Generator	33.75 hr/yr	21 gal/hr	402 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	16	8.16E-05 lb/hr	1.38E-06 tpy
	Boiler 1	675 hr/yr	28 gal/hr	4 MMBtu/hr a	9.00E+00	lb/10^{12} Btu	AP-42, Table 1.3-10	20	3.33E-05 lb/hr	1.12E-05 tpy
	Boiler 2	675 hr/yr	28 gal/hr	4 MMBtu/hr a	9.00E+00	lb/10^{12} Btu	AP-42, Table 1.3-10	20	3.33E-05 lb/hr	1.12E-05 tpy
	Incinerator	675 hr/yr	175 lb/hr	N A	2.13E-01	lbs/ton	AP-42, Table 2.1-2	17	1.86E-02 lb/hr	6.29E-03 tpy
				a Heat input rate						
Oil Spill Response Vessel 1 (Dedicated OSRV)										
	Main Engine 1	900 hr/yr	75 gal/hr	3000 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-006	18	2.87E-04 lb/hr	1.29E-04 tpy
	Main Engine 2	900 hr/yr	75 gal/hr	3000 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	2.87E-04 lb/hr	1.29E-04 tpy
	Thruster Engine 1	12 hr/yr	58 gal/hr	950 hp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	2.22E-04 lb/hr	1.33E-06 tpy
	Thruster Engine 2	12 hr/yr	58 gal/hr	950 hp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	2.22E-04 lb/hr	1.33E-06 tpy
	Thruster Engine 3	12 hr/yr	58 gal/hr	950 hp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	2.22E-04 lb/hr	1.33E-06 tpy
	Generator 1	2400 hr/yr	27 gal/hr	400 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	1.03E-04 lb/hr	1.24E-04 tpy
	Generator 2	300 hr/yr	27 gal/hr	400 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	1.03E-04 lb/hr	1.55E-05 tpy
	Generator 3	0 hr/yr	27 gal/hr	400 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	1.03E-04 lb/hr	0.00E+00 tpy
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	3.06E-05 lb/hr	4.60E-07 tpy

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Lead

Emission Unit		Allowable		Maximum		Maximum		Emission Factor			Reference		Potential Pb Emissions		
	Description	Operation		Fuel Usage		Output Capacity		Factor		Unit		Note	Hourly		Annual Rate	
Oil Spill Response Vessel 2																
	Main Engine 1	60	hr/yr	75	gal/hr	3000	bhp	2.90E-05	lb/MMBtu		EPA 454/R-98-006	18	2.87E-04	lb/hr	8.62E-06	tpy
	Main Engine 2	60	hr/yr	75	gal/hr	3000	bhp	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	2.87E-04	lb/hr	8.62E-06	tpy
	Thruster Engine 1	48	hr/yr	58	gal/hr	950	hp	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	2.22E-04	lb/hr	5.33E-06	tpy
	Thruster Engine 2	48	hr/yr	58	gal/hr	950	hp	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	2.22E-04	lb/hr	5.33E-06	tpy
	Thruster Engine 3	48	hr/yr	58	gal/hr	950	hp	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	2.22E-04	lb/hr	5.33E-06	tpy
	Generator 1	60	hr/yr	27	gal/hr	400	kW	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	1.03E-04	lb/hr	3.10E-06	tpy
	Generator 2	30	hr/yr	27	gal/hr	400	kW	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	1.03E-04	lb/hr	1.55E-06	tpy
	Generator 3	0	hr/yr	27	gal/hr	400	kW	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	1.03E-04	lb/hr	0.00E+00	tpy
	Emergency Generator	2	hr/yr	8	gal/hr	99	kW	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	3.06E-05	lb/hr	3.06E-08	tpy
Anchor Handling Supply Tug (AHST)																
0	Main Engine 1	60	hr/yr	160	gal/hr	2529	kW	2.90E-05	lb/MMBtu		EPA 454/R-98-006	18	6.13E-04	lb/hr	1.84E-05	tpy
0	Main Engine 2	60	hr/yr	160	gal/hr	2529	kW	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	6.13E-04	lb/hr	1.84E-05	tpy
0	Generator 1	60	hr/yr	25	gal/hr	380	kW	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	9.58E-05	lb/hr	2.87E-06	tpy
0	Generator 2	12	hr/yr	25	gal/hr	380	kW	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	9.58E-05	lb/hr	5.75E-07	tpy
0	Generator 3	0	hr/yr	25	gal/hr	380	kW	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	9.58E-05	lb/hr	0.00E+00	tpy
0	Emergency Generator	6	hr/yr	6	gal/hr	170	kW	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	2.15E-05	lb/hr	6.44E-08	tpy
Offshore Supply Vessels (OSV1 & OSV2)																
	Main Engine 1	360	hr/yr	75	gal/hr	3000	bhp	2.90E-05	lb/MMBtu		EPA 454/R-98-006	18	2.87E-04	lb/hr	5.17E-05	tpy
	Main Engine 1	100	hr/yr	67	gal/hr	3000	bhp	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	2.57E-04	lb/hr	1.28E-05	tpy
	Main Engine 2	360	hr/yr	75	gal/hr	3000	bhp	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	2.87E-04	lb/hr	5.17E-05	tpy
	Main Engine 2	100	hr/yr	67	gal/hr	3000	bhp	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	2.57E-04	lb/hr	1.28E-05	tpy
	Thruster Engine 1	360	hr/yr	58	gal/hr	950	bhp	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	2.22E-04	lb/hr	4.00E-05	tpy
	Thruster Engine 2	360	hr/yr	58	gal/hr	950	bhp	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	2.22E-04	lb/hr	4.00E-05	tpy
	Thruster Engine 3	360	hr/yr	58	gal/hr	950	hp	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	2.22E-04	lb/hr	4.00E-05	tpy
	Generator	820	hr/yr	27	gal/hr	400	kW	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	1.03E-04	lb/hr	4.24E-05	tpy
	Generator	120	hr/yr	27	gal/hr	400	kW	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	1.03E-04	lb/hr	6.21E-06	tpy
	Generator	0	hr/yr	27	gal/hr	400	kW	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	1.03E-04	lb/hr	0.00E+00	tpy
	Emergency Generator	30	hr/yr	8	gal/hr	99	kW	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	3.06E-05	lb/hr	4.60E-07	tpy
Ware Vessel (WV) w/ OSV backup																
	Main Engine 1	300	hr/yr	87	gal/hr	3200	hp	2.90E-05	lb/MMBtu		EPA 454/R-98-006	18	3.33E-04	lb/hr	5.00E-05	tpy
	Main Engine 2	300	hr/yr	87	gal/hr	3200	hp	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	3.33E-04	lb/hr	5.00E-05	tpy
	Main Engine 3	400	hr/yr	81	gal/hr	3200	hp	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	3.10E-04	lb/hr	6.21E-05	tpy
	Main Engine 4	400	hr/yr	81	gal/hr	3200	hp	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	3.10E-04	lb/hr	6.21E-05	tpy
	Generator 1	700	hr/yr	32	gal/hr	500	kW	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	1.23E-04	lb/hr	4.29E-05	tpy
	Generator 2	100	hr/yr	32	gal/hr	500	kW	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	1.23E-04	lb/hr	6.13E-06	tpy
	Generator 3	0	hr/yr	32	gal/hr	500	kW	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	1.23E-04	lb/hr	0.00E+00	tpy
	Emergency Generator	30	hr/yr	12	gal/hr	170	kW	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	4.60E-05	lb/hr	6.90E-07	tpy
34' boom work boats - 4																
	WB-1 Propulsion Engine 1	48	hr/yr	30	gal/hr	566	hp	2.90E-05	lb/MMBtu		EPA 454/R-98-006	18	1.15E-04	lb/hr	2.76E-06	tpy
	WB-1 Propulsion Engine 2	48	hr/yr	30	gal/hr	566	hp	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	1.15E-04	lb/hr	2.76E-06	tpy
	WB-2 Propulsion Engine 1	48	hr/yr	30	gal/hr	566	hp	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	1.15E-04	lb/hr	2.76E-06	tpy
	WB-2 Propulsion Engine 2	48	hr/yr	30	gal/hr	566	hp	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	1.15E-04	lb/hr	2.76E-06	tpy
	WB-3 Propulsion Engine 1	48	hr/yr	30	gal/hr	566	hp	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	1.15E-04	lb/hr	2.76E-06	tpy
	WB-3 Propulsion Engine 2	48	hr/yr	30	gal/hr	566	hp	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	1.15E-04	lb/hr	2.76E-06	tpy
	WB-4 Propulsion Engine 1	48	hr/yr	30	gal/hr	566	hp	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	1.15E-04	lb/hr	2.76E-06	tpy
	WB-4 Propulsion Engine 2	48	hr/yr	30	gal/hr	566	hp	2.90E-05	lb/MMBtu		EPA 454/R-98-007	18	1.15E-04	lb/hr	2.76E-06	tpy

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Lead

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential Pb Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly	Annual Rate
Marine Research Vessel										
	Main Engine	600 hr/yr	45 gal/hr	850 hp	2.90E-05	lb/MMBtu	EPA 454/R-98-006	18	1.73E-04 lb/hr	5.18E-05 tpy
	Generator 1	600 hr/yr	10 gal/hr	135 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	14	3.67E-05 lb/hr	1.10E-05 tpy
	Generator 2	600 hr/yr	6 gal/hr	90 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	14	2.45E-05 lb/hr	7.35E-06 tpy
	Generator 3	600 hr/yr	3 gal/hr	40 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	14	1.09E-05 lb/hr	3.27E-06 tpy
Spill Storage Tanker										
	Main Engine 1	12 hr/yr	89 gal/hr	1673.963 hp	2.90E-05	lb/MMBtu	EPA 454/R-98-006	18	3.40E-04 lb/hr	2.04E-06 tpy
	Main Engine 2	12 hr/yr	89 gal/hr	1673.963 hp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	3.40E-04 lb/hr	2.04E-06 tpy
	Generator 1	48 hr/yr	41 gal/hr	576.3509 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-013	14	1.57E-04 lb/hr	3.76E-06 tpy
	Boiler 1	48 hr/yr	109 gal/hr	14.42184 MMBtu/hr	9.00E+00	lb/10^12 Btu	AP-42, Table 1.3-10	19	1.30E-04 lb/hr	3.12E-06 tpy
All Vessels Fuel Tanks										
	Fuel Tank	2400 hr/yr	2703975 gal/yr*	N A	N A		NA		N A	N A

Notes:

1 I kW = 1.3405 hp; 1 lb = 454 g; assumed break specific fuel consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1) and fuel heat content of 132,096 Btu/gal ULSD #1 (Tesoro/Kenai Refinery).
2 Assumed well gas heat content of 1,085 Btu/scf for test flare (email from Dan Lowe 1/7/09) and propane heat content of 2,516 Btu/scf for flare pilot & purge (National Propane Gas Association http://www.npga.org/i4a/pages/index.cfm?pageid=633).
3 ULSD #1 has a density of 0.8094 kg/L (Tesoro/Kenai Refinery); so assume 6.74 lbs/ gal diesel
4 Incinerator waste fuel heat content is assumed 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17).
5 Incinerator EF are for Modular Excess Air Combustors
6 Fuel Usage is back calculated from Max Output capacity when not available from manufacturer specifications.
7 Incinerators will burn ULSD for ignition purposes only.
8 An equivalent of 2 main drilling engines at 100% load will operate continuously for up to 100 days per season (4800 hrs).
9 Mud degassing emission rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977)
10 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 6 times per year).
11 The Ware Vessel will make up to 50 trips per season.
13 EPA 454/R-98-006 is "L & E Air Emissions from Sources of Lead and Lead Compounds," May 1998. Section 5.2.2, Distillate oil-fired gas turbines (more recent results)

Pb Calculations and Conversions:

14 PTE (lb/hr) = EF (lb/MMBtu)*Max Output Capacity (kW)*(7,000 Btu/hp-h)*(1.3405 hp/kW)(1MMBtu/1,000,000 Btu)
15 PTE (lb/hr) = EF (lb/ton)*Max Fuel Usage (lb/hr)/(2,000 lb/ton)
16 PTE (lb/hr) = EF (lb/MMBtu)*Max Output Capacity (hp)*7,000 Btu/hp-h)*(MMBtu/1,000,000 Btu)
17 PTE (lb/hr) = EF (lb/ton)*Max Fuel Usage (lb/hr)/(2,000 lb/ton)
18 PTE (lb/hr) = EF (lb/MMBtu)*Max Fuel Usage (gal/hr)*(132096 Btu/gal)/(1,000,000)
19 PTE (lb/hr) = EF (lb/10^12Btu)*Max Fuel Usage (gal/hr)/(10^12)
20 PTE (lb/hr) = EF (lb/10^12Btu)*Max Output Capacity (MMBtu/hr)/(1,000,000)

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Hydrogen Sulfide

Emission Unit			Fuel	Allowable	Maximum	Maximum	Emission Factor		Reference		Potential H2S Emissions	
	Description	Type	Type	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly	Annual Rate
Drill Rig Equipment												
	Mud Degassing	Water Based Mud & Cuttings	Well Gas	100 days/yr	N A	20000 scf/day	250	ppmv H2S	CP	3,4,5	1.81E-02 lb/hr	2.17E-02 tpy

Notes:

1 Assume: 28.317 L/scf; 454 g/lb; Density of H2S = 1.393 g/L

2 Mud degassing emission rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977)

H2S Calculations and Conversions:

3 250 ppmv H2S = (250 scf H2S)/(1,000,000 scf fuel)

4 PTE (lb/hr) = EF (250 ppmv H2S)*Max Output Capacity (20,000 scf/day)*(25.317 L/scf)/(454 g/L)/(24hr/day)

5 PTE (tpy) = PTE (lb/hr)*Allowable Operation (days/yr)*(24 hr/day)/(2,000 lb/ton)

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - SCR NOx Control Efficiency

Emission Unit		Allowable	Maximum	Maximum	Controlled Emission Factor		Reference		Potential Controlled NOx Emissions		Uncontrolled Emission Factor		Reference		Potential Uncontrolled NOx Emissions			
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly Emission Rate	Emission Rate	Factor	Unit		Note	Hourly Emission Rate	Annual Emission Rate	Note	% Control Efficiency
Drill Rig Equipment																		
	Main Drill Rig Engine 1	1200 hr/yr	206 g fuel/kWh	2480 kW	1.83	g/kW-h	Wartsila SCR spec	9	10.0 lb/hr	6.0 tpy	8.8	g/kW-hr	Manufacturer's spec	9	47.9 lb/hr	28.7 tpy	13	79.1
	Main Drill Rig Engine 2	1200 hr/yr	206 g fuel/kWh	2480 kW	1.83	g/kW-h	Wartsila SCR spec	9	10.0 lb/hr	6.0 tpy	8.8	g/kW-hr	Manufacturer's spec	9	47.9 lb/hr	28.7 tpy	13	79.1
	Main Drill Rig Engine 3	1200 hr/yr	206 g fuel/kWh	2480 kW	1.83	g/kW-h	Wartsila SCR spec	9	10.0 lb/hr	6.0 tpy	8.8	g/kW-hr	Manufacturer's spec	9	47.9 lb/hr	28.7 tpy	13	79.1
	Main Drill Rig Engine 4	1200 hr/yr	206 g fuel/kWh	2480 kW	1.83	g/kW-h	Wartsila SCR spec	9	10.0 lb/hr	6.0 tpy	8.8	g/kW-hr	Manufacturer's spec	9	47.9 lb/hr	28.7 tpy	13	79.1
									Total	24.0 tpy					Total	115.0 tpy		
Ice Breaker 1																		
	Main Engine 1	675 hr/yr	426 gal/hr	8046 bhp	2.9	g/kW-h	Design Spec	10	38.3 lb/hr	12.94 tpy	3.2	lb/MMBtu	AP-42 Table 3.4-1	11	180.2 lb/hr	60.8 tpy	13	78.7
	Main Engine 2	675 hr/yr	426 gal/hr	8046 bhp	2.9	g/kW-h	Design Spec	10	38.3 lb/hr	12.94 tpy	3.2	lb/MMBtu	AP-42 Table 3.4-1	11	180.2 lb/hr	60.8 tpy	13	78.7
	Main Engine 3	675 hr/yr	320 gal/hr	6035 bhp	2.9	g/kW-h	Design Spec	10	28.8 lb/hr	9.71 tpy	3.2	lb/MMBtu	AP-42 Table 3.4-1	11	135.2 lb/hr	45.6 tpy	13	78.7
	Main Engine 4	675 hr/yr	320 gal/hr	6035 bhp	2.9	g/kW-h	Design Spec	10	28.8 lb/hr	9.71 tpy	3.2	lb/MMBtu	AP-42 Table 3.4-1	11	135.2 lb/hr	45.6 tpy	13	78.7
									Total	45.3 tpy					Total	212.9 tpy		
Ice Breaker 2																		
	Main Engine 1	675 hr/yr	426 gal/hr	8046 bhp	2.9	g/kW-h	Design Spec	10	38.3 lb/hr	12.94 tpy	3.2	lb/MMBtu	AP-42 Table 3.4-1	11	180.2 lb/hr	60.8 tpy	13	78.7
	Main Engine 2	675 hr/yr	426 gal/hr	8046 bhp	2.9	g/kW-h	Design Spec	10	38.3 lb/hr	12.94 tpy	3.2	lb/MMBtu	AP-42 Table 3.4-1	11	180.2 lb/hr	60.8 tpy	13	78.7
	Main Engine 3	675 hr/yr	320 gal/hr	6035 bhp	2.9	g/kW-h	Design Spec	10	28.8 lb/hr	9.71 tpy	3.2	lb/MMBtu	AP-42 Table 3.4-1	11	135.2 lb/hr	45.6 tpy	13	78.7
	Main Engine 4	675 hr/yr	320 gal/hr	6035 bhp	2.9	g/kW-h	Design Spec	10	28.8 lb/hr	9.71 tpy	3.2	lb/MMBtu	AP-42 Table 3.4-1	11	135.2 lb/hr	45.6 tpy	13	78.7
									Total	45.3 tpy					Total	212.9 tpy		

Notes:

1 I kW = 1.3405 hp; 1 lb = 454 g; assumed break specific fuel consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1) and fuel heat content of 132,096 Btu/gal ULSD #1 (Tesoro/Kenai Refinery).
2 Assumed well gas heat content of 1,085 Btu/scf for test flare (email from Dan Lowe 1/7/09) and propane heat content of 2,516 Btu/scf for flare pilot & purge (National Propane Gas Association http://www.npga.org/i4a/pages/index.cfm?pageid=633).
3 ULSD #1 has a density of 0.8094 kg/L (Tesoro/Kenai Refinery); so assume 6.74 lbs/ gal diesel
4 An equivalent of 2 main drilling engines at 100% load will operate continuously for up to 100 days per season (4800 hrs).
5 All drill rig main engines and all ice breaker engines use SCR emission controls.
6 Engines < 600 hp (< 448 kW) and all generators EF from EPA Ocean Vessel Guidance.
7 Engines > 600 hp EF are from AP-42.
8 brake horse power (bhp) ≈ horse power (hp)

NOx Calculations and Conversions:

9 PTE (lb/hr) = EF (g/kW-h)*Max Output Capacity (kW)*(1 lb/454 g)
10 PTE (lb/hr) = EF (g/kW-h)*Max Output Capacity (hp)/(454 g/lb)/(1.3405 hp/kW)
11 PTE (lb/hr) = EF (lb/MMBtu)*Max Output Capacity (hp)*(7,000 Btu/hp-h)*(MMBtu/1,000,000 Btu)
12 PTE (tpy) = PTE (lb/hr)*Allowable Operation (hr/yr)/(2000 lb/ton)
13 % Control Efficiency = (Uncontrolled PTE (tpy) - Controlled PTE (tpy))/(Uncontrolled PTE (tpy)*(100%)

Devil's Paw Prospect Proposed Allowable Emissions
Emissions Unit Inventory - Sulfuric Acid Mist (form SCR Controls)

Emission Unit		Fuel	Allowable	Maximum	Maximum	H2SO4			Potential H2SO4 Emissions			
	Description	Sulfur Content	Operation	Fuel Usage	Output Capacity	Factor	Unit	Note	Hourly Emission Rate		Annual Emission Rate	
Drill Rig Equipment												
	Main Drill Rig Engine 1	0.0015 wt. % S	1200 hr/yr	206 g fuel/kWh	2480 kW	2.79E-05	lb/gal	11	4.91E-03	lb/h	2.95E-03	tpy
	Main Drill Rig Engine 2	0.0015 wt. % S	1200 hr/yr	206 g fuel/kWh	2480 kW	2.79E-05	lb/gal	11	4.91E-03	lb/h	2.95E-03	tpy
	Main Drill Rig Engine 3	0.0015 wt. % S	1200 hr/yr	206 g fuel/kWh	2480 kW	2.79E-05	lb/gal	11	4.91E-03	lb/h	2.95E-03	tpy
	Main Drill Rig Engine 4	0.0015 wt. % S	1200 hr/yr	206 g fuel/kWh	2480 kW	2.79E-05	lb/gal	11	4.91E-03	lb/h	2.95E-03	tpy
Ice Breaker 1												
	Main Engine 1	0.0015 wt. % S	675 hr/yr	426 gal/hr	8046 bhp	2.79E-05	lb/gal	12	1.19E-02	lb/h	4.01E-03	tpy
	Main Engine 2	0.0015 wt. % S	675 hr/yr	426 gal/hr	8046 bhp	2.79E-05	lb/gal	12	1.19E-02	lb/h	4.01E-03	tpy
	Main Engine 3	0.0015 wt. % S	675 hr/yr	320 gal/hr	6035 bhp	2.79E-05	lb/gal	12	8.91E-03	lb/h	3.01E-03	tpy
	Main Engine 4	0.0015 wt. % S	675 hr/yr	320 gal/hr	6035 bhp	2.79E-05	lb/gal	12	8.91E-03	lb/h	3.01E-03	tpy
Ice Breaker 2												
	Main Engine 1	0.0015 wt. % S	675 hr/yr	426 gal/hr	8046 bhp	2.79E-05	lb/gal	12	1.19E-02	lb/h	4.01E-03	tpy
	Main Engine 2	0.0015 wt. % S	675 hr/yr	426 gal/hr	8046 bhp	2.79E-05	lb/gal	12	1.19E-02	lb/h	4.01E-03	tpy
	Main Engine 3	0.0015 wt. % S	675 hr/yr	320 gal/hr	6035 bhp	2.79E-05	lb/gal	12	8.91E-03	lb/h	3.01E-03	tpy
	Main Engine 4	0.0015 wt. % S	675 hr/yr	320 gal/hr	6035 bhp	2.79E-05	lb/gal	12	8.91E-03	lb/h	3.01E-03	tpy

Notes:

1 I kW = 1.3405 hp; 1 lb = 454 g; assumed break specific fuel consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1) and fuel heat content of 132,096 Btu/gal ULSD #1 (Tesoro/Kenai Refinery).

2 Assumed well gas heat content of 1,085 Btu/scf for test flare (email from Dan Lowe 1/7/09) and propane heat content of 2,516 Btu/scf for flare pilot & purge (National Propane Gas Association http://www.npga.org/i4a/pages/index.cfm?pageid=633).

3 ULSD #1 has a density of 0.8094 kg/L (Tesoro/Kenai Refinery); so assume 6.74 lbs/ gal diesel

4 Fuel Usage is back calculated from Max Output capacity when not available from manufacturer specifications.

5 An equivalent of 2 main drilling engines at 100% load will operate continuously for up to 100 days per season (4800 hrs).

6 Max. 9% of SO2 is converted to SO3 on all emission units with SCR controls per email from Wartsila, Matts Andersson on 12/17/2009.

H2SO4 Calculations and Conversions:

Molecular Weights:
SO2 = 64
SO3 = 80
H2S04 = 98
80/64 = 1.25, so 1 lb SO2 = 1.25 lb SO3
98/80 = 1.225, so 1 lb SO3 = 1.225 lb H2SO4
Mass Balance used for SO2:

7 SO2 EF (lb/gal) = Sulfur content (% S/100)*(6.74 lbs/gal)(64 lb/lb mol SO2)/(32 lb/lb mol S)

8 SO2 % converted to SO3 = SO2 EF (lb/gal)*(.09)

9 SO3 EF (lb/gal) = % SO2 converted to SO3 (lb SO2/gal)*(1.25 lb SO3/1 lb SO2)

10 H2SO4 EF (lb/gal) = SO3 EF (lb/gal)*(1.225 lb SO3/1 lb H2SO4)

11 PTE (lb/hr) = EF (lb/gal)*Max Output Capacity (kW)/(132096 Btu/gal)*(1.3405 hp/kW)*(7,000 Btu/hp-h)

12 PTE (lb/hr) = EF (lb/gal)*Max Output Capacity (hp)/(132096 Btu/gal)*(7,000 Btu/hp-h)

13 PTE (lb/hr) = EF (lb/gal)*Max Fuel Usage (gal/hr)

14 PTE (tpy) = PTE (lb/hr)*Allowable Operation (hr/yr)/(2000 lb/ton)

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory

Emission Unit Description	Type	Classification-Mode	Fuel Type	Allowable Operation	Maximum Fuel Usage	Maximum Output Capacity
Drill Rig Equipment						
Main Drill Rig Engine 1	Wärtsilä 8L26A2	Non-propulsion	ULSD	1200 hr/yr	205.8 g fuel/kWh	2480 kW
Main Drill Rig Engine 2	Wärtsilä 8L26A2	Non-propulsion	ULSD	1200 hr/yr	205.8 g fuel/kWh	2480 kW
Main Drill Rig Engine 3	Wärtsilä 8L26A3	Non-propulsion	ULSD	1200 hr/yr	205.8 g fuel/kWh	2480 kW
Main Drill Rig Engine 4	Wärtsilä 8L26A4	Non-propulsion	ULSD	1200 hr/yr	205.8 g fuel/kWh	2480 kW
Main Engine 1 Uncontrolled	Wärtsilä 8L26A2	Non-propulsion	ULSD	125 hr/yr	205.8 g fuel/kWh	2480 kW
Main Engine 2 Uncontrolled	Wärtsilä 8L26A2	Non-propulsion	ULSD	125 hr/yr	205.8 g fuel/kWh	2480 kW
Emergency Back-up Engine	Caterpillar Diesel 3508 B	Non-propulsion	ULSD	75 hr/yr	205 g fuel/kWh	968 kW
Cement Engine 1	Caterpillar 15 DITA	Non-propulsion	ULSD	131 hr/yr	29 gal/hr	403 kW
Cement Engine 2	Caterpillar 15 DITA	Non-propulsion	ULSD	131 hr/yr	29 gal/hr	403 kW
Logging Winch	Caterpillar C7 Acert Engine	Non-propulsion	ULSD	273 hr/yr	13 gal/hr	187 kW
Heater 1	To be determined	Non-propulsion	ULSD	2400 hr/yr	26 gal/hr	3.5 MMBtu/hr [a]
Heater 2	To be determined	Non-propulsion	ULSD	2400 hr/yr	26 gal/hr	3.5 MMBtu/hr [a]
Incinerator	To be determined	Non-propulsion	Waste	65 tons/yr	276 lbs/hr	N A
Fuel Tank 1	71,000 gallons	Non-propulsion	ULSD	2400 hrs/yr	471941 gal/yr*	N A
Fuel Tank 2	71,000 gallons	Non-propulsion	ULSD	2400 hrs/yr	471941 gal/yr*	N A
Mud Degassing	Water Based Mud & Cuttings	Non-propulsion	Well Gas	100 days/yr	N A	20000 scf/day

*max throughput [a] Heat input rate

Ice Breaker 1						
Main Engine 1	Wärtsilä Vasa 16V32/6000kW	Propulsion	ULSD	675 hr/yr	426 gal/hr	8046 bhp
Main Engine 2	Wärtsilä Vasa 16V32/6000kW	Propulsion	ULSD	675 hr/yr	426 gal/hr	8046 bhp
Main Engine 3	Wärtsilä Vasa 12V32/4500 kW	Propulsion	ULSD	675 hr/yr	320 gal/hr	6035 bhp
Main Engine 4	Wärtsilä Vasa 12V32/4500 kW	Propulsion	ULSD	675 hr/yr	320 gal/hr	6035 bhp
Harbor Generator	Wärtsilä Vasa 4R22 - 710kW	Propulsion	ULSD	34 hr/yr	50 gal/hr	952 bhp
Emergency Generator	Caterpillar 3412 - 300kW	Propulsion	ULSD	34 hr/yr	21 gal/hr	402 bhp
Boiler 1	Aquamaster Rauma Unex BH-2000	Propulsion	ULSD	675 hr/yr	28 gal/hr	3.7 MMBtu/hr [a]
Boiler 2	Aquamaster Rauma Unex BH-2000	Propulsion	ULSD	675 hr/yr	28 gal/hr	3.7 MMBtu/hr [a]
Incinerator	Aquamaster Rauma Unex BH-2000	Propulsion	Waste	675 hr/yr	175 lb/hr	N A

[a] Heat input rate

Ice Breaker 2						
Main Engine 1	Wärtsilä Vasa 16V32/6000kW	Propulsion	ULSD	675 hr/yr	426 gal/hr	8046 bhp
Main Engine 2	Wärtsilä Vasa 16V32/6000kW	Propulsion	ULSD	675 hr/yr	426 gal/hr	8046 bhp
Main Engine 3	Wärtsilä Vasa 12V32/4500 kW	Propulsion	ULSD	675 hr/yr	320 gal/hr	6035 bhp
Main Engine 4	Wärtsilä Vasa 12V32/4500 kW	Propulsion	ULSD	675 hr/yr	320 gal/hr	6035 bhp
Harbor Generator	Wärtsilä Vasa 4R22 - 710kW	Propulsion	ULSD	34 hr/yr	50 gal/hr	952 bhp
Emergency Generator	Caterpillar 3412 - 300kW	Propulsion	ULSD	34 hr/yr	21 gal/hr	402 bhp
Boiler 1	Aquamaster Rauma Unex BH-2000	Propulsion	ULSD	675 hr/yr	28 gal/hr	3.7 MMBtu/hr [a]
Boiler 2	Aquamaster Rauma Unex BH-2000	Propulsion	ULSD	675 hr/yr	28 gal/hr	3.7 MMBtu/hr [a]
Incinerator	Aquamaster Rauma Unex BH-2000	Propulsion	Waste	675 hr/yr	175 lb/hr	N A

[a] Heat input rate

Oil Spill Response Vessel 1 (Dedicated OSRV) **Operates continuously within 25 Mile Zone = 1500 hours anchored and 900 hours cruising**

Main Engine 1	Caterpillar 3516C	Propulsion-Cruising	ULSD	900 hr/yr	75 gal/hr	3000 bhp
Main Engine 2	Caterpillar 3516C	Propulsion-Cruising	ULSD	900 hr/yr	75 gal/hr	3000 bhp
Thruster Engine 1	Caterpillar C32	Refueling	ULSD	12 hr/yr	58 gal/hr	950 hp
Thruster Engine 2	Caterpillar C32	Refueling	ULSD	12 hr/yr	58 gal/hr	950 hp
Thruster Engine 3	Caterpillar C32	Refueling	ULSD	12 hr/yr	58 gal/hr	950 hp
Generator 1	Caterpillar C18	Propulsion-Anchored	ULSD	2400 hr/yr	27 gal/hr	400 kW
Generator 2	Caterpillar C18	Propulsion-Anchored	ULSD	300 hr/yr	27 gal/hr	400 kW
Generator 3	Caterpillar C18	Propulsion-Anchored	ULSD	0 hr/yr	27 gal/hr	400 kW
Emergency Generator	Caterpillar C4.4	Propulsion-Anchored	ULSD	30 hr/yr	8 gal/hr	99 kW

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory

Emission Unit Description	Type	Classification-Mode	Fuel Type	Allowable Operation	Maximum Fuel Usage	Maximum Output Capacity
Oil Spill Response Vessel 2		**Only operates during spill exercises 48 hrs + 12 hrs travel time**				
Main Engine 1	Caterpillar 3516C	Propulsion-Cruising	ULSD	60 hr/yr	75 gal/hr	3000 bhp
Main Engine 2	Caterpillar 3516C	Propulsion-Cruising	ULSD	60 hr/yr	75 gal/hr	3000 bhp
Thruster Engine 1	Caterpillar C32	Propulsion-idling	ULSD	48 hr/yr	58 gal/hr	950 hp
Thruster Engine 2	Caterpillar C32	Propulsion-idling	ULSD	48 hr/yr	58 gal/hr	950 hp
Thruster Engine 3	Caterpillar C32	Propulsion-idling	ULSD	48 hr/yr	58 gal/hr	950 hp
Generator 1	Caterpillar C18	Propulsion-Anchored & Cruising	ULSD	60 hr/yr	27 gal/hr	400 kW
Generator 2	Caterpillar C18	Propulsion- Anchored	ULSD	30 hr/yr	27 gal/hr	400 kW
Generator 3	Caterpillar C18	Propulsion-Anchored	ULSD	0 hr/yr	27 gal/hr	400 kW
Emergency Generator	Caterpillar C4.4	Propulsion- Anchored	ULSD	2 hr/yr	8 gal/hr	99 kW
Anchor Handling Supply Tug (AHST)		**20 hours for 3-movement events**				
Main Engine 1	Cat 3608	Propulsion	ULSD	60 hr/yr	160 gal/hr	2529 kW
Main Engine 2	Cat 3608	Propulsion	ULSD	60 hr/yr	160 gal/hr	2529 kW
Generator 1	Cat 3406	Propulsion	ULSD	60 hr/yr	25 gal/hr	380 kW
Generator 2	Cat 3406	Propulsion	ULSD	12 hr/yr	25 gal/hr	380 kW
Generator 3	Cat 3406	Propulsion	ULSD	0 hr/yr	25 gal/hr	380 kW
Emergency Generator	Cat 3306	Propulsion	ULSD	6 hr/yr	6 gal/hr	170 kW
Offshore Supply Vessels (OSV1 & OSV2)		**Up to 60 trips per year (6 hrs transit and 6 hrs DP for offloading per trip)**				
Main Engine 1	Caterpillar 3516C	Propulsion -cruising	ULSD	360 hr/yr	75 gal/hr	3000 bhp
Main Engine 1	Caterpillar 3516C	Propulsion-idling	ULSD	100 hr/yr	67 gal/hr	3000 bhp
Main Engine 2	Caterpillar 3516C	Propulsion -cruising	ULSD	360 hr/yr	75 gal/hr	3000 bhp
Main Engine 2	Caterpillar 3516C	Propulsion-idling	ULSD	100 hr/yr	67 gal/hr	3000 bhp
Thruster Engine 1	Caterpillar C32	dynamic positioning	ULSD	360 hr/yr	58 gal/hr	950 bhp
Thruster Engine 2	Caterpillar C32	dynamic positioning	ULSD	360 hr/yr	58 gal/hr	950 bhp
Thruster Engine 3	Caterpillar C32	dynamic positioning	ULSD	360 hr/yr	58 gal/hr	950 hp
Generator	Caterpillar C18	Propulsion	ULSD	820 hr/yr	27 gal/hr	400 kW
Generator	Caterpillar C18	Propulsion	ULSD	120 hr/yr	27 gal/hr	400 kW
Generator	Caterpillar C18	Propulsion	ULSD	0 hr/yr	27 gal/hr	400 kW
Emergency Generator	Caterpillar C4.4	Propulsion	ULSD	30 hr/yr	8 gal/hr	99 kW
Ware Vessel (WV) w/ backup OSV		**Up to 50 trips per year (6 hrs transit and 6 hrs DP for offloading per trip)**				
Main Engine 1	Caterpillar 3516C	Propulsion Cruising	ULSD	300 hr/yr	87 gal/hr	3200 hp
Main Engine 2	Caterpillar 3516C	Propulsion-Cruising	ULSD	300 hr/yr	87 gal/hr	3200 hp
Main Engine 3	Caterpillar 3516C	DP and Idling	ULSD	400 hr/yr	81 gal/hr	3200 hp
Main Engine 4	Caterpillar 3516C	DP and Idling	ULSD	400 hr/yr	81 gal/hr	3200 hp
Generator 1	Caterpillar C18	Propulsion	ULSD	700 hr/yr	32 gal/hr	500 kW
Generator 2	Caterpillar C18	Propulsion	ULSD	100 hr/yr	32 gal/hr	500 kW
Generator 3	Caterpillar C18	Propulsion	ULSD	0 hr/yr	32 gal/hr	500 kW
Emergency Generator	Caterpillar 3306	Propulsion	ULSD	30 hr/yr	12 gal/hr	170 kW
34' boom work boats - 4		**48 hours for spill exercises**				
WB-1 Propulsion Engine 1	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp
WB-1 Propulsion Engine 2	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp
WB-2 Propulsion Engine 1	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp
WB-2 Propulsion Engine 2	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp
WB-3 Propulsion Engine 1	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp
WB-3 Propulsion Engine 2	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp
WB-4 Propulsion Engine 1	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp
WB-4 Propulsion Engine 2	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory

	Emission Unit Description	Type	Classification-Mode	Fuel Type	Allowable Operation	Maximum Fuel Usage	Maximum Output Capacity
Marine Research Vessel			**600 hours per year**				
	Main Engine	Caterpillar	Propulsion	ULSD	600 hr/yr	45 gal/hr	850 hp
	Generator 1	Caterpillar	Propulsion	ULSD	600 hr/yr	10 gal/hr	135 kW
	Generator 2	Caterpillar	Propulsion	ULSD	600 hr/yr	6 gal/hr	90 kW
	Generator 3	Caterpillar	Propulsion	ULSD	600 hr/yr	3 gal/hr	40 kW
Spill Storage Tanker			**48 hours for spill exercises**				
	Main Engine 1	Panamax class sized	Propulsion	ULSD	12 hr/yr	89 gal/hr	1674 hp
	Main Engine 2	Panamax class sized	Propulsion	ULSD	12 hr/yr	89 gal/hr	1674 hp
	Generator 1	Panamax class sized	Propulsion	ULSD	48 hr/yr	41 gal/hr	576 kW
	Boiler 1	Panamax class sized	Propulsion	ULSD	48 hr/yr	109.2 gal/hr	14.4 MMBtu/hr
All Vessels Fuel Tanks							
	Fuel Tank	100,000 gallons	Propulsion	ULSD	2400 hr/yr	2703975 gal/yr*	N A

*max throughput

Notes:

Seasonal drilling days= **100**

1 I kW = 1.3405 hp; 1 lb = 454 g; assumed break specific fuel consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1) and fuel heat content of 132,096 Btu/gal ULSD #1 (Tesoro/Kenai Refinery).
2 Assumed well gas heat content of 1,085 Btu/scf for test flare (email from Dan Lowe 1/7/09) and propane heat content of 2,516 Btu/scf for flare pilot & purge (National Propane Gas Association http://www.npga.org/i4a/pages/index.cfm?pageid=633).
3 ULSD #1 has a density of 0.8094 kg/L (Tesoro/Kenai Refinery); so assume 6.74 lbs/ gal diesel
4 Incinerator waste fuel heat content is assumed 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17).
5 Fuel Usage is back calculated from Max Output capacity when not available from manufacturer specifications (see calculations below).
6 Incinerators will burn ULSD for ignition purposes only.
7 An equivalent of 2 main drilling engines at 100% load will operate continuously for up to 100 days per season (4800 hrs).
8 Mud degassing emission rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977)
9 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 6 times per year).
10 Drill Rig incinerator operating hours calculated in the following way: (840 cubic feet of waste/week)/(27 cubic feet/cubic yard)*(14 weeks/season)*(300 lbs/cubic yard (EPA factor))/(2,000 lb/ton) = 65 tons/season

Calculations:

Max Fuel Usage (gal/hr) = Max output Capacity (hp)*(7,000 Btu/hp-h)/(132096 Btu/gal)
Max Fuel Usage (gal/hr) = Max output Capacity (kW)*(1.3405 hp/kW)*(7,000 Btu/hp-h)/(132096 Btu/gal)

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Inventory - Annual PTE Options Summary

Option Description	Potential Emissions (lb/hr)	Potential Emissions (tpy)
	HAPs	HAPs
Option 1 - Ware Barge/Tug and 2 OSV's	5.446	1.480
Option 2 - Ware Vessel (w/ backup OSVs)	5.364	1.475

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Acetaldehyde						Acrolein					
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE Unit
Drill Rig Equipment															
Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	1.79E-02	lb/hr	1.07E-02 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	2.17E-03	lb/hr	1.30E-03 tpy
Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	1.79E-02	lb/hr	1.07E-02 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	2.17E-03	lb/hr	1.30E-03 tpy
Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	1.79E-02	lb/hr	1.07E-02 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	2.17E-03	lb/hr	1.30E-03 tpy
Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	1.79E-02	lb/hr	1.07E-02 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	2.17E-03	lb/hr	1.30E-03 tpy
Main Engine 1 Uncontrolled	125 hr/yr	205.8 g fuel/kWh	2480 **kW**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	1.79E-02	lb/hr	1.12E-03 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	2.17E-03	lb/hr	1.36E-04 tpy
Main Engine 2 Uncontrolled	125 hr/yr	205.8 g fuel/kWh	2480 **kW**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	1.79E-02	lb/hr	1.12E-03 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	2.17E-03	lb/hr	1.36E-04 tpy
Emergency Back-up Engine	75 hr/yr	205.0 g fuel/kWh	968 **kW**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	6.95E-03	lb/hr	2.60E-04 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	8.44E-04	lb/hr	3.16E-05 tpy
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.94E-03	lb/hr	1.92E-04 tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.54E-04	lb/hr	2.32E-05 tpy
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.94E-03	lb/hr	1.92E-04 tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.54E-04	lb/hr	2.32E-05 tpy
Logging Winch	273 hr/yr	13.3 gal/hr	187 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.35E-03	lb/hr	1.84E-04 tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.62E-04	lb/hr	2.22E-05 tpy
Heater 1	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	2.65E+03	lb/10^12 Btu	VCAPCD	9.29E-03	lb/hr	1.11E-02 tpy	2.65E+03	lb/10^12 Btu	VCAPCD	9.29E-03	lb/hr	1.11E-02 tpy
Heater 2	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	2.65E+03	lb/10^12 Btu	VCAPCD	9.29E-03	lb/hr	1.11E-02 tpy	2.65E+03	lb/10^12 Btu	VCAPCD	9.29E-03	lb/hr	1.11E-02 tpy
Incinerator	65 tons/yr	276.0 lbs/hr	N **A**	none						none					
Fuel Tank 1	2400 hrs/yr	471940.6 gal/yr*	N **A**	none						none					
Fuel Tank 2	2400 hrs/yr	471940.6 gal/yr*	N **A**	none						none					
Mud Degassing	100 days/yr	N A	20000 **scf/day**	none						none					
		*max throughput	a Heat input rate			**Drill Rig Total**	**1.40E-01**	**lb/hr**	**6.82E-02 tpy**			**Drill Rig Total**	**3.33E-02**	**lb/hr**	**2.79E-02 tpy**
Ice Breaker 1															
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	4.56E-02	lb/hr	1.54E-02 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	5.54E-03	lb/hr	1.87E-03 tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	4.56E-02	lb/hr	1.54E-02 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	5.54E-03	lb/hr	1.87E-03 tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	3.42E-02	lb/hr	1.15E-02 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	4.16E-03	lb/hr	1.40E-03 tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	3.42E-02	lb/hr	1.15E-02 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	4.16E-03	lb/hr	1.40E-03 tpy
Harbor Generator	33.75 hr/yr	50.4 gal/hr	952 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	5.40E-03	lb/hr	9.11E-05 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	6.56E-04	lb/hr	1.11E-05 tpy
Emergency Generator	33.75 hr/yr	21.3 gal/hr	402 **bhp**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.16E-03	lb/hr	3.64E-05 tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	2.60E-04	lb/hr	4.39E-06 tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	2.65E+03	lb/10^12 Btu	VCAPCD	9.82E-03	lb/hr	3.31E-03 tpy	2.65E+03	lb/10^12 Btu	VCAPCD	9.82E-03	lb/hr	3.31E-03 tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	2.65E+03	lb/10^12 Btu	VCAPCD	9.82E-03	lb/hr	3.31E-03 tpy	2.65E+03	lb/10^12 Btu	VCAPCD	9.82E-03	lb/hr	3.31E-03 tpy
Incinerator	675 hr/yr	175.0 lb/hr	N **A**	none						none					
			a Heat input rate			**Vessel Total**	**1.87E-01**	**lb/hr**	**6.06E-02 tpy**			**Vessel Total**	**4.00E-02**	**lb/hr**	**1.32E-02 tpy**
Ice Breaker 2															
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	4.56E-02	lb/hr	1.54E-02 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	5.54E-03	lb/hr	1.87E-03 tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	4.56E-02	lb/hr	1.54E-02 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	5.54E-03	lb/hr	1.87E-03 tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	3.42E-02	lb/hr	1.15E-02 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	4.16E-03	lb/hr	1.40E-03 tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	3.42E-02	lb/hr	1.15E-02 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	4.16E-03	lb/hr	1.40E-03 tpy
Harbor Generator	33.75 hr/yr	50.4 gal/hr	952 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	5.40E-03	lb/hr	9.11E-05 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	6.56E-04	lb/hr	1.11E-05 tpy
Emergency Generator	33.75 hr/yr	21.3 gal/hr	402 **bhp**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.16E-03	lb/hr	3.64E-05 tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	2.60E-04	lb/hr	4.39E-06 tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	2.65E+03	lb/10^12 Btu	VCAPCD	9.82E-03	lb/hr	3.31E-03 tpy	2.65E+03	lb/10^12 Btu	VCAPCD	9.82E-03	lb/hr	3.31E-03 tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	2.65E+03	lb/10^12 Btu	VCAPCD	9.82E-03	lb/hr	3.31E-03 tpy	2.65E+03	lb/10^12 Btu	VCAPCD	9.82E-03	lb/hr	3.31E-03 tpy
Incinerator	675 hr/yr	175.0 lb/hr	N **A**	none						none					
			a Heat input rate			**Vessel Total**	**1.87E-01**	**lb/hr**	**6.06E-02 tpy**			**Vessel Total**	**4.00E-02**	**lb/hr**	**1.32E-02 tpy**
Oil Spill Response Vessel 1 (Dedicated OSRV)															
Main Engine 1	900 hr/yr	75.0 gal/hr	3000 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	8.03E-03	lb/hr	3.61E-03 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	9.75E-04	lb/hr	4.39E-04 tpy
Main Engine 2	900 hr/yr	75.0 gal/hr	3000 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	8.03E-03	lb/hr	3.61E-03 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	9.75E-04	lb/hr	4.39E-04 tpy
Thruster Engine 1	12 hr/yr	58.0 gal/hr	950 **hp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	6.21E-03	lb/hr	3.72E-05 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	7.54E-04	lb/hr	4.52E-06 tpy
Thruster Engine 2	12 hr/yr	58.0 gal/hr	950 **hp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	6.21E-03	lb/hr	3.72E-05 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	7.54E-04	lb/hr	4.52E-06 tpy
Thruster Engine 3	12 hr/yr	58.0 gal/hr	950 **hp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	6.21E-03	lb/hr	3.72E-05 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	7.54E-04	lb/hr	4.52E-06 tpy
Generator 1	2400 hr/yr	27.0 gal/hr	400 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.74E-03	lb/hr	3.28E-03 tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.30E-04	lb/hr	3.96E-04 tpy
Generator 2	300 hr/yr	27.0 gal/hr	400 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.74E-03	lb/hr	4.10E-04 tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.30E-04	lb/hr	4.95E-05 tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.74E-03	lb/hr	0.00E+00 tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.30E-04	lb/hr	0.00E+00 tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	8.11E-04	lb/hr	1.22E-05 tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	9.78E-05	lb/hr	1.47E-06 tpy
						Vessel Total	**4.37E-02**	**lb/hr**	**1.10E-02 tpy**			**Vessel Total**	**5.30E-03**	**lb/hr**	**1.34E-03 tpy**
Oil Spill Response Vessel 2															
Main Engine 1	60 hr/yr	75.0 gal/hr	3000 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	8.03E-03	lb/hr	2.41E-04 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	9.75E-04	lb/hr	2.93E-05 tpy
Main Engine 2	60 hr/yr	75.0 gal/hr	3000 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	8.03E-03	lb/hr	2.41E-04 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	9.75E-04	lb/hr	2.93E-05 tpy
Thruster Engine 1	48 hr/yr	58.0 gal/hr	950 **hp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	6.21E-03	lb/hr	1.49E-04 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	7.54E-04	lb/hr	1.81E-05 tpy
Thruster Engine 2	48 hr/yr	58.0 gal/hr	950 **hp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	6.21E-03	lb/hr	1.49E-04 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	7.54E-04	lb/hr	1.81E-05 tpy
Thruster Engine 3	48 hr/yr	58.0 gal/hr	950 **hp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	6.21E-03	lb/hr	1.49E-04 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	7.54E-04	lb/hr	1.81E-05 tpy
Generator 1	60 hr/yr	27.0 gal/hr	400 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.74E-03	lb/hr	8.21E-05 tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.30E-04	lb/hr	9.90E-06 tpy
Generator 2	30 hr/yr	27.0 gal/hr	400 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.74E-03	lb/hr	4.10E-05 tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.30E-04	lb/hr	4.95E-06 tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.74E-03	lb/hr	0.00E+00 tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.30E-04	lb/hr	0.00E+00 tpy
Emergency Generator	2 hr/yr	8.0 gal/hr	99 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	8.11E-04	lb/hr	8.11E-07 tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	9.78E-05	lb/hr	9.78E-08 tpy
						Vessel Total	**4.37E-02**	**lb/hr**	**1.05E-03 tpy**			**Vessel Total**	**5.30E-03**	**lb/hr**	**1.28E-04 tpy**

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Benzene							1,3-Butadiene						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Drill Rig Equipment																	
Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.71E-02	lb/hr	1.03E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	9.03E-04	lb/hr	5.42E-04	tpy
Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.71E-02	lb/hr	1.03E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	9.03E-04	lb/hr	5.42E-04	tpy
Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.71E-02	lb/hr	1.03E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	9.03E-04	lb/hr	5.42E-04	tpy
Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.71E-02	lb/hr	1.03E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	9.03E-04	lb/hr	5.42E-04	tpy
Main Engine 1 Uncontrolled	125 hr/yr	205.8 g fuel/kWh	2480 **kW**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.71E-02	lb/hr	1.07E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	9.03E-04	lb/hr	5.64E-05	tpy
Main Engine 2 Uncontrolled	125 hr/yr	205.8 g fuel/kWh	2480 **kW**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.71E-02	lb/hr	1.07E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	9.03E-04	lb/hr	5.64E-05	tpy
Emergency Back-up Engine	75 hr/yr	205.0 g fuel/kWh	968 **kW**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	6.65E-03	lb/hr	2.50E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.51E-04	lb/hr	1.32E-05	tpy
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.57E-03	lb/hr	2.34E-04	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.50E-04	lb/hr	9.81E-06	tpy
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.57E-03	lb/hr	2.34E-04	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.50E-04	lb/hr	9.81E-06	tpy
Logging Winch	273 hr/yr	13.3 gal/hr	187 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.64E-03	lb/hr	2.23E-04	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	6.86E-05	lb/hr	9.37E-06	tpy
Heater 1	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	1.92E+01	lb/10^12 Btu	CARB-CATEF	6.73E-05	lb/hr	8.08E-05	tpy	1.12E+02	lb/10^12 Btu	VCAPCD	3.92E-04	lb/hr	4.71E-04	tpy
Heater 2	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	1.92E+01	lb/10^12 Btu	CARB-CATEF	6.73E-05	lb/hr	8.08E-05	tpy	1.12E+02	lb/10^12 Btu	VCAPCD	3.92E-04	lb/hr	4.71E-04	tpy
Incinerator	65 tons/yr	276.0 lbs/hr	N **A**	none							none						
Fuel Tank 1	2400 hrs/yr	471940.6 gal/yr*	N **A**	N A		EPA TANKS	2.083E-09	lb/hr	0.000005	tpy	none						
Fuel Tank 2	2400 hrs/yr	471940.6 gal/yr*	N **A**	N A		EPA TANKS	2.083E-09	lb/hr	0.000005	tpy	none						
Mud Degassing	100 days/yr	N A	20000 **scf/day**	none							none						
		*max throughput	a Heat input rate			**Drill Rig Total**	**1.18E-01**	**lb/hr**	**4.43E-02**	**tpy**			**Drill Rig Total**	**6.92E-03**	**lb/hr**	**3.26E-03**	**tpy**
Ice Breaker 1																	
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.37E-02	lb/hr	1.48E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.31E-03	lb/hr	7.79E-04	tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.37E-02	lb/hr	1.48E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.31E-03	lb/hr	7.79E-04	tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.28E-02	lb/hr	1.11E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	1.73E-03	lb/hr	5.84E-04	tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.28E-02	lb/hr	1.11E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	1.73E-03	lb/hr	5.84E-04	tpy
Harbor Generator	33.75 hr/yr	50.4 gal/hr	952 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	5.17E-03	lb/hr	8.72E-05	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.73E-04	lb/hr	4.60E-06	tpy
Emergency Generator	33.75 hr/yr	21.3 gal/hr	402 **bhp**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.63E-03	lb/hr	4.43E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.10E-04	lb/hr	1.86E-06	tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.92E+01	lb/10^12 Btu	CARB-CATEF	7.11E-05	lb/hr	2.40E-05	tpy	1.12E+02	lb/10^12 Btu	VCAPCD	4.14E-04	lb/hr	1.40E-04	tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.92E+01	lb/10^12 Btu	CARB-CATEF	7.11E-05	lb/hr	2.40E-05	tpy	1.12E+02	lb/10^12 Btu	VCAPCD	4.14E-04	lb/hr	1.40E-04	tpy
Incinerator	675 hr/yr	175.0 lb/hr	N **A**	none							none						
			a Heat input rate			**Vessel Total**	**1.61E-01**	**lb/hr**	**5.18E-02**	**tpy**			**Vessel Total**	**9.29E-03**	**lb/hr**	**3.01E-03**	**tpy**
Ice Breaker 2																	
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.37E-02	lb/hr	1.48E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.31E-03	lb/hr	7.79E-04	tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.37E-02	lb/hr	1.48E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.31E-03	lb/hr	7.79E-04	tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.28E-02	lb/hr	1.11E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	1.73E-03	lb/hr	5.84E-04	tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.28E-02	lb/hr	1.11E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	1.73E-03	lb/hr	5.84E-04	tpy
Harbor Generator	33.75 hr/yr	50.4 gal/hr	952 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	5.17E-03	lb/hr	8.72E-05	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.73E-04	lb/hr	4.60E-06	tpy
Emergency Generator	33.75 hr/yr	21.3 gal/hr	402 **bhp**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.63E-03	lb/hr	4.43E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.10E-04	lb/hr	1.86E-06	tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.92E+01	lb/10^12 Btu	CARB-CATEF	7.11E-05	lb/hr	2.40E-05	tpy	1.12E+02	lb/10^12 Btu	VCAPCD	4.14E-04	lb/hr	1.40E-04	tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.92E+01	lb/10^12 Btu	CARB-CATEF	7.11E-05	lb/hr	2.40E-05	tpy	1.12E+02	lb/10^12 Btu	VCAPCD	4.14E-04	lb/hr	1.40E-04	tpy
Incinerator	675 hr/yr	175.0 lb/hr	N **A**	none							none						
			a Heat input rate			**Vessel Total**	**1.61E-01**	**lb/hr**	**5.18E-02**	**tpy**			**Vessel Total**	**9.29E-03**	**lb/hr**	**3.01E-03**	**tpy**
Oil Spill Response Vessel 1 (Dedicated OSRV)																	
Main Engine 1	900 hr/yr	75.0 gal/hr	3000 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	7.69E-03	lb/hr	3.46E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.06E-04	lb/hr	1.83E-04	tpy
Main Engine 2	900 hr/yr	75.0 gal/hr	3000 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-4	7.69E-03	lb/hr	3.46E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.06E-04	lb/hr	1.83E-04	tpy
Thruster Engine 1	12 hr/yr	58.0 gal/hr	950 **hp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-4	5.95E-03	lb/hr	3.57E-05	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.14E-04	lb/hr	1.88E-06	tpy
Thruster Engine 2	12 hr/yr	58.0 gal/hr	950 **hp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-4	5.95E-03	lb/hr	3.57E-05	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.14E-04	lb/hr	1.88E-06	tpy
Thruster Engine 3	12 hr/yr	58.0 gal/hr	950 **hp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-4	5.95E-03	lb/hr	3.57E-05	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.14E-04	lb/hr	1.88E-06	tpy
Generator 1	2400 hr/yr	27.0 gal/hr	400 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.33E-03	lb/hr	3.99E-03	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.39E-04	lb/hr	1.67E-04	tpy
Generator 2	300 hr/yr	27.0 gal/hr	400 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.33E-03	lb/hr	4.99E-04	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.39E-04	lb/hr	2.09E-05	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.33E-03	lb/hr	0.00E+00	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.39E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	9.86E-04	lb/hr	1.48E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	4.13E-05	lb/hr	6.20E-07	tpy
						Vessel Total	**4.42E-02**	**lb/hr**	**1.15E-02**	**tpy**			**Vessel Total**	**2.21E-03**	**lb/hr**	**5.60E-04**	**tpy**
Oil Spill Response Vessel 2																	
Main Engine 1	60 hr/yr	75.0 gal/hr	3000 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	7.69E-03	lb/hr	2.31E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.06E-04	lb/hr	1.22E-05	tpy
Main Engine 2	60 hr/yr	75.0 gal/hr	3000 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-4	7.69E-03	lb/hr	2.31E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.06E-04	lb/hr	1.22E-05	tpy
Thruster Engine 1	48 hr/yr	58.0 gal/hr	950 **hp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-5	5.95E-03	lb/hr	1.43E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.14E-04	lb/hr	7.53E-06	tpy
Thruster Engine 2	48 hr/yr	58.0 gal/hr	950 **hp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-6	5.95E-03	lb/hr	1.43E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.14E-04	lb/hr	7.53E-06	tpy
Thruster Engine 3	48 hr/yr	58.0 gal/hr	950 **hp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-6	5.95E-03	lb/hr	1.43E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.14E-04	lb/hr	7.53E-06	tpy
Generator 1	60 hr/yr	27.0 gal/hr	400 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.33E-03	lb/hr	9.98E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.39E-04	lb/hr	4.18E-06	tpy
Generator 2	30 hr/yr	27.0 gal/hr	400 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.33E-03	lb/hr	4.99E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.39E-04	lb/hr	2.09E-06	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.33E-03	lb/hr	0.00E+00	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.39E-04	lb/hr	0.00E+00	tpy
Emergency Generator	2 hr/yr	8.0 gal/hr	99 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	9.86E-04	lb/hr	9.86E-07	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	4.13E-05	lb/hr	4.13E-08	tpy
						Vessel Total	**4.42E-02**	**lb/hr**	**1.04E-03**	**tpy**			**Vessel Total**	**2.21E-03**	**lb/hr**	**5.33E-05**	**tpy**

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Chlorobenzene							Ethylbenzene						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Drill Rig Equipment																	
Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.34E-05	lb/hr	2.00E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.82E-03	lb/hr	1.09E-03	tpy
Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.34E-05	lb/hr	2.00E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.82E-03	lb/hr	1.09E-03	tpy
Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.34E-05	lb/hr	2.00E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.82E-03	lb/hr	1.09E-03	tpy
Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.34E-05	lb/hr	2.00E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.82E-03	lb/hr	1.09E-03	tpy
Main Engine 1 Uncontrolled	125 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.34E-05	lb/hr	2.09E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.82E-03	lb/hr	1.14E-04	tpy
Main Engine 2 Uncontrolled	125 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.34E-05	lb/hr	2.09E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.82E-03	lb/hr	1.14E-04	tpy
Emergency Back-up Engine	75 hr/yr	205.0 g fuel/kWh	968 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.30E-05	lb/hr	4.87E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	7.07E-04	lb/hr	2.65E-05	tpy
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.80E-06	lb/hr	3.80E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.16E-04	lb/hr	2.07E-05	tpy
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.80E-06	lb/hr	3.80E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.16E-04	lb/hr	2.07E-05	tpy
Logging Winch	273 hr/yr	13.3 gal/hr	187 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	2.66E-06	lb/hr	3.63E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.45E-04	lb/hr	1.98E-05	tpy
Heater 1	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	1.51E+00	lb/10^12 Btu	VCAPCD	5.30E-06	lb/hr	6.36E-06	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	3.95E-05	lb/hr	4.74E-05	tpy
Heater 2	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	1.51E+00	lb/10^12 Btu	VCAPCD	5.30E-06	lb/hr	6.36E-06	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	3.95E-05	lb/hr	4.74E-05	tpy
Incinerator	65 tons/yr	276.0 lbs/hr	N **A**	none							none						
Fuel Tank 1	2400 hrs/yr	471940.6 gal/yr*	N **A**	none							N A		EPA TANKS	2.083E-09	lb/hr	0.000005	tpy
Fuel Tank 2	2400 hrs/yr	471940.6 gal/yr*	N **A**	none							N A		EPA TANKS	2.083E-09	lb/hr	0.000005	tpy
Mud Degassing	100 days/yr	N A	20000 **scf/day**	none							none						
		*max throughput	a Heat input rate			**Drill Rig Total**	**2.38E-04**	**lb/hr**	**9.86E-05**	**tpy**			**Drill Rig Total**	**1.25E-02**	**lb/hr**	**4.79E-03**	**tpy**
Ice Breaker 1																	
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	8.53E-05	lb/hr	2.88E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	4.65E-03	lb/hr	1.57E-03	tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	8.53E-05	lb/hr	2.88E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	4.65E-03	lb/hr	1.57E-03	tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.40E-05	lb/hr	2.16E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.49E-03	lb/hr	1.18E-03	tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.40E-05	lb/hr	2.16E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.49E-03	lb/hr	1.18E-03	tpy
Harbor Generator	33.75 hr/yr	50.4 gal/hr	952 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.01E-05	lb/hr	1.70E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	5.50E-04	lb/hr	9.28E-06	tpy
Emergency Generator	33.75 hr/yr	21.3 gal/hr	402 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	4.26E-06	lb/hr	7.19E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.32E-04	lb/hr	3.92E-06	tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.51E+00	lb/10^12 Btu	VCAPCD	5.60E-06	lb/hr	1.89E-06	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	4.17E-05	lb/hr	1.41E-05	tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.51E+00	lb/10^12 Btu	VCAPCD	5.60E-06	lb/hr	1.89E-06	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	4.17E-05	lb/hr	1.41E-05	tpy
Incinerator	675 hr/yr	175.0 lb/hr	N **A**	none							none						
			a Heat input rate			**Vessel Total**	**3.24E-04**	**lb/hr**	**1.05E-04**	**tpy**			**Vessel Total**	**1.71E-02**	**lb/hr**	**5.53E-03**	**tpy**
Ice Breaker 2																	
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	8.53E-05	lb/hr	2.88E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	4.65E-03	lb/hr	1.57E-03	tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	8.53E-05	lb/hr	2.88E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	4.65E-03	lb/hr	1.57E-03	tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.40E-05	lb/hr	2.16E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.49E-03	lb/hr	1.18E-03	tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.40E-05	lb/hr	2.16E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.49E-03	lb/hr	1.18E-03	tpy
Harbor Generator	33.75 hr/yr	50.4 gal/hr	952 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.01E-05	lb/hr	1.70E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	5.50E-04	lb/hr	9.28E-06	tpy
Emergency Generator	33.75 hr/yr	21.3 gal/hr	402 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	4.26E-06	lb/hr	7.19E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.32E-04	lb/hr	3.92E-06	tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.51E+00	lb/10^12 Btu	VCAPCD	5.60E-06	lb/hr	1.89E-06	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	4.17E-05	lb/hr	1.41E-05	tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.51E+00	lb/10^12 Btu	VCAPCD	5.60E-06	lb/hr	1.89E-06	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	4.17E-05	lb/hr	1.41E-05	tpy
Incinerator	675 hr/yr	175.0 lb/hr	N **A**	none							none						
			a Heat input rate			**Vessel Total**	**3.24E-04**	**lb/hr**	**1.05E-04**	**tpy**			**Vessel Total**	**1.71E-02**	**lb/hr**	**5.53E-03**	**tpy**
Oil Spill Response Vessel 1 (Dedicated OSRV)																	
Main Engine 1	900 hr/yr	75.0 gal/hr	3000 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.50E-05	lb/hr	6.75E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.18E-04	lb/hr	3.68E-04	tpy
Main Engine 2	900 hr/yr	75.0 gal/hr	3000 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.50E-05	lb/hr	6.75E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.18E-04	lb/hr	3.68E-04	tpy
Thruster Engine 1	12 hr/yr	58.0 gal/hr	950 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.16E-05	lb/hr	6.96E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	6.32E-04	lb/hr	3.79E-06	tpy
Thruster Engine 2	12 hr/yr	58.0 gal/hr	950 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.16E-05	lb/hr	6.96E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	6.32E-04	lb/hr	3.79E-06	tpy
Thruster Engine 3	12 hr/yr	58.0 gal/hr	950 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.16E-05	lb/hr	6.96E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	6.32E-04	lb/hr	3.79E-06	tpy
Generator 1	2400 hr/yr	27.0 gal/hr	400 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.40E-06	lb/hr	6.48E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.94E-04	lb/hr	3.53E-04	tpy
Generator 2	300 hr/yr	27.0 gal/hr	400 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.40E-06	lb/hr	8.10E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.94E-04	lb/hr	4.41E-05	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.40E-06	lb/hr	0.00E+00	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.94E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.60E-06	lb/hr	2.40E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.72E-05	lb/hr	1.31E-06	tpy
						Vessel Total	**8.26E-05**	**lb/hr**	**2.10E-05**	**tpy**			**Vessel Total**	**4.50E-03**	**lb/hr**	**1.15E-03**	**tpy**
Oil Spill Response Vessel 2																	
Main Engine 1	60 hr/yr	75.0 gal/hr	3000 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.50E-05	lb/hr	4.50E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.18E-04	lb/hr	2.45E-05	tpy
Main Engine 2	60 hr/yr	75.0 gal/hr	3000 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.50E-05	lb/hr	4.50E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.18E-04	lb/hr	2.45E-05	tpy
Thruster Engine 1	48 hr/yr	58.0 gal/hr	950 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.16E-05	lb/hr	2.78E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	6.32E-04	lb/hr	1.52E-05	tpy
Thruster Engine 2	48 hr/yr	58.0 gal/hr	950 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.16E-05	lb/hr	2.78E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	6.32E-04	lb/hr	1.52E-05	tpy
Thruster Engine 3	48 hr/yr	58.0 gal/hr	950 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.16E-05	lb/hr	2.78E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	6.32E-04	lb/hr	1.52E-05	tpy
Generator 1	60 hr/yr	27.0 gal/hr	400 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.40E-06	lb/hr	1.62E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.94E-04	lb/hr	8.83E-06	tpy
Generator 2	30 hr/yr	27.0 gal/hr	400 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.40E-06	lb/hr	8.10E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.94E-04	lb/hr	4.41E-06	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.40E-06	lb/hr	0.00E+00	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.94E-04	lb/hr	0.00E+00	tpy
Emergency Generator	2 hr/yr	8.0 gal/hr	99 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.60E-06	lb/hr	1.60E-09	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.72E-05	lb/hr	8.72E-08	tpy
						Vessel Total	**8.26E-05**	**lb/hr**	**1.98E-06**	**tpy**			**Vessel Total**	**4.50E-03**	**lb/hr**	**1.08E-04**	**tpy**

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Formaldehyde							Hexane						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Drill Rig Equipment																	
Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.94E-02	lb/hr	1.16E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.49E-03	lb/hr	2.69E-03	tpy
Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.94E-02	lb/hr	1.16E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.49E-03	lb/hr	2.69E-03	tpy
Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.94E-02	lb/hr	1.16E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.49E-03	lb/hr	2.69E-03	tpy
Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.94E-02	lb/hr	1.16E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.49E-03	lb/hr	2.69E-03	tpy
Main Engine 1 Uncontrolled	125 hr/yr	205.8 g fuel/kWh	2480 **kW**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.94E-02	lb/hr	1.21E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.49E-03	lb/hr	2.81E-04	tpy
Main Engine 2 Uncontrolled	125 hr/yr	205.8 g fuel/kWh	2480 **kW**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.94E-02	lb/hr	1.21E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.49E-03	lb/hr	2.81E-04	tpy
Emergency Back-up Engine	75 hr/yr	205.0 g fuel/kWh	968 **kW**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	7.53E-03	lb/hr	2.82E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.75E-03	lb/hr	6.55E-05	tpy
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.52E-03	lb/hr	2.96E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.80E-04	lb/hr	5.11E-05	tpy
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.52E-03	lb/hr	2.96E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.80E-04	lb/hr	5.11E-05	tpy
Logging Winch	273 hr/yr	13.3 gal/hr	187 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	2.07E-03	lb/hr	2.83E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	3.57E-04	lb/hr	4.88E-05	tpy
Heater 1	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	3.49E-01	lbs/Mgal	CARB-CATEF	9.25E-03	lb/hr	1.11E-02	tpy	9.16E+00	lb/10^12 Btu	CARB-CATEF	3.21E-05	lb/hr	3.85E-05	tpy
Heater 2	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	3.49E-01	lbs/Mgal	CARB-CATEF	9.25E-03	lb/hr	1.11E-02	tpy	9.16E+00	lb/10^12 Btu	CARB-CATEF	3.21E-05	lb/hr	3.85E-05	tpy
Incinerator	65 tons/yr	276.0 lbs/hr	N **A**	none							none						
Fuel Tank 1	2400 hrs/yr	471940.6 gal/yr*	N **A**	none							N A		EPA TANKS	0	lb/hr	0	tpy
Fuel Tank 2	2400 hrs/yr	471940.6 gal/yr*	N **A**	none							N A		EPA TANKS	0	lb/hr	0	tpy
Mud Degassing	100 days/yr	N A	20000 **scf/day**	none							none						
		*max throughput	a Heat input rate			**Drill Rig Total**	**1.53E-01**	**lb/hr**	**7.22E-02**	**lb/hr**			**Drill Rig Total**	**3.07E-02**	**lb/hr**	**1.16E-02**	**tpy**
Ice Breaker 1																	
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	4.95E-02	lb/hr	1.67E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.15E-02	lb/hr	3.87E-03	tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	4.95E-02	lb/hr	1.67E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.15E-02	lb/hr	3.87E-03	tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	3.71E-02	lb/hr	1.25E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.60E-03	lb/hr	2.90E-03	tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	3.71E-02	lb/hr	1.25E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.60E-03	lb/hr	2.90E-03	tpy
Harbor Generator	33.75 hr/yr	50.4 gal/hr	952 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	5.85E-03	lb/hr	9.87E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.36E-03	lb/hr	2.29E-05	tpy
Emergency Generator	33.75 hr/yr	21.3 gal/hr	402 **bhp**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	3.32E-03	lb/hr	5.61E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	5.73E-04	lb/hr	9.67E-06	tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.49E-01	lbs/Mgal	CARB-CATEF	9.77E-03	lb/hr	3.30E-03	tpy	9.16E+00	lb/10^12 Btu	CARB-CATEF	3.39E-05	lb/hr	1.14E-05	tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.49E-01	lbs/Mgal	CARB-CATEF	9.77E-03	lb/hr	3.30E-03	tpy	9.16E+00	lb/10^12 Btu	CARB-CATEF	3.39E-05	lb/hr	1.14E-05	tpy
Incinerator	675 hr/yr	175.0 lb/hr	N **A**	none							none						
			a Heat input rate			**Vessel Total**	**2.02E-01**	**lb/hr**	**6.52E-02**	**tpy**			**Vessel Total**	**4.21E-02**	**lb/hr**	**1.36E-02**	**tpy**
Ice Breaker 2																	
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	4.95E-02	lb/hr	1.67E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.15E-02	lb/hr	3.87E-03	tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	4.95E-02	lb/hr	1.67E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.15E-02	lb/hr	3.87E-03	tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	3.71E-02	lb/hr	1.25E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.60E-03	lb/hr	2.90E-03	tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	3.71E-02	lb/hr	1.25E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.60E-03	lb/hr	2.90E-03	tpy
Harbor Generator	33.75 hr/yr	50.4 gal/hr	952 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	5.85E-03	lb/hr	9.87E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.36E-03	lb/hr	2.29E-05	tpy
Emergency Generator	33.75 hr/yr	21.3 gal/hr	402 **bhp**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	3.32E-03	lb/hr	5.61E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	5.73E-04	lb/hr	9.67E-06	tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.49E-01	lbs/Mgal	CARB-CATEF	9.77E-03	lb/hr	3.30E-03	tpy	9.16E+00	lb/10^12 Btu	CARB-CATEF	3.39E-05	lb/hr	1.14E-05	tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.49E-01	lbs/Mgal	CARB-CATEF	9.77E-03	lb/hr	3.30E-03	tpy	9.16E+00	lb/10^12 Btu	CARB-CATEF	3.39E-05	lb/hr	1.14E-05	tpy
Incinerator	675 hr/yr	175.0 lb/hr	N **A**	none							none						
			a Heat input rate			**Vessel Total**	**2.02E-01**	**lb/hr**	**6.52E-02**	**tpy**			**Vessel Total**	**4.21E-02**	**lb/hr**	**1.36E-02**	**tpy**
Oil Spill Response Vessel 1 (Dedicated OSRV)																	
Main Engine 1	900 hr/yr	75.0 gal/hr	3000 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	8.70E-03	lb/hr	3.92E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.02E-03	lb/hr	9.08E-04	tpy
Main Engine 2	900 hr/yr	75.0 gal/hr	3000 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	8.70E-03	lb/hr	3.92E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.02E-03	lb/hr	9.08E-04	tpy
Thruster Engine 1	12 hr/yr	58.0 gal/hr	950 **hp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	6.73E-03	lb/hr	4.04E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.56E-03	lb/hr	9.36E-06	tpy
Thruster Engine 2	12 hr/yr	58.0 gal/hr	950 **hp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	6.73E-03	lb/hr	4.04E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.56E-03	lb/hr	9.36E-06	tpy
Thruster Engine 3	12 hr/yr	58.0 gal/hr	950 **hp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	6.73E-03	lb/hr	4.04E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.56E-03	lb/hr	9.36E-06	tpy
Generator 1	2400 hr/yr	27.0 gal/hr	400 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.21E-03	lb/hr	5.05E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.26E-04	lb/hr	8.72E-04	tpy
Generator 2	300 hr/yr	27.0 gal/hr	400 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.21E-03	lb/hr	6.31E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.26E-04	lb/hr	1.09E-04	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.21E-03	lb/hr	0.00E+00	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.26E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	1.25E-03	lb/hr	1.87E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.15E-04	lb/hr	3.23E-06	tpy
						Vessel Total	**5.15E-02**	**lb/hr**	**1.37E-02**	**tpy**			**Vessel Total**	**1.11E-02**	**lb/hr**	**2.83E-03**	**tpy**
Oil Spill Response Vessel 2																	
Main Engine 1	60 hr/yr	75.0 gal/hr	3000 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	8.70E-03	lb/hr	2.61E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.02E-03	lb/hr	6.05E-05	tpy
Main Engine 2	60 hr/yr	75.0 gal/hr	3000 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	8.70E-03	lb/hr	2.61E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.02E-03	lb/hr	6.05E-05	tpy
Thruster Engine 1	48 hr/yr	58.0 gal/hr	950 **hp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	6.73E-03	lb/hr	1.61E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.56E-03	lb/hr	3.74E-05	tpy
Thruster Engine 2	48 hr/yr	58.0 gal/hr	950 **hp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	6.73E-03	lb/hr	1.61E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.56E-03	lb/hr	3.74E-05	tpy
Thruster Engine 3	48 hr/yr	58.0 gal/hr	950 **hp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	6.73E-03	lb/hr	1.61E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.56E-03	lb/hr	3.74E-05	tpy
Generator 1	60 hr/yr	27.0 gal/hr	400 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.21E-03	lb/hr	1.26E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.26E-04	lb/hr	2.18E-05	tpy
Generator 2	30 hr/yr	27.0 gal/hr	400 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.21E-03	lb/hr	6.31E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.26E-04	lb/hr	1.09E-05	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.21E-03	lb/hr	0.00E+00	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.26E-04	lb/hr	0.00E+00	tpy
Emergency Generator	2 hr/yr	8.0 gal/hr	99 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	1.25E-03	lb/hr	1.25E-06	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.15E-04	lb/hr	2.15E-07	tpy
						Vessel Total	**5.15E-02**	**lb/hr**	**1.20E-03**	**tpy**			**Vessel Total**	**1.11E-02**	**lb/hr**	**2.66E-04**	**tpy**

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Hydrochloric acid (Hydrogen Chloride)								Naphthalene							
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	
Drill Rig Equipment																			
Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	3.11E-02	lb/hr	1.87E-02	tpy		1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.87E-03	lb/hr	1.72E-03	tpy	
Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	3.11E-02	lb/hr	1.87E-02	tpy		1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.87E-03	lb/hr	1.72E-03	tpy	
Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	3.11E-02	lb/hr	1.87E-02	tpy		1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.87E-03	lb/hr	1.72E-03	tpy	
Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	3.11E-02	lb/hr	1.87E-02	tpy		1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.87E-03	lb/hr	1.72E-03	tpy	
Main Engine 1 Uncontrolled	125 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	3.11E-02	lb/hr	1.94E-03	tpy		1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.87E-03	lb/hr	1.79E-04	tpy	
Main Engine 2 Uncontrolled	125 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	3.11E-02	lb/hr	1.94E-03	tpy		1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.87E-03	lb/hr	1.79E-04	tpy	
Emergency Back-up Engine	75 hr/yr	205.0 g fuel/kWh	968 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.21E-02	lb/hr	4.53E-04	tpy		1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.11E-03	lb/hr	4.18E-05	tpy	
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.40E-03	lb/hr	3.54E-04	tpy		8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.25E-04	lb/hr	2.13E-05	tpy	
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.40E-03	lb/hr	3.54E-04	tpy		8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.25E-04	lb/hr	2.13E-05	tpy	
Logging Winch	273 hr/yr	13.3 gal/hr	187 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	2.47E-03	lb/hr	3.38E-04	tpy		8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.49E-04	lb/hr	2.03E-05	tpy	
Heater 1	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	1.41E+03	lb/10^12 Btu	VCAPCD	4.94E-03	lb/hr	5.92E-03	tpy		2.78E+03	lb/10^12 Btu	CARB-CATEF	9.72E-03	lb/hr	1.17E-02	tpy	
Heater 2	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	1.41E+03	lb/10^12 Btu	VCAPCD	4.94E-03	lb/hr	5.92E-03	tpy		2.78E+03	lb/10^12 Btu	CARB-CATEF	9.72E-03	lb/hr	1.17E-02	tpy	
Incinerator	65 tons/yr	276.0 lbs/hr	N **A**	none								none							
Fuel Tank 1	2400 hrs/yr	471940.6 gal/yr*	N **A**	none								none							
Fuel Tank 2	2400 hrs/yr	471940.6 gal/yr*	N **A**	none								none							
Mud Degassing	100 days/yr	N A	20000 **scf/day**	none								none							
		*max throughput	a Heat input rate			**Drill Rig Total**	**2.22E-01**	**lb/hr**	**9.19E-02**	**tpy**				**Drill Rig Total**	**3.86E-02**	**lb/hr**	**3.07E-02**	**tpy**	
Ice Breaker 1																			
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	7.94E-02	lb/hr	2.68E-02	tpy		1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	7.32E-03	lb/hr	2.47E-03	tpy	
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	7.94E-02	lb/hr	2.68E-02	tpy		1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	7.32E-03	lb/hr	2.47E-03	tpy	
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.96E-02	lb/hr	2.01E-02	tpy		1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	5.49E-03	lb/hr	1.85E-03	tpy	
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.96E-02	lb/hr	2.01E-02	tpy		1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	5.49E-03	lb/hr	1.85E-03	tpy	
Harbor Generator	33.75 hr/yr	50.4 gal/hr	952 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	9.40E-03	lb/hr	1.59E-04	tpy		1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.66E-04	lb/hr	1.46E-05	tpy	
Emergency Generator	33.75 hr/yr	21.3 gal/hr	402 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	3.97E-03	lb/hr	6.70E-05	tpy		8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	2.39E-04	lb/hr	4.03E-06	tpy	
Boiler 1	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.41E+03	lb/10^12 Btu	VCAPCD	5.22E-03	lb/hr	1.76E-03	tpy		2.78E+03	lb/10^12 Btu	CARB-CATEF	1.03E-02	lb/hr	3.47E-03	tpy	
Boiler 2	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.41E+03	lb/10^12 Btu	VCAPCD	5.22E-03	lb/hr	1.76E-03	tpy		2.78E+03	lb/10^12 Btu	CARB-CATEF	1.03E-02	lb/hr	3.47E-03	tpy	
Incinerator	675 hr/yr	175.0 lb/hr	N **A**	none								none							
			a Heat input rate			**Vessel Total**	**3.02E-01**	**lb/hr**	**9.76E-02**	**tpy**				**Vessel Total**	**4.73E-02**	**lb/hr**	**1.56E-02**	**tpy**	
Ice Breaker 2																			
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	7.94E-02	lb/hr	2.68E-02	tpy		1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	7.32E-03	lb/hr	2.47E-03	tpy	
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	7.94E-02	lb/hr	2.68E-02	tpy		1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	7.32E-03	lb/hr	2.47E-03	tpy	
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.96E-02	lb/hr	2.01E-02	tpy		1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	5.49E-03	lb/hr	1.85E-03	tpy	
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.96E-02	lb/hr	2.01E-02	tpy		1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	5.49E-03	lb/hr	1.85E-03	tpy	
Harbor Generator	33.75 hr/yr	50.4 gal/hr	952 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	9.40E-03	lb/hr	1.59E-04	tpy		1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.66E-04	lb/hr	1.46E-05	tpy	
Emergency Generator	33.75 hr/yr	21.3 gal/hr	402 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	3.97E-03	lb/hr	6.70E-05	tpy		8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	2.39E-04	lb/hr	4.03E-06	tpy	
Boiler 1	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.41E+03	lb/10^12 Btu	VCAPCD	5.22E-03	lb/hr	1.76E-03	tpy		2.78E+03	lb/10^12 Btu	CARB-CATEF	1.03E-02	lb/hr	3.47E-03	tpy	
Boiler 2	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.41E+03	lb/10^12 Btu	VCAPCD	5.22E-03	lb/hr	1.76E-03	tpy		2.78E+03	lb/10^12 Btu	CARB-CATEF	1.03E-02	lb/hr	3.47E-03	tpy	
Incinerator	675 hr/yr	175.0 lb/hr	N **A**	none								none							
			a Heat input rate			**Vessel Total**	**3.02E-01**	**lb/hr**	**9.76E-02**	**tpy**				**Vessel Total**	**4.73E-02**	**lb/hr**	**1.56E-02**	**tpy**	
Oil Spill Response Vessel 1 (Dedicated OSRV)																			
Main Engine 1	900 hr/yr	75.0 gal/hr	3000 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.40E-02	lb/hr	6.29E-03	tpy		1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.29E-03	lb/hr	5.80E-04	tpy	
Main Engine 2	900 hr/yr	75.0 gal/hr	3000 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.40E-02	lb/hr	6.29E-03	tpy		1.30E-04	lb/MMBtu fuel input	AP-42 3.4-5	1.29E-03	lb/hr	5.80E-04	tpy	
Thruster Engine 1	12 hr/yr	58.0 gal/hr	950 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.08E-02	lb/hr	6.48E-05	tpy		1.30E-04	lb/MMBtu fuel input	AP-42 3.4-5	9.96E-04	lb/hr	5.98E-06	tpy	
Thruster Engine 2	12 hr/yr	58.0 gal/hr	950 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.08E-02	lb/hr	6.48E-05	tpy		1.30E-04	lb/MMBtu fuel input	AP-42 3.4-5	9.96E-04	lb/hr	5.98E-06	tpy	
Thruster Engine 3	12 hr/yr	58.0 gal/hr	950 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.08E-02	lb/hr	6.48E-05	tpy		1.30E-04	lb/MMBtu fuel input	AP-42 3.4-5	9.96E-04	lb/hr	5.98E-06	tpy	
Generator 1	2400 hr/yr	27.0 gal/hr	400 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.03E-03	lb/hr	6.04E-03	tpy		8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.02E-04	lb/hr	3.63E-04	tpy	
Generator 2	300 hr/yr	27.0 gal/hr	400 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.03E-03	lb/hr	7.55E-04	tpy		8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.02E-04	lb/hr	4.54E-05	tpy	
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.03E-03	lb/hr	0.00E+00	tpy		8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.02E-04	lb/hr	0.00E+00	tpy	
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.49E-03	lb/hr	2.24E-05	tpy		8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	8.96E-05	lb/hr	1.34E-06	tpy	
						Vessel Total	**7.69E-02**	**lb/hr**	**1.96E-02**	**tpy**				**Vessel Total**	**6.56E-03**	**lb/hr**	**1.59E-03**	**tpy**	
Oil Spill Response Vessel 2																			
Main Engine 1	60 hr/yr	75.0 gal/hr	3000 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.40E-02	lb/hr	4.19E-04	tpy		1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.29E-03	lb/hr	3.86E-05	tpy	
Main Engine 2	60 hr/yr	75.0 gal/hr	3000 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.40E-02	lb/hr	4.19E-04	tpy		1.30E-04	lb/MMBtu fuel input	AP-42 3.4-5	1.29E-03	lb/hr	3.86E-05	tpy	
Thruster Engine 1	48 hr/yr	58.0 gal/hr	950 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.08E-02	lb/hr	2.59E-04	tpy		1.30E-04	lb/MMBtu fuel input	AP-42 3.4-6	9.96E-04	lb/hr	2.39E-05	tpy	
Thruster Engine 2	48 hr/yr	58.0 gal/hr	950 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.08E-02	lb/hr	2.59E-04	tpy		1.30E-04	lb/MMBtu fuel input	AP-42 3.4-7	9.96E-04	lb/hr	2.39E-05	tpy	
Thruster Engine 3	48 hr/yr	58.0 gal/hr	950 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.08E-02	lb/hr	2.59E-04	tpy		1.30E-04	lb/MMBtu fuel input	AP-42 3.4-7	9.96E-04	lb/hr	2.39E-05	tpy	
Generator 1	60 hr/yr	27.0 gal/hr	400 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.03E-03	lb/hr	1.51E-04	tpy		8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.02E-04	lb/hr	9.07E-06	tpy	
Generator 2	30 hr/yr	27.0 gal/hr	400 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.03E-03	lb/hr	7.55E-05	tpy		8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.02E-04	lb/hr	4.54E-06	tpy	
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.03E-03	lb/hr	0.00E+00	tpy		8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.02E-04	lb/hr	0.00E+00	tpy	
Emergency Generator	2 hr/yr	8.0 gal/hr	99 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.49E-03	lb/hr	1.49E-06	tpy		8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	8.96E-05	lb/hr	8.96E-08	tpy	
						Vessel Total	**7.69E-02**	**lb/hr**	**1.84E-03**	**tpy**				**Vessel Total**	**6.56E-03**	**lb/hr**	**1.63E-04**	**tpy**	

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Toluene							Xylenes (mixed isomers)						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Drill Rig Equipment																	
Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	6.20E-03	lb/hr	3.72E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.26E-03	lb/hr	2.55E-03	tpy
Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	6.20E-03	lb/hr	3.72E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.26E-03	lb/hr	2.55E-03	tpy
Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	6.20E-03	lb/hr	3.72E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.26E-03	lb/hr	2.55E-03	tpy
Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	6.20E-03	lb/hr	3.72E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.26E-03	lb/hr	2.55E-03	tpy
Main Engine 1 Uncontrolled	125 hr/yr	205.8 g fuel/kWh	2480 **kW**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	6.20E-03	lb/hr	3.87E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.26E-03	lb/hr	2.66E-04	tpy
Main Engine 2 Uncontrolled	125 hr/yr	205.8 g fuel/kWh	2480 **kW**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	6.20E-03	lb/hr	3.87E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.26E-03	lb/hr	2.66E-04	tpy
Emergency Back-up Engine	75 hr/yr	205.0 g fuel/kWh	968 **kW**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.41E-03	lb/hr	9.03E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.65E-03	lb/hr	6.21E-05	tpy
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.57E-03	lb/hr	1.03E-04	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.09E-03	lb/hr	7.15E-05	tpy
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.57E-03	lb/hr	1.03E-04	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.09E-03	lb/hr	7.15E-05	tpy
Logging Winch	273 hr/yr	13.3 gal/hr	187 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	7.18E-04	lb/hr	9.80E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.00E-04	lb/hr	6.83E-05	tpy
Heater 1	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	1.14E+01	lb/10^12 Btu	CARB-CATEF	3.97E-05	lb/hr	4.77E-05	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	3.95E-05	lb/hr	4.74E-05	tpy
Heater 2	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	1.14E+01	lb/10^12 Btu	CARB-CATEF	3.97E-05	lb/hr	4.77E-05	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	3.95E-05	lb/hr	4.74E-05	tpy
Incinerator	65 tons/yr	276.0 lbs/hr	N **A**	none							none						
Fuel Tank 1	2400 hrs/yr	471940.6 gal/yr*	N **A**	N A		EPA TANKS	1.667E-08	lb/hr	0.00004	tpy	none						
Fuel Tank 2	2400 hrs/yr	471940.6 gal/yr*	N **A**	N A		EPA TANKS	1.667E-08	lb/hr	0.00004	tpy	none						
Mud Degassing	100 days/yr	N A	20000 **scf/day**	none							none						
		*max throughput	a Heat input rate			**Drill Rig Total**	**4.35E-02**	**lb/hr**	**1.62E-02**	**tpy**			**Drill Rig Total**	**3.00E-02**	**lb/hr**	**1.11E-02**	**tpy**
Ice Breaker 1																	
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.58E-02	lb/hr	5.34E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.09E-02	lb/hr	3.67E-03	tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.58E-02	lb/hr	5.34E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.09E-02	lb/hr	3.67E-03	tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.19E-02	lb/hr	4.01E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	8.15E-03	lb/hr	2.75E-03	tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.19E-02	lb/hr	4.01E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	8.15E-03	lb/hr	2.75E-03	tpy
Harbor Generator	33.75 hr/yr	50.4 gal/hr	952 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.87E-03	lb/hr	3.16E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.29E-03	lb/hr	2.17E-05	tpy
Emergency Generator	33.75 hr/yr	21.3 gal/hr	402 **bhp**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.15E-03	lb/hr	1.94E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	8.02E-04	lb/hr	1.35E-05	tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.14E+01	lb/10^12 Btu	CARB-CATEF	4.20E-05	lb/hr	1.42E-05	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	4.17E-05	lb/hr	1.41E-05	tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.14E+01	lb/10^12 Btu	CARB-CATEF	4.20E-05	lb/hr	1.42E-05	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	4.17E-05	lb/hr	1.41E-05	tpy
Incinerator	675 hr/yr	175.0 lb/hr	N **A**	none							none						
			a Heat input rate			**Vessel Total**	**5.85E-02**	**lb/hr**	**1.88E-02**	**tpy**			**Vessel Total**	**4.02E-02**	**lb/hr**	**1.29E-02**	**tpy**
Ice Breaker 2																	
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.58E-02	lb/hr	5.34E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.09E-02	lb/hr	3.67E-03	tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.58E-02	lb/hr	5.34E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.09E-02	lb/hr	3.67E-03	tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.19E-02	lb/hr	4.01E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	8.15E-03	lb/hr	2.75E-03	tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.19E-02	lb/hr	4.01E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	8.15E-03	lb/hr	2.75E-03	tpy
Harbor Generator	33.75 hr/yr	50.4 gal/hr	952 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.87E-03	lb/hr	3.16E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.29E-03	lb/hr	2.17E-05	tpy
Emergency Generator	33.75 hr/yr	21.3 gal/hr	402 **bhp**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.15E-03	lb/hr	1.94E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	8.02E-04	lb/hr	1.35E-05	tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.14E+01	lb/10^12 Btu	CARB-CATEF	4.20E-05	lb/hr	1.42E-05	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	4.17E-05	lb/hr	1.41E-05	tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.14E+01	lb/10^12 Btu	CARB-CATEF	4.20E-05	lb/hr	1.42E-05	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	4.17E-05	lb/hr	1.41E-05	tpy
Incinerator	675 hr/yr	175.0 lb/hr	N **A**	none							none						
			a Heat input rate			**Vessel Total**	**5.85E-02**	**lb/hr**	**1.88E-02**	**tpy**			**Vessel Total**	**4.02E-02**	**lb/hr**	**1.29E-02**	**tpy**
Oil Spill Response Vessel 1 (Dedicated OSRV)																	
Main Engine 1	900 hr/yr	75.0 gal/hr	3000 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.78E-03	lb/hr	1.25E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.91E-03	lb/hr	8.60E-04	tpy
Main Engine 2	900 hr/yr	75.0 gal/hr	3000 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.78E-03	lb/hr	1.25E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.91E-03	lb/hr	8.60E-04	tpy
Thruster Engine 1	12 hr/yr	58.0 gal/hr	950 **hp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.15E-03	lb/hr	1.29E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.48E-03	lb/hr	8.87E-06	tpy
Thruster Engine 2	12 hr/yr	58.0 gal/hr	950 **hp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.15E-03	lb/hr	1.29E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.48E-03	lb/hr	8.87E-06	tpy
Thruster Engine 3	12 hr/yr	58.0 gal/hr	950 **hp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.15E-03	lb/hr	1.29E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.48E-03	lb/hr	8.87E-06	tpy
Generator 1	2400 hr/yr	27.0 gal/hr	400 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.46E-03	lb/hr	1.75E-03	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.02E-03	lb/hr	1.22E-03	tpy
Generator 2	300 hr/yr	27.0 gal/hr	400 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.46E-03	lb/hr	2.19E-04	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.02E-03	lb/hr	1.52E-04	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.46E-03	lb/hr	0.00E+00	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.02E-03	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	4.32E-04	lb/hr	6.48E-06	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.01E-04	lb/hr	4.52E-06	tpy
						Vessel Total	**1.68E-02**	**lb/hr**	**4.52E-03**	**tpy**			**Vessel Total**	**1.16E-02**	**lb/hr**	**3.12E-03**	**tpy**
Oil Spill Response Vessel 2																	
Main Engine 1	60 hr/yr	75.0 gal/hr	3000 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.78E-03	lb/hr	8.35E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.91E-03	lb/hr	5.74E-05	tpy
Main Engine 2	60 hr/yr	75.0 gal/hr	3000 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.78E-03	lb/hr	8.35E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.91E-03	lb/hr	5.74E-05	tpy
Thruster Engine 1	48 hr/yr	58.0 gal/hr	950 **hp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-5	2.15E-03	lb/hr	5.17E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-5	1.48E-03	lb/hr	3.55E-05	tpy
Thruster Engine 2	48 hr/yr	58.0 gal/hr	950 **hp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-6	2.15E-03	lb/hr	5.17E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-6	1.48E-03	lb/hr	3.55E-05	tpy
Thruster Engine 3	48 hr/yr	58.0 gal/hr	950 **hp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-6	2.15E-03	lb/hr	5.17E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-6	1.48E-03	lb/hr	3.55E-05	tpy
Generator 1	60 hr/yr	27.0 gal/hr	400 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.46E-03	lb/hr	4.38E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.02E-03	lb/hr	3.05E-05	tpy
Generator 2	30 hr/yr	27.0 gal/hr	400 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.46E-03	lb/hr	2.19E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.02E-03	lb/hr	1.52E-05	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.46E-03	lb/hr	0.00E+00	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.02E-03	lb/hr	0.00E+00	tpy
Emergency Generator	2 hr/yr	8.0 gal/hr	99 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	4.32E-04	lb/hr	4.32E-07	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.01E-04	lb/hr	3.01E-07	tpy
						Vessel Total	**1.68E-02**	**lb/hr**	**3.88E-04**	**tpy**			**Vessel Total**	**1.16E-02**	**lb/hr**	**2.67E-04**	**tpy**

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	o-Xylene						m-Xylene					
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE Unit
Drill Rig Equipment															
Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.49E-03	lb/hr	2.09E-03 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.61E-03	lb/hr	2.16E-03 tpy
Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.49E-03	lb/hr	2.09E-03 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.61E-03	lb/hr	2.16E-03 tpy
Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.49E-03	lb/hr	2.09E-03 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.61E-03	lb/hr	2.16E-03 tpy
Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.49E-03	lb/hr	2.09E-03 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.61E-03	lb/hr	2.16E-03 tpy
Main Engine 1 Uncontrolled	125 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.49E-03	lb/hr	2.18E-04 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.61E-03	lb/hr	2.25E-04 tpy
Main Engine 2 Uncontrolled	125 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.49E-03	lb/hr	2.18E-04 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.61E-03	lb/hr	2.25E-04 tpy
Emergency Back-up Engine	75 hr/yr	205.0 g fuel/kWh	968 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.36E-03	lb/hr	5.09E-05 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.40E-03	lb/hr	5.26E-05 tpy
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.06E-04	lb/hr	3.97E-05 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.26E-04	lb/hr	4.10E-05 tpy
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.06E-04	lb/hr	3.97E-05 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.26E-04	lb/hr	4.10E-05 tpy
Logging Winch	273 hr/yr	13.3 gal/hr	187 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	2.78E-04	lb/hr	3.79E-05 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	2.87E-04	lb/hr	3.92E-05 tpy
Heater 1	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	none						none					
Heater 2	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	none						none					
Incinerator	65 tons/yr	276.0 lbs/hr	N **A**	none						none					
Fuel Tank 1	2400 hrs/yr	471940.6 gal/yr*	N **A**	none						N A		EPA TANKS	3.333E-08	lb/hr	0.00008 tpy
Fuel Tank 2	2400 hrs/yr	471940.6 gal/yr*	N **A**	none						N A		EPA TANKS	3.333E-08	lb/hr	0.00008 tpy
Mud Degassing	100 days/yr	N A	20000 **scf/day**	none						none					
		*max throughput	a Heat input rate			**Drill Rig Total**	**2.38E-02**	**lb/hr**	**8.98E-03 tpy**			**Drill Rig Total**	**2.46E-02**	**lb/hr**	**9.44E-03 tpy**
Ice Breaker 1															
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	8.91E-03	lb/hr	3.01E-03 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	9.21E-03	lb/hr	3.11E-03 tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	8.91E-03	lb/hr	3.01E-03 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	9.21E-03	lb/hr	3.11E-03 tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.68E-03	lb/hr	2.26E-03 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.91E-03	lb/hr	2.33E-03 tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.68E-03	lb/hr	2.26E-03 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.91E-03	lb/hr	2.33E-03 tpy
Harbor Generator	33.75 hr/yr	50.4 gal/hr	952 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.05E-03	lb/hr	1.78E-05 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.09E-03	lb/hr	1.84E-05 tpy
Emergency Generator	33.75 hr/yr	21.3 gal/hr	402 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	4.45E-04	lb/hr	7.52E-06 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	4.60E-04	lb/hr	7.77E-06 tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	none						none					
Boiler 2	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	none						none					
Incinerator	675 hr/yr	175.0 lb/hr	N **A**	none						none					
			a Heat input rate			**Vessel Total**	**3.27E-02**	**lb/hr**	**1.06E-02 tpy**			**Vessel Total**	**3.38E-02**	**lb/hr**	**1.09E-02 tpy**
Ice Breaker 2															
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	8.91E-03	lb/hr	3.01E-03 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	9.21E-03	lb/hr	3.11E-03 tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	8.91E-03	lb/hr	3.01E-03 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	9.21E-03	lb/hr	3.11E-03 tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.68E-03	lb/hr	2.26E-03 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.91E-03	lb/hr	2.33E-03 tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.68E-03	lb/hr	2.26E-03 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.91E-03	lb/hr	2.33E-03 tpy
Harbor Generator	33.75 hr/yr	50.4 gal/hr	952 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.05E-03	lb/hr	1.78E-05 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.09E-03	lb/hr	1.84E-05 tpy
Emergency Generator	33.75 hr/yr	21.3 gal/hr	402 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	4.45E-04	lb/hr	7.52E-06 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	4.60E-04	lb/hr	7.77E-06 tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	none						none					
Boiler 2	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	none						none					
Incinerator	675 hr/yr	175.0 lb/hr	N **A**	none						none					
			a Heat input rate			**Vessel Total**	**3.27E-02**	**lb/hr**	**1.06E-02 tpy**			**Vessel Total**	**3.38E-02**	**lb/hr**	**1.09E-02 tpy**
Oil Spill Response Vessel 1 (Dedicated OSRV)															
Main Engine 1	900 hr/yr	75.0 gal/hr	3000 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.57E-03	lb/hr	7.05E-04 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.62E-03	lb/hr	7.29E-04 tpy
Main Engine 2	900 hr/yr	75.0 gal/hr	3000 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.57E-03	lb/hr	7.05E-04 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.62E-03	lb/hr	7.29E-04 tpy
Thruster Engine 1	12 hr/yr	58.0 gal/hr	950 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.21E-03	lb/hr	7.27E-06 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.25E-03	lb/hr	7.52E-06 tpy
Thruster Engine 2	12 hr/yr	58.0 gal/hr	950 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.21E-03	lb/hr	7.27E-06 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.25E-03	lb/hr	7.52E-06 tpy
Thruster Engine 3	12 hr/yr	58.0 gal/hr	950 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.21E-03	lb/hr	7.27E-06 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.25E-03	lb/hr	7.52E-06 tpy
Generator 1	2400 hr/yr	27.0 gal/hr	400 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.64E-04	lb/hr	6.77E-04 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	5.83E-04	lb/hr	7.00E-04 tpy
Generator 2	300 hr/yr	27.0 gal/hr	400 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.64E-04	lb/hr	8.46E-05 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	5.83E-04	lb/hr	8.75E-05 tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.64E-04	lb/hr	0.00E+00 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	5.83E-04	lb/hr	0.00E+00 tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.67E-04	lb/hr	2.51E-06 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.73E-04	lb/hr	2.59E-06 tpy
						Vessel Total	**8.63E-03**	**lb/hr**	**2.20E-03 tpy**			**Vessel Total**	**8.92E-03**	**lb/hr**	**2.27E-03 tpy**
Oil Spill Response Vessel 2															
Main Engine 1	60 hr/yr	75.0 gal/hr	3000 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.57E-03	lb/hr	4.70E-05 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.62E-03	lb/hr	4.86E-05 tpy
Main Engine 2	60 hr/yr	75.0 gal/hr	3000 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.57E-03	lb/hr	4.70E-05 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.62E-03	lb/hr	4.86E-05 tpy
Thruster Engine 1	48 hr/yr	58.0 gal/hr	950 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.21E-03	lb/hr	2.91E-05 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.25E-03	lb/hr	3.01E-05 tpy
Thruster Engine 2	48 hr/yr	58.0 gal/hr	950 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.21E-03	lb/hr	2.91E-05 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.25E-03	lb/hr	3.01E-05 tpy
Thruster Engine 3	48 hr/yr	58.0 gal/hr	950 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.21E-03	lb/hr	2.91E-05 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.25E-03	lb/hr	3.01E-05 tpy
Generator 1	60 hr/yr	27.0 gal/hr	400 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.64E-04	lb/hr	1.69E-05 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	5.83E-04	lb/hr	1.75E-05 tpy
Generator 2	30 hr/yr	27.0 gal/hr	400 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.64E-04	lb/hr	8.46E-06 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	5.83E-04	lb/hr	8.75E-06 tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.64E-04	lb/hr	0.00E+00 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	5.83E-04	lb/hr	0.00E+00 tpy
Emergency Generator	2 hr/yr	8.0 gal/hr	99 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.67E-04	lb/hr	1.67E-07 tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.73E-04	lb/hr	1.73E-07 tpy
						Vessel Total	**8.63E-03**	**lb/hr**	**2.07E-04 tpy**			**Vessel Total**	**8.92E-03**	**lb/hr**	**2.14E-04 tpy**

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Arsenic Compounds (inorganic including arsine)							Beryllium Compounds						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Drill Rig Equipment																	
Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.67E-04	lb/hr	1.60E-04	tpy	none						
Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.67E-04	lb/hr	1.60E-04	tpy	none						
Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.67E-04	lb/hr	1.60E-04	tpy	none						
Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.67E-04	lb/hr	1.60E-04	tpy	none						
Main Engine 1 Uncontrolled	125 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.67E-04	lb/hr	1.67E-05	tpy	none						
Main Engine 2 Uncontrolled	125 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.67E-04	lb/hr	1.67E-05	tpy	none						
Emergency Back-up Engine	75 hr/yr	205.0 g fuel/kWh	968 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.04E-04	lb/hr	3.89E-06	tpy	none						
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.64E-05	lb/hr	3.04E-06	tpy	none						
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.64E-05	lb/hr	3.04E-06	tpy	none						
Logging Winch	273 hr/yr	13.3 gal/hr	187 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.13E-05	lb/hr	2.90E-06	tpy	none						
Heater 1	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	4.00E+00	lb/10^12 Btu	AP-42 1.3-9	1.40E-05	lb/hr	1.68E-05	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-9	1.05E-05	lb/hr	1.26E-05	tpy
Heater 2	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	4.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.40E-05	lb/hr	1.68E-05	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.05E-05	lb/hr	1.26E-05	tpy
Incinerator	65 tons/yr	276.0 lbs/hr	N **A**	4.37E-03	lb/ton	AP-42 2.1-2	6.03E-04	lb/hr	7.24E-04	tpy	none						
Fuel Tank 1	2400 hrs/yr	471940.6 gal/yr*	N **A**	none							none						
Fuel Tank 2	2400 hrs/yr	471940.6 gal/yr*	N **A**	none							none						
Mud Degassing	100 days/yr	N A	20000 **scf/day**	none							none						
		*max throughput	a Heat input rate			**Drill Rig Total**	**2.45E-03**	**lb/hr**	**1.44E-03**	**tpy**			**Drill Rig Total**	**2.10E-05**	**lb/hr**	**2.52E-05**	**tpy**
Ice Breaker 1																	
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	6.82E-04	lb/hr	2.30E-04	tpy	none						
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	6.82E-04	lb/hr	2.30E-04	tpy	none						
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	5.12E-04	lb/hr	1.73E-04	tpy	none						
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	5.12E-04	lb/hr	1.73E-04	tpy	none						
Harbor Generator	33.75 hr/yr	50.4 gal/hr	952 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	8.07E-05	lb/hr	1.36E-06	tpy	none						
Emergency Generator	33.75 hr/yr	21.3 gal/hr	402 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	3.41E-05	lb/hr	5.75E-07	tpy	none						
Boiler 1	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	4.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.48E-05	lb/hr	4.99E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	4.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.48E-05	lb/hr	4.99E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy
Incinerator	675 hr/yr	175.0 lb/hr	N **A**	4.37E-03	lb/ton	AP-42 2.1-2	3.82E-04	lb/hr	1.29E-04	tpy	none						
			a Heat input rate			**Vessel Total**	**2.91E-03**	**lb/hr**	**9.47E-04**	**tpy**			**Vessel Total**	**2.22E-05**	**lb/hr**	**7.49E-06**	**tpy**
Ice Breaker 2																	
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	6.82E-04	lb/hr	2.30E-04	tpy	none						
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	6.82E-04	lb/hr	2.30E-04	tpy	none						
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	5.12E-04	lb/hr	1.73E-04	tpy	none						
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	5.12E-04	lb/hr	1.73E-04	tpy	none						
Harbor Generator	33.75 hr/yr	50.4 gal/hr	952 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	8.07E-05	lb/hr	1.36E-06	tpy	none						
Emergency Generator	33.75 hr/yr	21.3 gal/hr	402 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	3.41E-05	lb/hr	5.75E-07	tpy	none						
Boiler 1	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	4.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.48E-05	lb/hr	4.99E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	4.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.48E-05	lb/hr	4.99E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy
Incinerator	675 hr/yr	175.0 lb/hr	N **A**	4.37E-03	lb/ton	AP-42 2.1-2	3.82E-04	lb/hr	1.29E-04	tpy	none						
			a Heat input rate			**Vessel Total**	**2.91E-03**	**lb/hr**	**9.47E-04**	**tpy**			**Vessel Total**	**2.22E-05**	**lb/hr**	**7.49E-06**	**tpy**
Oil Spill Response Vessel 1 (Dedicated OSRV)																	
Main Engine 1	900 hr/yr	75.0 gal/hr	3000 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.20E-04	lb/hr	5.40E-05	tpy	none						
Main Engine 2	900 hr/yr	75.0 gal/hr	3000 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.20E-04	lb/hr	5.40E-05	tpy	none						
Thruster Engine 1	12 hr/yr	58.0 gal/hr	950 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	9.28E-05	lb/hr	5.57E-07	tpy	none						
Thruster Engine 2	12 hr/yr	58.0 gal/hr	950 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	9.28E-05	lb/hr	5.57E-07	tpy	none						
Thruster Engine 3	12 hr/yr	58.0 gal/hr	950 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	9.28E-05	lb/hr	5.57E-07	tpy	none						
Generator 1	2400 hr/yr	27.0 gal/hr	400 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.32E-05	lb/hr	5.18E-05	tpy	none						
Generator 2	300 hr/yr	27.0 gal/hr	400 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.32E-05	lb/hr	6.48E-06	tpy	none						
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.32E-05	lb/hr	0.00E+00	tpy	none						
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.28E-05	lb/hr	1.92E-07	tpy	none						
						Vessel Total	**6.61E-04**	**lb/hr**	**1.68E-04**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**
Oil Spill Response Vessel 2																	
Main Engine 1	60 hr/yr	75.0 gal/hr	3000 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.20E-04	lb/hr	3.60E-06	tpy	none						
Main Engine 2	60 hr/yr	75.0 gal/hr	3000 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.20E-04	lb/hr	3.60E-06	tpy	none						
Thruster Engine 1	48 hr/yr	58.0 gal/hr	950 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	9.28E-05	lb/hr	2.23E-06	tpy	none						
Thruster Engine 2	48 hr/yr	58.0 gal/hr	950 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	9.28E-05	lb/hr	2.23E-06	tpy	none						
Thruster Engine 3	48 hr/yr	58.0 gal/hr	950 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	9.28E-05	lb/hr	2.23E-06	tpy	none						
Generator 1	60 hr/yr	27.0 gal/hr	400 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.32E-05	lb/hr	1.30E-06	tpy	none						
Generator 2	30 hr/yr	27.0 gal/hr	400 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.32E-05	lb/hr	6.48E-07	tpy	none						
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.32E-05	lb/hr	0.00E+00	tpy	none						
Emergency Generator	2 hr/yr	8.0 gal/hr	99 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.28E-05	lb/hr	1.28E-08	tpy	none						
						Vessel Total	**6.61E-04**	**lb/hr**	**1.58E-05**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Cadmium Compounds							Chromium Compounds						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Drill Rig Equipment																	
Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	2.50E-04	lb/hr	1.50E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	7.01E-05	tpy
Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	2.50E-04	lb/hr	1.50E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	7.01E-05	tpy
Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	2.50E-04	lb/hr	1.50E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	7.01E-05	tpy
Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	2.50E-04	lb/hr	1.50E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	7.01E-05	tpy
Main Engine 1 Uncontrolled	125 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	2.50E-04	lb/hr	1.57E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	7.30E-06	tpy
Main Engine 2 Uncontrolled	125 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	2.50E-04	lb/hr	1.57E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	7.30E-06	tpy
Emergency Back-up Engine	75 hr/yr	205.0 g fuel/kWh	968 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	9.74E-05	lb/hr	3.65E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.54E-05	lb/hr	1.70E-06	tpy
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.35E-05	lb/hr	2.85E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.03E-05	lb/hr	1.33E-06	tpy
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.35E-05	lb/hr	2.85E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.03E-05	lb/hr	1.33E-06	tpy
Logging Winch	273 hr/yr	13.3 gal/hr	187 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.99E-05	lb/hr	2.72E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	9.30E-06	lb/hr	1.27E-06	tpy
Heater 1	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	3.00E+00	lb/10^12 Btu	AP-42 1.3-9	1.05E-05	lb/hr	1.26E-05	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-9	1.05E-05	lb/hr	1.26E-05	tpy
Heater 2	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.05E-05	lb/hr	1.26E-05	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.05E-05	lb/hr	1.26E-05	tpy
Incinerator	65 tons/yr	276.0 lbs/hr	N **A**	1.09E-02	lb/ton	AP-42 2.1-2	1.50E-03	lb/hr	1.81E-03	tpy	8.97E-03	lb/ton	AP-42 2.1-2	1.24E-03	lb/hr	1.49E-03	tpy
Fuel Tank 1	2400 hrs/yr	471940.6 gal/yr*	N **A**	none							none						
Fuel Tank 2	2400 hrs/yr	471940.6 gal/yr*	N **A**	none							none						
Mud Degassing	100 days/yr	N A	20000 **scf/day**	none							none						
		*max throughput	a Heat input rate			**Drill Rig Total**	**3.23E-03**	**lb/hr**	**2.47E-03**	**tpy**			**Drill Rig Total**	**2.06E-03**	**lb/hr**	**1.81E-03**	**tpy**
Ice Breaker 1																	
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	6.40E-04	lb/hr	2.16E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.98E-04	lb/hr	1.01E-04	tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	6.40E-04	lb/hr	2.16E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.98E-04	lb/hr	1.01E-04	tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.80E-04	lb/hr	1.62E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	7.56E-05	tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.80E-04	lb/hr	1.62E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	7.56E-05	tpy
Harbor Generator	33.75 hr/yr	50.4 gal/hr	952 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	7.57E-05	lb/hr	1.28E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	3.53E-05	lb/hr	5.96E-07	tpy
Emergency Generator	33.75 hr/yr	21.3 gal/hr	402 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	3.20E-05	lb/hr	5.39E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.49E-05	lb/hr	2.52E-07	tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy
Incinerator	675 hr/yr	175.0 lb/hr	N **A**	1.09E-02	lb/ton	AP-42 2.1-2	9.54E-04	lb/hr	3.22E-04	tpy	8.97E-03	lb/ton	AP-42 2.1-2	7.85E-04	lb/hr	2.65E-04	tpy
			a Heat input rate			**Vessel Total**	**3.32E-03**	**lb/hr**	**1.09E-03**	**tpy**			**Vessel Total**	**1.90E-03**	**lb/hr**	**6.26E-04**	**tpy**
Ice Breaker 2																	
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	6.40E-04	lb/hr	2.16E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.98E-04	lb/hr	1.01E-04	tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	6.40E-04	lb/hr	2.16E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.98E-04	lb/hr	1.01E-04	tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.80E-04	lb/hr	1.62E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	7.56E-05	tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.80E-04	lb/hr	1.62E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	7.56E-05	tpy
Harbor Generator	33.75 hr/yr	50.4 gal/hr	952 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	7.57E-05	lb/hr	1.28E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	3.53E-05	lb/hr	5.96E-07	tpy
Emergency Generator	33.75 hr/yr	21.3 gal/hr	402 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	3.20E-05	lb/hr	5.39E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.49E-05	lb/hr	2.52E-07	tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy
Incinerator	675 hr/yr	175.0 lb/hr	N **A**	1.09E-02	lb/ton	AP-42 2.1-2	9.54E-04	lb/hr	3.22E-04	tpy	8.97E-03	lb/ton	AP-42 2.1-2	7.85E-04	lb/hr	2.65E-04	tpy
			a Heat input rate			**Vessel Total**	**3.32E-03**	**lb/hr**	**1.09E-03**	**tpy**			**Vessel Total**	**1.90E-03**	**lb/hr**	**6.26E-04**	**tpy**
Oil Spill Response Vessel 1 (Dedicated OSRV)																	
Main Engine 1	900 hr/yr	75.0 gal/hr	3000 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.13E-04	lb/hr	5.06E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.25E-05	lb/hr	2.36E-05	tpy
Main Engine 2	900 hr/yr	75.0 gal/hr	3000 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.13E-04	lb/hr	5.06E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.25E-05	lb/hr	2.36E-05	tpy
Thruster Engine 1	12 hr/yr	58.0 gal/hr	950 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	8.70E-05	lb/hr	5.22E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.06E-05	lb/hr	2.44E-07	tpy
Thruster Engine 2	12 hr/yr	58.0 gal/hr	950 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	8.70E-05	lb/hr	5.22E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.06E-05	lb/hr	2.44E-07	tpy
Thruster Engine 3	12 hr/yr	58.0 gal/hr	950 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	8.70E-05	lb/hr	5.22E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.06E-05	lb/hr	2.44E-07	tpy
Generator 1	2400 hr/yr	27.0 gal/hr	400 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.05E-05	lb/hr	4.86E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.89E-05	lb/hr	2.27E-05	tpy
Generator 2	300 hr/yr	27.0 gal/hr	400 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.05E-05	lb/hr	6.08E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.89E-05	lb/hr	2.84E-06	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.05E-05	lb/hr	0.00E+00	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.89E-05	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.20E-05	lb/hr	1.80E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.60E-06	lb/hr	8.40E-08	tpy
						Vessel Total	**6.20E-04**	**lb/hr**	**1.58E-04**	**tpy**			**Vessel Total**	**2.89E-04**	**lb/hr**	**7.36E-05**	**tpy**
Oil Spill Response Vessel 2																	
Main Engine 1	60 hr/yr	75.0 gal/hr	3000 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.13E-04	lb/hr	3.38E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.25E-05	lb/hr	1.58E-06	tpy
Main Engine 2	60 hr/yr	75.0 gal/hr	3000 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.13E-04	lb/hr	3.38E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.25E-05	lb/hr	1.58E-06	tpy
Thruster Engine 1	48 hr/yr	58.0 gal/hr	950 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	8.70E-05	lb/hr	2.09E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.06E-05	lb/hr	9.74E-07	tpy
Thruster Engine 2	48 hr/yr	58.0 gal/hr	950 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	8.70E-05	lb/hr	2.09E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.06E-05	lb/hr	9.74E-07	tpy
Thruster Engine 3	48 hr/yr	58.0 gal/hr	950 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	8.70E-05	lb/hr	2.09E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.06E-05	lb/hr	9.74E-07	tpy
Generator 1	60 hr/yr	27.0 gal/hr	400 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.05E-05	lb/hr	1.22E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.89E-05	lb/hr	5.67E-07	tpy
Generator 2	30 hr/yr	27.0 gal/hr	400 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.05E-05	lb/hr	6.08E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.89E-05	lb/hr	2.84E-07	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.05E-05	lb/hr	0.00E+00	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.89E-05	lb/hr	0.00E+00	tpy
Emergency Generator	2 hr/yr	8.0 gal/hr	99 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.20E-05	lb/hr	1.20E-08	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.60E-06	lb/hr	5.60E-09	tpy
						Vessel Total	**6.20E-04**	**lb/hr**	**1.48E-05**	**tpy**			**Vessel Total**	**2.89E-04**	**lb/hr**	**6.93E-06**	**tpy**

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Lead Compounds							Manganese Compounds						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Drill Rig Equipment																	
Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.39E-03	lb/hr	8.31E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	5.18E-04	lb/hr	3.11E-04	tpy
Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.39E-03	lb/hr	8.31E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	5.18E-04	lb/hr	3.11E-04	tpy
Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.39E-03	lb/hr	8.31E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	5.18E-04	lb/hr	3.11E-04	tpy
Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.39E-03	lb/hr	8.31E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	5.18E-04	lb/hr	3.11E-04	tpy
Main Engine 1 Uncontrolled	125 hr/yr	205.8 g fuel/kWh	2480 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.39E-03	lb/hr	8.66E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	5.18E-04	lb/hr	3.23E-05	tpy
Main Engine 2 Uncontrolled	125 hr/yr	205.8 g fuel/kWh	2480 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.39E-03	lb/hr	8.66E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	5.18E-04	lb/hr	3.23E-05	tpy
Emergency Back-up Engine	75 hr/yr	205.0 g fuel/kWh	968 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	5.39E-04	lb/hr	2.02E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.01E-04	lb/hr	7.55E-06	tpy
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.41E-04	lb/hr	1.58E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.99E-05	lb/hr	5.89E-06	tpy
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.41E-04	lb/hr	1.58E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.99E-05	lb/hr	5.89E-06	tpy
Logging Winch	273 hr/yr	13.3 gal/hr	187 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.10E-04	lb/hr	1.50E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	4.12E-05	lb/hr	5.62E-06	tpy
Heater 1	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	9.00E+00	lb/10^12 Btu	AP-42 1.3-9	3.15E-05	lb/hr	3.78E-05	tpy	9.00E+00	lb/10^12 Btu	AP-42 1.3-9	3.15E-05	lb/hr	3.78E-05	tpy
Heater 2	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	9.00E+00	lb/10^12 Btu	AP-42 1.3-10	3.15E-05	lb/hr	3.78E-05	tpy	6.00E+00	lb/10^12 Btu	AP-42 1.3-10	2.10E-05	lb/hr	2.52E-05	tpy
Incinerator	65 tons/yr	276.0 lbs/hr	N **A**	2.13E-01	lb/ton	AP-42 2.1-2	2.94E-02	lb/hr	3.53E-02	tpy	none						
Fuel Tank 1	2400 hrs/yr	471940.6 gal/yr*	N **A**	none							none						
Fuel Tank 2	2400 hrs/yr	471940.6 gal/yr*	N **A**	none							none						
Mud Degassing	100 days/yr	N A	20000 **scf/day**	none							none						
		*max throughput	a Heat input rate			**Drill Rig Total**	**3.89E-02**	**lb/hr**	**3.89E-02**	**tpy**			**Drill Rig Total**	**3.58E-03**	**lb/hr**	**1.39E-03**	**tpy**
Ice Breaker 1																	
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	3.54E-03	lb/hr	1.19E-03	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.32E-03	lb/hr	4.46E-04	tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	3.54E-03	lb/hr	1.19E-03	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.32E-03	lb/hr	4.46E-04	tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.65E-03	lb/hr	8.96E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.91E-04	lb/hr	3.35E-04	tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.65E-03	lb/hr	8.96E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.91E-04	lb/hr	3.35E-04	tpy
Harbor Generator	33.75 hr/yr	50.4 gal/hr	952 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.19E-04	lb/hr	7.06E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.56E-04	lb/hr	2.64E-06	tpy
Emergency Generator	33.75 hr/yr	21.3 gal/hr	402 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.77E-04	lb/hr	2.98E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	6.61E-05	lb/hr	1.11E-06	tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	9.00E+00	lb/10^12 Btu	AP-42 1.3-10	3.33E-05	lb/hr	1.12E-05	tpy	0.00E+00	0.00E+00	AP-42 1.3-10	0.00E+00	lb/hr	0.00E+00	tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	9.00E+00	lb/10^12 Btu	AP-42 1.3-10	3.33E-05	lb/hr	1.12E-05	tpy	0.00E+00	0.00E+00	AP-42 1.3-10	0.00E+00	lb/hr	0.00E+00	tpy
Incinerator	675 hr/yr	175.0 lb/hr	N **A**	2.13E-01	lb/ton	AP-42 2.1-2	1.86E-02	lb/hr	6.29E-03	tpy	none						
			a Heat input rate			**Vessel Total**	**3.17E-02**	**lb/hr**	**1.05E-02**	**tpy**			**Vessel Total**	**4.85E-03**	**lb/hr**	**1.57E-03**	**tpy**
Ice Breaker 2																	
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	3.54E-03	lb/hr	1.19E-03	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.32E-03	lb/hr	4.46E-04	tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	3.54E-03	lb/hr	1.19E-03	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.32E-03	lb/hr	4.46E-04	tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.65E-03	lb/hr	8.96E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.91E-04	lb/hr	3.35E-04	tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.65E-03	lb/hr	8.96E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.91E-04	lb/hr	3.35E-04	tpy
Harbor Generator	33.75 hr/yr	50.4 gal/hr	952 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.19E-04	lb/hr	7.06E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.56E-04	lb/hr	2.64E-06	tpy
Emergency Generator	33.75 hr/yr	21.3 gal/hr	402 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.77E-04	lb/hr	2.98E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	6.61E-05	lb/hr	1.11E-06	tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	9.00E+00	lb/10^12 Btu	AP-42 1.3-10	3.33E-05	lb/hr	1.12E-05	tpy	0.00E+00	0.00E+00	AP-42 1.3-10	0.00E+00	lb/hr	0.00E+00	tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	9.00E+00	lb/10^12 Btu	AP-42 1.3-10	3.33E-05	lb/hr	1.12E-05	tpy	0.00E+00	0.00E+00	AP-42 1.3-10	0.00E+00	lb/hr	0.00E+00	tpy
Incinerator	675 hr/yr	175.0 lb/hr	N **A**	2.13E-01	lb/ton	AP-42 2.1-2	1.86E-02	lb/hr	6.29E-03	tpy	none						
			a Heat input rate			**Vessel Total**	**3.17E-02**	**lb/hr**	**1.05E-02**	**tpy**			**Vessel Total**	**4.85E-03**	**lb/hr**	**1.57E-03**	**tpy**
Oil Spill Response Vessel 1 (Dedicated OSRV)																	
Main Engine 1	900 hr/yr	75.0 gal/hr	3000 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	6.23E-04	lb/hr	2.80E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.33E-04	lb/hr	1.05E-04	tpy
Main Engine 2	900 hr/yr	75.0 gal/hr	3000 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	6.23E-04	lb/hr	2.80E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.33E-04	lb/hr	1.05E-04	tpy
Thruster Engine 1	12 hr/yr	58.0 gal/hr	950 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.81E-04	lb/hr	2.89E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.80E-04	lb/hr	1.08E-06	tpy
Thruster Engine 2	12 hr/yr	58.0 gal/hr	950 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.81E-04	lb/hr	2.89E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.80E-04	lb/hr	1.08E-06	tpy
Thruster Engine 3	12 hr/yr	58.0 gal/hr	950 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.81E-04	lb/hr	2.89E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.80E-04	lb/hr	1.08E-06	tpy
Generator 1	2400 hr/yr	27.0 gal/hr	400 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	2.69E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.37E-05	lb/hr	1.00E-04	tpy
Generator 2	300 hr/yr	27.0 gal/hr	400 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	3.36E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.37E-05	lb/hr	1.26E-05	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	0.00E+00	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.37E-05	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	6.64E-05	lb/hr	9.96E-07	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.48E-05	lb/hr	3.72E-07	tpy
						Vessel Total	**3.43E-03**	**lb/hr**	**8.72E-04**	**tpy**			**Vessel Total**	**1.28E-03**	**lb/hr**	**3.26E-04**	**tpy**
Oil Spill Response Vessel 2																	
Main Engine 1	60 hr/yr	75.0 gal/hr	3000 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	6.23E-04	lb/hr	1.87E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.33E-04	lb/hr	6.98E-06	tpy
Main Engine 2	60 hr/yr	75.0 gal/hr	3000 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	6.23E-04	lb/hr	1.87E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.33E-04	lb/hr	6.98E-06	tpy
Thruster Engine 1	48 hr/yr	58.0 gal/hr	950 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.81E-04	lb/hr	1.16E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.80E-04	lb/hr	4.32E-06	tpy
Thruster Engine 2	48 hr/yr	58.0 gal/hr	950 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.81E-04	lb/hr	1.16E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.80E-04	lb/hr	4.32E-06	tpy
Thruster Engine 3	48 hr/yr	58.0 gal/hr	950 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.81E-04	lb/hr	1.16E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.80E-04	lb/hr	4.32E-06	tpy
Generator 1	60 hr/yr	27.0 gal/hr	400 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	6.72E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.37E-05	lb/hr	2.51E-06	tpy
Generator 2	30 hr/yr	27.0 gal/hr	400 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	3.36E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.37E-05	lb/hr	1.26E-06	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	0.00E+00	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.37E-05	lb/hr	0.00E+00	tpy
Emergency Generator	2 hr/yr	8.0 gal/hr	99 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	6.64E-05	lb/hr	6.64E-08	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.48E-05	lb/hr	2.48E-08	tpy
						Vessel Total	**3.43E-03**	**lb/hr**	**8.22E-05**	**tpy**			**Vessel Total**	**1.28E-03**	**lb/hr**	**3.07E-05**	**tpy**

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Mercury Compounds							Nickel Compounds						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Drill Rig Equipment																	
Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	3.34E-04	lb/hr	2.00E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	6.51E-04	lb/hr	3.91E-04	tpy
Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	3.34E-04	lb/hr	2.00E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	6.51E-04	lb/hr	3.91E-04	tpy
Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	3.34E-04	lb/hr	2.00E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	6.51E-04	lb/hr	3.91E-04	tpy
Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	3.34E-04	lb/hr	2.00E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	6.51E-04	lb/hr	3.91E-04	tpy
Main Engine 1 Uncontrolled	125 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	3.34E-04	lb/hr	2.09E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	6.51E-04	lb/hr	4.07E-05	tpy
Main Engine 2 Uncontrolled	125 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	3.34E-04	lb/hr	2.09E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	6.51E-04	lb/hr	4.07E-05	tpy
Emergency Back-up Engine	75 hr/yr	205.0 g fuel/kWh	968 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.30E-04	lb/hr	4.87E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.53E-04	lb/hr	9.49E-06	tpy
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.80E-05	lb/hr	3.80E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.13E-04	lb/hr	7.41E-06	tpy
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.80E-05	lb/hr	3.80E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.13E-04	lb/hr	7.41E-06	tpy
Logging Winch	273 hr/yr	13.3 gal/hr	187 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	2.66E-05	lb/hr	3.63E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	5.18E-05	lb/hr	7.07E-06	tpy
Heater 1	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	3.00E+00	lb/10^12 Btu	AP-42 1.3-9	1.05E-05	lb/hr	1.26E-05	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-9	1.05E-05	lb/hr	1.26E-05	tpy
Heater 2	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.05E-05	lb/hr	1.26E-05	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.05E-05	lb/hr	1.26E-05	tpy
Incinerator	65 tons/yr	276.0 lbs/hr	N **A**	5.60E-03	lb/ton	AP-42 2.1-2	7.73E-04	lb/hr	6.72E-03	tpy	7.85E-03	lb/ton	AP-42 2.1-2	1.08E-03	lb/hr	1.30E-03	tpy
Fuel Tank 1	2400 hrs/yr	471940.6 gal/yr*	N **A**	none							none						
Fuel Tank 2	2400 hrs/yr	471940.6 gal/yr*	N **A**	none							none						
Mud Degassing	100 days/yr	N A	20000 **scf/day**	none							none						
		*max throughput	a Heat input rate			**Drill Rig Total**	**3.07E-03**	**lb/hr**	**7.60E-03**	**tpy**			**Drill Rig Total**	**5.54E-03**	**lb/hr**	**3.00E-03**	**tpy**
Ice Breaker 1																	
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	8.53E-04	lb/hr	2.88E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.66E-03	lb/hr	5.61E-04	tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	8.53E-04	lb/hr	2.88E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.66E-03	lb/hr	5.61E-04	tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.40E-04	lb/hr	2.16E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.25E-03	lb/hr	4.21E-04	tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.40E-04	lb/hr	2.16E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.25E-03	lb/hr	4.21E-04	tpy
Harbor Generator	33.75 hr/yr	50.4 gal/hr	952 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.01E-04	lb/hr	1.70E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.97E-04	lb/hr	3.32E-06	tpy
Emergency Generator	33.75 hr/yr	21.3 gal/hr	402 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	4.26E-05	lb/hr	7.19E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	8.31E-05	lb/hr	1.40E-06	tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy
Incinerator	675 hr/yr	175.0 lb/hr	N **A**	5.60E-03	lb/ton	AP-42 2.1-2	4.90E-04	lb/hr	1.89E-03	tpy	7.85E-03	lb/ton	AP-42 2.1-2	6.87E-04	lb/hr	2.32E-04	tpy
			a Heat input rate			**Vessel Total**	**3.64E-03**	**lb/hr**	**2.91E-03**	**tpy**			**Vessel Total**	**6.81E-03**	**lb/hr**	**2.21E-03**	**tpy**
Ice Breaker 2																	
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	8.53E-04	lb/hr	2.88E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.66E-03	lb/hr	5.61E-04	tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	8.53E-04	lb/hr	2.88E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.66E-03	lb/hr	5.61E-04	tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.40E-04	lb/hr	2.16E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.25E-03	lb/hr	4.21E-04	tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.40E-04	lb/hr	2.16E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.25E-03	lb/hr	4.21E-04	tpy
Harbor Generator	33.75 hr/yr	50.4 gal/hr	952 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.01E-04	lb/hr	1.70E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.97E-04	lb/hr	3.32E-06	tpy
Emergency Generator	33.75 hr/yr	21.3 gal/hr	402 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	4.26E-05	lb/hr	7.19E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	8.31E-05	lb/hr	1.40E-06	tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy
Incinerator	675 hr/yr	175.0 lb/hr	N **A**	5.60E-03	lb/ton	AP-42 2.1-2	4.90E-04	lb/hr	1.89E-03	tpy	7.85E-03	lb/ton	AP-42 2.1-2	6.87E-04	lb/hr	2.32E-04	tpy
			a Heat input rate			**Vessel Total**	**3.64E-03**	**lb/hr**	**2.91E-03**	**tpy**			**Vessel Total**	**6.81E-03**	**lb/hr**	**2.21E-03**	**tpy**
Oil Spill Response Vessel 1 (Dedicated OSRV)																	
Main Engine 1	900 hr/yr	75.0 gal/hr	3000 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.50E-04	lb/hr	6.75E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.93E-04	lb/hr	1.32E-04	tpy
Main Engine 2	900 hr/yr	75.0 gal/hr	3000 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.50E-04	lb/hr	6.75E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.93E-04	lb/hr	1.32E-04	tpy
Thruster Engine 1	12 hr/yr	58.0 gal/hr	950 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.16E-04	lb/hr	6.96E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.26E-04	lb/hr	1.36E-06	tpy
Thruster Engine 2	12 hr/yr	58.0 gal/hr	950 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.16E-04	lb/hr	6.96E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.26E-04	lb/hr	1.36E-06	tpy
Thruster Engine 3	12 hr/yr	58.0 gal/hr	950 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.16E-04	lb/hr	6.96E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.26E-04	lb/hr	1.36E-06	tpy
Generator 1	2400 hr/yr	27.0 gal/hr	400 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.40E-05	lb/hr	6.48E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.05E-04	lb/hr	1.26E-04	tpy
Generator 2	300 hr/yr	27.0 gal/hr	400 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.40E-05	lb/hr	8.10E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.05E-04	lb/hr	1.58E-05	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.40E-05	lb/hr	0.00E+00	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.05E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.60E-05	lb/hr	2.40E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.12E-05	lb/hr	4.68E-07	tpy
						Vessel Total	**8.26E-04**	**lb/hr**	**2.10E-04**	**tpy**			**Vessel Total**	**1.61E-03**	**lb/hr**	**4.10E-04**	**tpy**
Oil Spill Response Vessel 2																	
Main Engine 1	60 hr/yr	75.0 gal/hr	3000 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.50E-04	lb/hr	4.50E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.93E-04	lb/hr	8.78E-06	tpy
Main Engine 2	60 hr/yr	75.0 gal/hr	3000 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.50E-04	lb/hr	4.50E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.93E-04	lb/hr	8.78E-06	tpy
Thruster Engine 1	48 hr/yr	58.0 gal/hr	950 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.16E-04	lb/hr	2.78E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.26E-04	lb/hr	5.43E-06	tpy
Thruster Engine 2	48 hr/yr	58.0 gal/hr	950 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.16E-04	lb/hr	2.78E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.26E-04	lb/hr	5.43E-06	tpy
Thruster Engine 3	48 hr/yr	58.0 gal/hr	950 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.16E-04	lb/hr	2.78E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.26E-04	lb/hr	5.43E-06	tpy
Generator 1	60 hr/yr	27.0 gal/hr	400 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.40E-05	lb/hr	1.62E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.05E-04	lb/hr	3.16E-06	tpy
Generator 2	30 hr/yr	27.0 gal/hr	400 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.40E-05	lb/hr	8.10E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.05E-04	lb/hr	1.58E-06	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.40E-05	lb/hr	0.00E+00	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.05E-04	lb/hr	0.00E+00	tpy
Emergency Generator	2 hr/yr	8.0 gal/hr	99 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.60E-05	lb/hr	1.60E-08	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.12E-05	lb/hr	3.12E-08	tpy
						Vessel Total	**8.26E-04**	**lb/hr**	**1.98E-05**	**tpy**			**Vessel Total**	**1.61E-03**	**lb/hr**	**3.86E-05**	**tpy**

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Polycyclic Organic Matter (See notes 13 & 14)							Selenium Compounds						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Drill Rig Equipment																	
Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	4.68E-03	lb/hr	2.81E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.67E-04	lb/hr	2.20E-04	tpy
Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	4.68E-03	lb/hr	2.81E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.67E-04	lb/hr	2.20E-04	tpy
Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	4.68E-03	lb/hr	2.81E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.67E-04	lb/hr	2.20E-04	tpy
Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	4.68E-03	lb/hr	2.81E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.67E-04	lb/hr	2.20E-04	tpy
Main Engine 1 Uncontrolled	125 hr/yr	205.8 g fuel/kWh	2480 **kW**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	4.68E-03	lb/hr	2.92E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.67E-04	lb/hr	2.30E-05	tpy
Main Engine 2 Uncontrolled	125 hr/yr	205.8 g fuel/kWh	2480 **kW**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	4.68E-03	lb/hr	2.92E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.67E-04	lb/hr	2.30E-05	tpy
Emergency Back-up Engine	75 hr/yr	205.0 g fuel/kWh	968 **kW**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.82E-03	lb/hr	6.82E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.43E-04	lb/hr	5.35E-06	tpy
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.44E-04	lb/hr	4.22E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	6.38E-05	lb/hr	4.18E-06	tpy
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.44E-04	lb/hr	4.22E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	6.38E-05	lb/hr	4.18E-06	tpy
Logging Winch	273 hr/yr	13.3 gal/hr	187 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.95E-04	lb/hr	4.02E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	2.92E-05	lb/hr	3.99E-06	tpy
Heater 1	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	3.30E-03	lbs/Mgal	AP-42 1.3-7	8.74E-05	lb/hr	1.05E-04	tpy	1.50E+01	lb/10^12 Btu	AP-42 1.3-9	5.25E-05	lb/hr	6.30E-05	tpy
Heater 2	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	3.30E-03	lbs/Mgal	AP-42 1.3-8	8.74E-05	lb/hr	1.05E-04	tpy	1.50E+01	lb/10^12 Btu	AP-42 1.3-10	5.25E-05	lb/hr	6.30E-05	tpy
Incinerator	65 tons/yr	276.0 lbs/hr	N **A**	none							none						
Fuel Tank 1	2400 hrs/yr	471940.6 gal/yr*	N **A**	N A		EPA TANKS	2.083E-08	lb/hr	0.00005	tpy	none						
Fuel Tank 2	2400 hrs/yr	471940.6 gal/yr*	N **A**	N A		EPA TANKS	2.083E-08	lb/hr	0.00005	tpy	none						
Mud Degassing	100 days/yr	N A	20000 **scf/day**	none							none						
		*max throughput	a Heat input rate			**Drill Rig Total**	**3.16E-02**	**lb/hr**	**1.23E-02**	**tpy**			**Drill Rig Total**	**2.61E-03**	**lb/hr**	**1.07E-03**	**tpy**
Ice Breaker 1																	
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.19E-02	lb/hr	4.03E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	9.38E-04	lb/hr	3.17E-04	tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.19E-02	lb/hr	4.03E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	9.38E-04	lb/hr	3.17E-04	tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.96E-03	lb/hr	3.02E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	7.04E-04	lb/hr	2.37E-04	tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.96E-03	lb/hr	3.02E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	7.04E-04	lb/hr	2.37E-04	tpy
Harbor Generator	33.75 hr/yr	50.4 gal/hr	952 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.41E-03	lb/hr	2.38E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.11E-04	lb/hr	1.87E-06	tpy
Emergency Generator	33.75 hr/yr	21.3 gal/hr	402 **bhp**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	4.73E-04	lb/hr	7.98E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	4.69E-05	lb/hr	7.91E-07	tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.30E-03	lbs/Mgal	AP-42 1.3-8	9.24E-05	lb/hr	3.12E-05	tpy	1.50E+01	lb/10^12 Btu	AP-42 1.3-10	5.55E-05	lb/hr	1.87E-05	tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.30E-03	lbs/Mgal	AP-42 1.3-8	9.24E-05	lb/hr	3.12E-05	tpy	1.50E+01	lb/10^12 Btu	AP-42 1.3-10	5.55E-05	lb/hr	1.87E-05	tpy
Incinerator	675 hr/yr	175.0 lb/hr	N **A**	none							none						
			a Heat input rate			**Vessel Total**	**4.39E-02**	**lb/hr**	**1.42E-02**	**tpy**			**Vessel Total**	**3.55E-03**	**lb/hr**	**1.15E-03**	**tpy**
Ice Breaker 2																	
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.19E-02	lb/hr	4.03E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	9.38E-04	lb/hr	3.17E-04	tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.19E-02	lb/hr	4.03E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	9.38E-04	lb/hr	3.17E-04	tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.96E-03	lb/hr	3.02E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	7.04E-04	lb/hr	2.37E-04	tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.96E-03	lb/hr	3.02E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	7.04E-04	lb/hr	2.37E-04	tpy
Harbor Generator	33.75 hr/yr	50.4 gal/hr	952 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.41E-03	lb/hr	2.38E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.11E-04	lb/hr	1.87E-06	tpy
Emergency Generator	33.75 hr/yr	21.3 gal/hr	402 **bhp**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	4.73E-04	lb/hr	7.98E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	4.69E-05	lb/hr	7.91E-07	tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.30E-03	lbs/Mgal	AP-42 1.3-8	9.24E-05	lb/hr	3.12E-05	tpy	1.50E+01	lb/10^12 Btu	AP-42 1.3-10	5.55E-05	lb/hr	1.87E-05	tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.30E-03	lbs/Mgal	AP-42 1.3-8	9.24E-05	lb/hr	3.12E-05	tpy	1.50E+01	lb/10^12 Btu	AP-42 1.3-10	5.55E-05	lb/hr	1.87E-05	tpy
Incinerator	675 hr/yr	175.0 lb/hr	N **A**	none							none						
			a Heat input rate			**Vessel Total**	**4.39E-02**	**lb/hr**	**1.42E-02**	**tpy**			**Vessel Total**	**3.55E-03**	**lb/hr**	**1.15E-03**	**tpy**
Oil Spill Response Vessel 1 (Dedicated OSRV)																	
Main Engine 1	900 hr/yr	75.0 gal/hr	3000 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.10E-03	lb/hr	9.45E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.65E-04	lb/hr	7.43E-05	tpy
Main Engine 2	900 hr/yr	75.0 gal/hr	3000 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-5	2.10E-03	lb/hr	9.45E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.65E-04	lb/hr	7.43E-05	tpy
Thruster Engine 1	12 hr/yr	58.0 gal/hr	950 **hp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-5	1.62E-03	lb/hr	9.75E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.28E-04	lb/hr	7.66E-07	tpy
Thruster Engine 2	12 hr/yr	58.0 gal/hr	950 **hp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-5	1.62E-03	lb/hr	9.75E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.28E-04	lb/hr	7.66E-07	tpy
Thruster Engine 3	12 hr/yr	58.0 gal/hr	950 **hp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-5	1.62E-03	lb/hr	9.75E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.28E-04	lb/hr	7.66E-07	tpy
Generator 1	2400 hr/yr	27.0 gal/hr	400 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.99E-04	lb/hr	7.19E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	5.94E-05	lb/hr	7.13E-05	tpy
Generator 2	300 hr/yr	27.0 gal/hr	400 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.99E-04	lb/hr	8.99E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	5.94E-05	lb/hr	8.91E-06	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.99E-04	lb/hr	0.00E+00	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	5.94E-05	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.78E-04	lb/hr	2.66E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.76E-05	lb/hr	2.64E-07	tpy
						Vessel Total	**1.10E-02**	**lb/hr**	**2.73E-03**	**tpy**			**Vessel Total**	**9.09E-04**	**lb/hr**	**2.31E-04**	**tpy**
Oil Spill Response Vessel 2																	
Main Engine 1	60 hr/yr	75.0 gal/hr	3000 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.10E-03	lb/hr	6.30E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.65E-04	lb/hr	4.95E-06	tpy
Main Engine 2	60 hr/yr	75.0 gal/hr	3000 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-5	2.10E-03	lb/hr	6.30E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.65E-04	lb/hr	4.95E-06	tpy
Thruster Engine 1	48 hr/yr	58.0 gal/hr	950 **hp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-6	1.62E-03	lb/hr	3.90E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.28E-04	lb/hr	3.06E-06	tpy
Thruster Engine 2	48 hr/yr	58.0 gal/hr	950 **hp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-7	1.62E-03	lb/hr	3.90E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.28E-04	lb/hr	3.06E-06	tpy
Thruster Engine 3	48 hr/yr	58.0 gal/hr	950 **hp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-7	1.62E-03	lb/hr	3.90E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.28E-04	lb/hr	3.06E-06	tpy
Generator 1	60 hr/yr	27.0 gal/hr	400 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.99E-04	lb/hr	1.80E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	5.94E-05	lb/hr	1.78E-06	tpy
Generator 2	30 hr/yr	27.0 gal/hr	400 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.99E-04	lb/hr	8.99E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	5.94E-05	lb/hr	8.91E-07	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.99E-04	lb/hr	0.00E+00	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	5.94E-05	lb/hr	0.00E+00	tpy
Emergency Generator	2 hr/yr	8.0 gal/hr	99 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.78E-04	lb/hr	1.78E-07	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.76E-05	lb/hr	1.76E-08	tpy
						Vessel Total	**1.10E-02**	**lb/hr**	**2.70E-04**	**tpy**			**Vessel Total**	**9.09E-04**	**lb/hr**	**2.18E-05**	**tpy**

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit Description	Allowable Operation	Maximum Fuel Usage	Maximum	Total HAPs	Hourly (lb/hr)	Annual (tons/yr)
Drill Rig Equipment						
Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**		1.24E-01	7.43E-02
Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**		1.24E-01	7.43E-02
Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**		1.24E-01	7.43E-02
Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**		1.24E-01	7.43E-02
Main Engine 1 Uncontrolled	125 hr/yr	205.8 g fuel/kWh	2480 **kW**		1.24E-01	7.74E-03
Main Engine 2 Uncontrolled	125 hr/yr	205.8 g fuel/kWh	2480 **kW**		1.24E-01	7.74E-03
Emergency Back-up Engine	75 hr/yr	205.0 g fuel/kWh	968 **kW**		4.81E-02	1.81E-03
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 **kW**		2.36E-02	1.54E-03
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 **kW**		2.36E-02	1.54E-03
Logging Winch	273 hr/yr	13.3 gal/hr	187 **kW**		1.08E-02	1.47E-03
Heater 1	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**		4.34E-02	5.20E-02
Heater 2	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**		4.34E-02	5.20E-02
Incinerator	65 tons/yr	276.0 lbs/hr	N **A**		3.46E-02	4.73E-02
Fuel Tank 1	2400 hrs/yr	471940.6 gal/yr*	N **A**		7.50E-08	1.80E-04
Fuel Tank 2	2400 hrs/yr	471940.6 gal/yr*	N **A**		7.50E-08	1.80E-04
Mud Degassing	100 days/yr	N A	20000 **scf/day**		0.00E+00	0.00E+00
		*max throughput	a Heat input rate	**Drill Rig Total**	**9.70E-01**	**4.71E-01**
Ice Breaker 1						
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 **bhp**		3.16E-01	1.07E-01
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 **bhp**		3.16E-01	1.07E-01
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 **bhp**		2.37E-01	8.01E-02
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 **bhp**		2.37E-01	8.01E-02
Harbor Generator	33.75 hr/yr	50.4 gal/hr	952 **bhp**		3.74E-02	6.31E-04
Emergency Generator	33.75 hr/yr	21.3 gal/hr	402 **bhp**		1.73E-02	2.92E-04
Boiler 1	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**		4.58E-02	1.55E-02
Boiler 2	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**		4.58E-02	1.55E-02
Incinerator	675 hr/yr	175.0 lb/hr	N **A**		2.19E-02	9.13E-03
			a Heat input rate	**Vessel Total**	**1.28E+00**	**4.15E-01**
Ice Breaker 2						
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 **bhp**		3.16E-01	1.07E-01
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 **bhp**		3.16E-01	1.07E-01
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 **bhp**		2.37E-01	8.01E-02
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 **bhp**		2.37E-01	8.01E-02
Harbor Generator	33.75 hr/yr	50.4 gal/hr	952 **bhp**		3.74E-02	6.31E-04
Emergency Generator	33.75 hr/yr	21.3 gal/hr	402 **bhp**		1.73E-02	2.92E-04
Boiler 1	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**		4.58E-02	1.55E-02
Boiler 2	675 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**		4.58E-02	1.55E-02
Incinerator	675 hr/yr	175.0 lb/hr	N **A**		2.19E-02	9.13E-03
			a Heat input rate	**Vessel Total**	**1.28E+00**	**4.15E-01**
Oil Spill Response Vessel 1 (Dedicated OSRV)						
Main Engine 1	900 hr/yr	75.0 gal/hr	3000 **bhp**		5.56E-02	2.50E-02
Main Engine 2	900 hr/yr	75.0 gal/hr	3000 **bhp**		5.56E-02	2.50E-02
Thruster Engine 1	12 hr/yr	58.0 gal/hr	950 **hp**		4.30E-02	2.58E-04
Thruster Engine 2	12 hr/yr	58.0 gal/hr	950 **hp**		4.30E-02	2.58E-04
Thruster Engine 3	12 hr/yr	58.0 gal/hr	950 **hp**		4.30E-02	2.58E-04
Generator 1	2400 hr/yr	27.0 gal/hr	400 **kW**		2.20E-02	2.63E-02
Generator 2	300 hr/yr	27.0 gal/hr	400 **kW**		2.20E-02	3.29E-03
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**		2.20E-02	0.00E+00
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**		6.50E-03	9.76E-05
				Vessel Total	**3.13E-01**	**8.06E-02**
Oil Spill Response Vessel 2						
Main Engine 1	60 hr/yr	75.0 gal/hr	3000 **bhp**		5.56E-02	1.67E-03
Main Engine 2	60 hr/yr	75.0 gal/hr	3000 **bhp**		5.56E-02	1.67E-03
Thruster Engine 1	48 hr/yr	58.0 gal/hr	950 **hp**		4.30E-02	1.03E-03
Thruster Engine 2	48 hr/yr	58.0 gal/hr	950 **hp**		4.30E-02	1.03E-03
Thruster Engine 3	48 hr/yr	58.0 gal/hr	950 **hp**		4.30E-02	1.03E-03
Generator 1	60 hr/yr	27.0 gal/hr	400 **kW**		2.20E-02	6.59E-04
Generator 2	30 hr/yr	27.0 gal/hr	400 **kW**		2.20E-02	3.29E-04
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**		2.20E-02	0.00E+00
Emergency Generator	2 hr/yr	8.0 gal/hr	99 **kW**		6.50E-03	6.50E-06
				Vessel Total	**3.13E-01**	**7.43E-03**

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Acetaldehyde							Acrolein						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handling Supply Tug (AHST)																	
Main Engine 1	60 hr/yr	160.0 gal/hr	2529 **kW**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	1.71E-02	lb/hr	5.14E-04	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	2.08E-03	lb/hr	6.24E-05	tpy
Main Engine 2	60 hr/yr	160.0 gal/hr	2529 **kW**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	1.71E-02	lb/hr	5.14E-04	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	2.08E-03	lb/hr	6.24E-05	tpy
Generator 1	60 hr/yr	25.0 gal/hr	380 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.53E-03	lb/hr	7.60E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.05E-04	lb/hr	9.16E-06	tpy
Generator 2	12 hr/yr	25.0 gal/hr	380 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-3	2.53E-03	lb/hr	1.52E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-3	3.05E-04	lb/hr	1.83E-06	tpy
Generator 3	0 hr/yr	25.0 gal/hr	380 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-4	2.53E-03	lb/hr	0.00E+00	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-4	3.05E-04	lb/hr	0.00E+00	tpy
Emergency Generator	6 hr/yr	5.6 gal/hr	170 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.67E-04	lb/hr	1.70E-06	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	6.84E-05	lb/hr	2.05E-07	tpy
						Vessel Total	**4.24E-02**	**lb/hr**	**1.12E-03**	**tpy**			**Vessel Total**	**5.14E-03**	**lb/hr**	**1.36E-04**	**tpy**
Offshore Supply Vessels (OSV1 & OSV2)																	
Main Engine 1	360 hr/yr	75.0 gal/hr	3000 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	8.03E-03	lb/hr	1.44E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	9.75E-04	lb/hr	1.76E-04	tpy
Main Engine 1	100 hr/yr	67.0 gal/hr	3000 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	7.17E-03	lb/hr	3.58E-04	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	8.71E-04	lb/hr	4.36E-05	tpy
Main Engine 2	360 hr/yr	75.0 gal/hr	3000 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	8.03E-03	lb/hr	1.44E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	9.75E-04	lb/hr	1.76E-04	tpy
Main Engine 2	100 hr/yr	67.0 gal/hr	3000 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	7.17E-03	lb/hr	3.58E-04	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	8.71E-04	lb/hr	4.36E-05	tpy
Thruster Engine 1	360 hr/yr	58.0 gal/hr	950 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	6.21E-03	lb/hr	1.12E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	7.54E-04	lb/hr	1.36E-04	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	6.21E-03	lb/hr	1.12E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	7.54E-04	lb/hr	1.36E-04	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	6.21E-03	lb/hr	1.12E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	7.54E-04	lb/hr	1.36E-04	tpy
Generator	820 hr/yr	27.0 gal/hr	400 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.74E-03	lb/hr	1.12E-03	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.30E-04	lb/hr	1.35E-04	tpy
Generator	120 hr/yr	27.0 gal/hr	400 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.74E-03	lb/hr	1.64E-04	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.30E-04	lb/hr	1.98E-05	tpy
Generator	0 hr/yr	27.0 gal/hr	400 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.74E-03	lb/hr	0.00E+00	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.30E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	8.11E-04	lb/hr	1.22E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	9.78E-05	lb/hr	1.47E-06	tpy
						Vessel Total	**5.80E-02**	**lb/hr**	**8.26E-03**	**tpy**			**Vessel Total**	**7.04E-03**	**lb/hr**	**1.00E-03**	**tpy**
Ware Vessel (WV) w/ backup OSV																	
Main Engine 1	300 hr/yr	87.0 gal/hr	3200 **hp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	9.31E-03	lb/hr	1.40E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	1.13E-03	lb/hr	1.70E-04	tpy
Main Engine 2	300 hr/yr	87.0 gal/hr	3200 **hp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	9.31E-03	lb/hr	1.40E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	1.13E-03	lb/hr	1.70E-04	tpy
Main Engine 3	400 hr/yr	81.0 gal/hr	3200 **hp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	8.67E-03	lb/hr	1.73E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	1.05E-03	lb/hr	2.11E-04	tpy
Main Engine 4	400 hr/yr	81.0 gal/hr	3200 **hp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	8.67E-03	lb/hr	1.73E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	1.05E-03	lb/hr	2.11E-04	tpy
Generator 1	700 hr/yr	32.0 gal/hr	500 **kW**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	3.42E-03	lb/hr	1.20E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	4.16E-04	lb/hr	1.46E-04	tpy
Generator 2	100 hr/yr	32.0 gal/hr	500 **kW**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	3.42E-03	lb/hr	1.71E-04	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	4.16E-04	lb/hr	2.08E-05	tpy
Generator 3	0 hr/yr	32.0 gal/hr	500 **kW**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	3.42E-03	lb/hr	0.00E+00	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	4.16E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	12.0 gal/hr	170 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.22E-03	lb/hr	1.82E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.47E-04	lb/hr	2.20E-06	tpy
						Vessel Total	**4.74E-02**	**lb/hr**	**7.65E-03**	**tpy**			**Vessel Total**	**5.76E-03**	**lb/hr**	**9.29E-04**	**tpy**
34' boom work boats - 4																	
WB-1 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.04E-03	lb/hr	7.29E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.67E-04	lb/hr	8.80E-06	tpy
WB-1 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.04E-03	lb/hr	7.29E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.67E-04	lb/hr	8.80E-06	tpy
WB-2 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.04E-03	lb/hr	7.29E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.67E-04	lb/hr	8.80E-06	tpy
WB-2 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.04E-03	lb/hr	7.29E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.67E-04	lb/hr	8.80E-06	tpy
WB-3 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.04E-03	lb/hr	7.29E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.67E-04	lb/hr	8.80E-06	tpy
WB-3 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.04E-03	lb/hr	7.29E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.67E-04	lb/hr	8.80E-06	tpy
WB-4 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.04E-03	lb/hr	7.29E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.67E-04	lb/hr	8.80E-06	tpy
WB-4 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.04E-03	lb/hr	7.29E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.67E-04	lb/hr	8.80E-06	tpy
						Vessel Total	**2.43E-02**	**lb/hr**	**5.84E-04**	**tpy**			**Vessel Total**	**2.93E-03**	**lb/hr**	**7.04E-05**	**tpy**
Marine Research Vessel																	
Main Engine	600 hr/yr	45.0 gal/hr	850 **hp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	4.82E-03	lb/hr	1.45E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	5.86E-04	lb/hr	1.76E-04	tpy
Generator 1	600 hr/yr	9.6 gal/hr	135 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	9.72E-04	lb/hr	2.91E-04	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.17E-04	lb/hr	3.52E-05	tpy
Generator 2	600 hr/yr	6.4 gal/hr	90 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.48E-04	lb/hr	1.94E-04	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	7.81E-05	lb/hr	2.34E-05	tpy
Generator 3	600 hr/yr	2.8 gal/hr	40 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.88E-04	lb/hr	8.64E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.47E-05	lb/hr	1.04E-05	tpy
						Vessel Total	**6.73E-03**	**lb/hr**	**2.02E-03**	**tpy**			**Vessel Total**	**8.16E-04**	**lb/hr**	**2.45E-04**	**tpy**
Spill Storage Tanker																	
Main Engine 1	12 hr/yr	88.7 gal/hr	1674 **hp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	9.49E-03	lb/hr	5.69E-05	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	1.15E-03	lb/hr	6.92E-06	tpy
Main Engine 2	12 hr/yr	88.7 gal/hr	1674 **hp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	9.49E-03	lb/hr	5.69E-05	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	1.15E-03	lb/hr	6.92E-06	tpy
Generator 1	48 hr/yr	40.9 gal/hr	576.35 **kW**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	4.38E-03	lb/hr	1.05E-04	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	5.32E-04	lb/hr	1.28E-05	tpy
Boiler 1	48 hr/yr	109.2 gal/hr	14.422 **MMBtu/hr**	2.65E+03	lb/10^12 Btu	VCAPCD	3.83E-02	lb/hr	9.19E-04	tpy	2.65E+03	lb/10^12 Btu	VCAPCD	3.83E-02	lb/hr	9.19E-04	tpy
						Vessel Total	**6.16E-02**	**lb/hr**	**1.14E-03**	**tpy**			**Vessel Total**	**4.11E-02**	**lb/hr**	**9.45E-04**	**tpy**
All Vessels Fuel Tanks																	
Fuel Tank	2400 hr/yr	2703975.5 gal/yr*	N A	none							none						
		*max throughput				**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**
						HAP Total Option 1			**2.15E-01**	**tpy**			**HAP Total Option 1**			**5.81E-02**	**tpy**
						HAP Total Option 2			**2.14E-01**	**tpy**			**HAP Total Option 2**			**5.80E-02**	**tpy**

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Benzene							1,3-Butadiene						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handling Supply Tug (AHST)																	
Main Engine 1	60 hr/yr	160.0 gal/hr	2529 **kW**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-1	1.64E-02	lb/hr	4.92E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	8.66E-04	lb/hr	2.60E-05	tpy
Main Engine 2	60 hr/yr	160.0 gal/hr	2529 **kW**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-2	1.64E-02	lb/hr	4.92E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	8.66E-04	lb/hr	2.60E-05	tpy
Generator 1	60 hr/yr	25.0 gal/hr	380 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.08E-03	lb/hr	9.24E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.29E-04	lb/hr	3.87E-06	tpy
Generator 2	12 hr/yr	25.0 gal/hr	380 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-3	3.08E-03	lb/hr	1.85E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-3	1.29E-04	lb/hr	7.75E-07	tpy
Generator 3	0 hr/yr	25.0 gal/hr	380 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-4	3.08E-03	lb/hr	0.00E+00	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-4	1.29E-04	lb/hr	0.00E+00	tpy
Emergency Generator	6 hr/yr	5.6 gal/hr	170 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.90E-04	lb/hr	2.07E-06	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	2.89E-05	lb/hr	8.68E-08	tpy
						Vessel Total	**4.27E-02**	**lb/hr**	**1.10E-03**	**tpy**			**Vessel Total**	**2.15E-03**	**lb/hr**	**5.67E-05**	**tpy**
Offshore Supply Vessels (OSV1 & OSV2)																	
Main Engine 1	360 hr/yr	75.0 gal/hr	3000 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-1	7.69E-03	lb/hr	1.38E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.06E-04	lb/hr	7.30E-05	tpy
Main Engine 1	100 hr/yr	67.0 gal/hr	3000 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-2	6.87E-03	lb/hr	3.43E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.62E-04	lb/hr	1.81E-05	tpy
Main Engine 2	360 hr/yr	75.0 gal/hr	3000 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-2	7.69E-03	lb/hr	1.38E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.06E-04	lb/hr	7.30E-05	tpy
Main Engine 2	100 hr/yr	67.0 gal/hr	3000 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-2	6.87E-03	lb/hr	3.43E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.62E-04	lb/hr	1.81E-05	tpy
Thruster Engine 1	360 hr/yr	58.0 gal/hr	950 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-2	5.95E-03	lb/hr	1.07E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.14E-04	lb/hr	5.65E-05	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-2	5.95E-03	lb/hr	1.07E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.14E-04	lb/hr	5.65E-05	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-6	5.95E-03	lb/hr	1.07E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.14E-04	lb/hr	5.65E-05	tpy
Generator	820 hr/yr	27.0 gal/hr	400 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.33E-03	lb/hr	1.36E-03	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.39E-04	lb/hr	5.72E-05	tpy
Generator	120 hr/yr	27.0 gal/hr	400 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.33E-03	lb/hr	2.00E-04	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.39E-04	lb/hr	8.37E-06	tpy
Generator	0 hr/yr	27.0 gal/hr	400 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.33E-03	lb/hr	0.00E+00	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.39E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	9.86E-04	lb/hr	1.48E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	4.13E-05	lb/hr	6.20E-07	tpy
						Vessel Total	**5.79E-02**	**lb/hr**	**8.24E-03**	**tpy**			**Vessel Total**	**2.94E-03**	**lb/hr**	**4.18E-04**	**tpy**
Ware Vessel (WV) w/ backup OSV																	
Main Engine 1	300 hr/yr	87.0 gal/hr	3200 **hp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-1	8.92E-03	lb/hr	1.34E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.71E-04	lb/hr	7.06E-05	tpy
Main Engine 2	300 hr/yr	87.0 gal/hr	3200 **hp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-2	8.92E-03	lb/hr	1.34E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.71E-04	lb/hr	7.06E-05	tpy
Main Engine 3	400 hr/yr	81.0 gal/hr	3200 **hp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	8.30E-03	lb/hr	1.66E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.38E-04	lb/hr	8.76E-05	tpy
Main Engine 4	400 hr/yr	81.0 gal/hr	3200 **hp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.30E-03	lb/hr	1.66E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.38E-04	lb/hr	8.76E-05	tpy
Generator 1	700 hr/yr	32.0 gal/hr	500 **kW**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-4	3.28E-03	lb/hr	1.15E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	1.73E-04	lb/hr	6.06E-05	tpy
Generator 2	100 hr/yr	32.0 gal/hr	500 **kW**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-4	3.28E-03	lb/hr	1.64E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	1.73E-04	lb/hr	8.66E-06	tpy
Generator 3	0 hr/yr	32.0 gal/hr	500 **kW**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-4	3.28E-03	lb/hr	0.00E+00	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	1.73E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	12.0 gal/hr	170 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.48E-03	lb/hr	2.22E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	6.20E-05	lb/hr	9.30E-07	tpy
						Vessel Total	**4.58E-02**	**lb/hr**	**7.33E-03**	**tpy**			**Vessel Total**	**2.40E-03**	**lb/hr**	**3.87E-04**	**tpy**
34' boom work boats - 4																	
WB-1 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.70E-03	lb/hr	8.87E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.55E-04	lb/hr	3.72E-06	tpy
WB-1 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.70E-03	lb/hr	8.87E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.55E-04	lb/hr	3.72E-06	tpy
WB-2 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.70E-03	lb/hr	8.87E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.55E-04	lb/hr	3.72E-06	tpy
WB-2 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.70E-03	lb/hr	8.87E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.55E-04	lb/hr	3.72E-06	tpy
WB-3 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.70E-03	lb/hr	8.87E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.55E-04	lb/hr	3.72E-06	tpy
WB-3 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.70E-03	lb/hr	8.87E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.55E-04	lb/hr	3.72E-06	tpy
WB-4 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.70E-03	lb/hr	8.87E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.55E-04	lb/hr	3.72E-06	tpy
WB-4 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.70E-03	lb/hr	8.87E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.55E-04	lb/hr	3.72E-06	tpy
						Vessel Total	**2.96E-02**	**lb/hr**	**7.10E-04**	**tpy**			**Vessel Total**	**1.24E-03**	**lb/hr**	**2.98E-05**	**tpy**
Marine Research Vessel																	
Main Engine	600 hr/yr	45.0 gal/hr	850 **hp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-1	4.62E-03	lb/hr	1.39E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.44E-04	lb/hr	7.31E-05	tpy
Generator 1	600 hr/yr	9.6 gal/hr	135 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.18E-03	lb/hr	3.55E-04	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	4.95E-05	lb/hr	1.49E-05	tpy
Generator 2	600 hr/yr	6.4 gal/hr	90 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	7.88E-04	lb/hr	2.36E-04	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.30E-05	lb/hr	9.91E-06	tpy
Generator 3	600 hr/yr	2.8 gal/hr	40 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.50E-04	lb/hr	1.05E-04	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.47E-05	lb/hr	4.40E-06	tpy
						Vessel Total	**6.94E-03**	**lb/hr**	**2.08E-03**	**tpy**			**Vessel Total**	**3.41E-04**	**lb/hr**	**1.02E-04**	**tpy**
Spill Storage Tanker																	
Main Engine 1	12 hr/yr	88.7 gal/hr	1674 **hp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-1	9.09E-03	lb/hr	5.46E-05	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.80E-04	lb/hr	2.88E-06	tpy
Main Engine 2	12 hr/yr	88.7 gal/hr	1674 **hp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-4	9.09E-03	lb/hr	5.46E-05	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.80E-04	lb/hr	2.88E-06	tpy
Generator 1	48 hr/yr	40.9 gal/hr	576.35 **kW**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-4	4.20E-03	lb/hr	1.01E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.21E-04	lb/hr	5.32E-06	tpy
Boiler 1	48 hr/yr	109.2 gal/hr	14.422 **MMBtu/hr**	1.92E+01	lb/10^12 Btu	CARB-CATEF	2.77E-04	lb/hr	6.66E-06	tpy	1.12E+02	lb/10^12 Btu	VCAPCD	1.62E-03	lb/hr	3.88E-05	tpy
						Vessel Total	**2.27E-02**	**lb/hr**	**2.16E-04**	**tpy**			**Vessel Total**	**2.80E-03**	**lb/hr**	**4.99E-05**	**tpy**
All Vessels Fuel Tanks																	
Fuel Tank	2400 hr/yr	2703975.5 gal/yr*	N A	N A		EPA TANKS	6.25E-09	lb/hr	0.000015	tpy	none						
		*max throughput				**Vessel Total**	**6.25E-09**	**lb/hr**	**1.50E-05**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**
						HAP Total Option 1			**1.73E-01**	**tpy**			**HAP Total Option 1**			**1.06E-02**	**tpy**
						HAP Total Option 2			**1.72E-01**	**tpy**			**HAP Total Option 2**			**1.05E-02**	**tpy**

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Chlorobenzene							Ethylbenzene						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handling Supply Tug (AHST)																	
Main Engine 1	60 hr/yr	160.0 gal/hr	2529 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.20E-05	lb/hr	9.60E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.74E-03	lb/hr	5.23E-05	tpy
Main Engine 2	60 hr/yr	160.0 gal/hr	2529 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.20E-05	lb/hr	9.60E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.74E-03	lb/hr	5.23E-05	tpy
Generator 1	60 hr/yr	25.0 gal/hr	380 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.00E-06	lb/hr	1.50E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.73E-04	lb/hr	8.18E-06	tpy
Generator 2	12 hr/yr	25.0 gal/hr	380 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.00E-06	lb/hr	3.00E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.73E-04	lb/hr	1.64E-06	tpy
Generator 3	0 hr/yr	25.0 gal/hr	380 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.00E-06	lb/hr	0.00E+00	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.73E-04	lb/hr	0.00E+00	tpy
Emergency Generator	6 hr/yr	5.6 gal/hr	170 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.12E-06	lb/hr	3.36E-09	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	6.10E-05	lb/hr	1.83E-07	tpy
						Vessel Total	**8.01E-05**	**lb/hr**	**2.10E-06**	**tpy**			**Vessel Total**	**4.37E-03**	**lb/hr**	**1.15E-04**	**tpy**
Offshore Supply Vessels (OSV1 & OSV2)																	
Main Engine 1	360 hr/yr	75.0 gal/hr	3000 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.50E-05	lb/hr	2.70E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.18E-04	lb/hr	1.47E-04	tpy
Main Engine 1	100 hr/yr	67.0 gal/hr	3000 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.34E-05	lb/hr	6.70E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	7.30E-04	lb/hr	3.65E-05	tpy
Main Engine 2	360 hr/yr	75.0 gal/hr	3000 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.50E-05	lb/hr	2.70E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.18E-04	lb/hr	1.47E-04	tpy
Main Engine 2	100 hr/yr	67.0 gal/hr	3000 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.34E-05	lb/hr	6.70E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	7.30E-04	lb/hr	3.65E-05	tpy
Thruster Engine 1	360 hr/yr	58.0 gal/hr	950 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.16E-05	lb/hr	2.09E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	6.32E-04	lb/hr	1.14E-04	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.16E-05	lb/hr	2.09E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	6.32E-04	lb/hr	1.14E-04	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.16E-05	lb/hr	2.09E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	6.32E-04	lb/hr	1.14E-04	tpy
Generator	820 hr/yr	27.0 gal/hr	400 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.40E-06	lb/hr	2.21E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.94E-04	lb/hr	1.21E-04	tpy
Generator	120 hr/yr	27.0 gal/hr	400 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.40E-06	lb/hr	3.24E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.94E-04	lb/hr	1.77E-05	tpy
Generator	0 hr/yr	27.0 gal/hr	400 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.40E-06	lb/hr	0.00E+00	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.94E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.60E-06	lb/hr	2.40E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.72E-05	lb/hr	1.31E-06	tpy
						Vessel Total	**1.09E-04**	**lb/hr**	**1.56E-05**	**tpy**			**Vessel Total**	**5.96E-03**	**lb/hr**	**8.48E-04**	**tpy**
Ware Vessel (WV) w/ backup OSV																	
Main Engine 1	300 hr/yr	87.0 gal/hr	3200 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.74E-05	lb/hr	2.61E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	9.48E-04	lb/hr	1.42E-04	tpy
Main Engine 2	300 hr/yr	87.0 gal/hr	3200 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.74E-05	lb/hr	2.61E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	9.48E-04	lb/hr	1.42E-04	tpy
Main Engine 3	400 hr/yr	81.0 gal/hr	3200 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.62E-05	lb/hr	3.24E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.83E-04	lb/hr	1.77E-04	tpy
Main Engine 4	400 hr/yr	81.0 gal/hr	3200 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.62E-05	lb/hr	3.24E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.83E-04	lb/hr	1.77E-04	tpy
Generator 1	700 hr/yr	32.0 gal/hr	500 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.40E-06	lb/hr	2.24E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.49E-04	lb/hr	1.22E-04	tpy
Generator 2	100 hr/yr	32.0 gal/hr	500 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.40E-06	lb/hr	3.20E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.49E-04	lb/hr	1.74E-05	tpy
Generator 3	0 hr/yr	32.0 gal/hr	500 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.40E-06	lb/hr	0.00E+00	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.49E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	12.0 gal/hr	170 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	2.40E-06	lb/hr	3.60E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.31E-04	lb/hr	1.96E-06	tpy
						Vessel Total	**8.88E-05**	**lb/hr**	**1.43E-05**	**tpy**			**Vessel Total**	**4.84E-03**	**lb/hr**	**7.79E-04**	**tpy**
34' boom work boats - 4																	
WB-1 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.00E-06	lb/hr	1.44E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.27E-04	lb/hr	7.85E-06	tpy
WB-1 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.00E-06	lb/hr	1.44E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.27E-04	lb/hr	7.85E-06	tpy
WB-2 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.00E-06	lb/hr	1.44E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.27E-04	lb/hr	7.85E-06	tpy
WB-2 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.00E-06	lb/hr	1.44E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.27E-04	lb/hr	7.85E-06	tpy
WB-3 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.00E-06	lb/hr	1.44E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.27E-04	lb/hr	7.85E-06	tpy
WB-3 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.00E-06	lb/hr	1.44E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.27E-04	lb/hr	7.85E-06	tpy
WB-4 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.00E-06	lb/hr	1.44E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.27E-04	lb/hr	7.85E-06	tpy
WB-4 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.00E-06	lb/hr	1.44E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.27E-04	lb/hr	7.85E-06	tpy
						Vessel Total	**4.80E-05**	**lb/hr**	**1.15E-06**	**tpy**			**Vessel Total**	**2.62E-03**	**lb/hr**	**6.28E-05**	**tpy**
Marine Research Vessel																	
Main Engine	600 hr/yr	45.0 gal/hr	850 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	9.01E-06	lb/hr	2.70E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	4.91E-04	lb/hr	1.47E-04	tpy
Generator 1	600 hr/yr	9.6 gal/hr	135 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.92E-06	lb/hr	5.75E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.05E-04	lb/hr	3.14E-05	tpy
Generator 2	600 hr/yr	6.4 gal/hr	90 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.28E-06	lb/hr	3.84E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	6.97E-05	lb/hr	2.09E-05	tpy
Generator 3	600 hr/yr	2.8 gal/hr	40 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.68E-07	lb/hr	1.70E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.10E-05	lb/hr	9.29E-06	tpy
						Vessel Total	**1.28E-05**	**lb/hr**	**3.83E-06**	**tpy**			**Vessel Total**	**6.96E-04**	**lb/hr**	**2.09E-04**	**tpy**
Spill Storage Tanker																	
Main Engine 1	12 hr/yr	88.7 gal/hr	1674 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.77E-05	lb/hr	1.06E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	9.67E-04	lb/hr	5.80E-06	tpy
Main Engine 2	12 hr/yr	88.7 gal/hr	1674 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.77E-05	lb/hr	1.06E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	9.67E-04	lb/hr	5.80E-06	tpy
Generator 1	48 hr/yr	40.9 gal/hr	576.35 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	8.19E-06	lb/hr	1.97E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	4.46E-04	lb/hr	1.07E-05	tpy
Boiler 1	48 hr/yr	109.2 gal/hr	14.422 **MMBtu/hr**	1.51E+00	lb/10^12 Btu	VCAPCD	2.18E-05	lb/hr	5.24E-07	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	1.63E-04	lb/hr	3.90E-06	tpy
						Vessel Total	**6.55E-05**	**lb/hr**	**9.33E-07**	**tpy**			**Vessel Total**	**2.54E-03**	**lb/hr**	**2.62E-05**	**tpy**
All Vessels Fuel Tanks																	
Fuel Tank	2400 hr/yr	2703975.5 gal/yr*	N A	none							N A		EPA TANKS	8.333E-09	lb/hr	0.00002	tpy
		*max throughput				**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**			**Vessel Total**	**8.33E-09**	**lb/hr**	**2.00E-05**	**tpy**
						HAP Total Option 1			**3.55E-04**	**tpy**			**HAP Total Option 1**			**1.84E-02**	**tpy**
						HAP Total Option 2			**3.53E-04**	**tpy**			**HAP Total Option 2**			**1.83E-02**	**tpy**

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit Description	Allowable Operation	Maximum Fuel Usage	Maximum	Formaldehyde Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Hexane Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handling Supply Tug (AHST)																	
Main Engine 1	60 hr/yr	160.0 gal/hr	2529 **kW**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.86E-02	lb/hr	5.57E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.30E-03	lb/hr	1.29E-04	tpy
Main Engine 2	60 hr/yr	160.0 gal/hr	2529 **kW**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.86E-02	lb/hr	5.57E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.30E-03	lb/hr	1.29E-04	tpy
Generator 1	60 hr/yr	25.0 gal/hr	380 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	3.90E-03	lb/hr	1.17E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	6.73E-04	lb/hr	2.02E-05	tpy
Generator 2	12 hr/yr	25.0 gal/hr	380 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-3	3.90E-03	lb/hr	2.34E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	6.73E-04	lb/hr	4.04E-06	tpy
Generator 3	0 hr/yr	25.0 gal/hr	380 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-4	3.90E-03	lb/hr	0.00E+00	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	6.73E-04	lb/hr	0.00E+00	tpy
Emergency Generator	6 hr/yr	5.6 gal/hr	170 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	8.73E-04	lb/hr	2.62E-06	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.51E-04	lb/hr	4.52E-07	tpy
						Vessel Total	**4.97E-02**	**lb/hr**	**1.26E-03**	**tpy**			**Vessel Total**	**1.08E-02**	**lb/hr**	**2.83E-04**	**tpy**
Offshore Supply Vessels (OSV1 & OSV2)																	
Main Engine 1	360 hr/yr	75.0 gal/hr	3000 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	8.70E-03	lb/hr	1.57E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.02E-03	lb/hr	3.63E-04	tpy
Main Engine 1	100 hr/yr	67.0 gal/hr	3000 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	7.77E-03	lb/hr	3.89E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.80E-03	lb/hr	9.01E-05	tpy
Main Engine 2	360 hr/yr	75.0 gal/hr	3000 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	8.70E-03	lb/hr	1.57E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.02E-03	lb/hr	3.63E-04	tpy
Main Engine 2	100 hr/yr	67.0 gal/hr	3000 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	7.77E-03	lb/hr	3.89E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.80E-03	lb/hr	9.01E-05	tpy
Thruster Engine 1	360 hr/yr	58.0 gal/hr	950 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	6.73E-03	lb/hr	1.21E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.56E-03	lb/hr	2.81E-04	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	6.73E-03	lb/hr	1.21E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.56E-03	lb/hr	2.81E-04	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	6.73E-03	lb/hr	1.21E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.56E-03	lb/hr	2.81E-04	tpy
Generator	820 hr/yr	27.0 gal/hr	400 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.21E-03	lb/hr	1.73E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.26E-04	lb/hr	2.98E-04	tpy
Generator	120 hr/yr	27.0 gal/hr	400 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.21E-03	lb/hr	2.53E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.26E-04	lb/hr	4.36E-05	tpy
Generator	0 hr/yr	27.0 gal/hr	400 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.21E-03	lb/hr	0.00E+00	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.26E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	1.25E-03	lb/hr	1.87E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.15E-04	lb/hr	3.23E-06	tpy
						Vessel Total	**6.70E-02**	**lb/hr**	**9.54E-03**	**tpy**			**Vessel Total**	**1.47E-02**	**lb/hr**	**2.09E-03**	**tpy**
Ware Vessel (WV) w/ backup OSV																	
Main Engine 1	300 hr/yr	87.0 gal/hr	3200 **hp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.01E-02	lb/hr	1.51E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.34E-03	lb/hr	3.51E-04	tpy
Main Engine 2	300 hr/yr	87.0 gal/hr	3200 **hp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.01E-02	lb/hr	1.51E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.34E-03	lb/hr	3.51E-04	tpy
Main Engine 3	400 hr/yr	81.0 gal/hr	3200 **hp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	9.40E-03	lb/hr	1.88E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.18E-03	lb/hr	4.36E-04	tpy
Main Engine 4	400 hr/yr	81.0 gal/hr	3200 **hp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	9.40E-03	lb/hr	1.88E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.18E-03	lb/hr	4.36E-04	tpy
Generator 1	700 hr/yr	32.0 gal/hr	500 **kW**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	3.71E-03	lb/hr	1.30E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.61E-04	lb/hr	3.01E-04	tpy
Generator 2	100 hr/yr	32.0 gal/hr	500 **kW**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	3.71E-03	lb/hr	1.86E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.61E-04	lb/hr	4.30E-05	tpy
Generator 3	0 hr/yr	32.0 gal/hr	500 **kW**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	3.71E-03	lb/hr	0.00E+00	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.61E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	12.0 gal/hr	170 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	1.87E-03	lb/hr	2.81E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	3.23E-04	lb/hr	4.84E-06	tpy
						Vessel Total	**5.20E-02**	**lb/hr**	**8.30E-03**	**tpy**			**Vessel Total**	**1.19E-02**	**lb/hr**	**1.92E-03**	**tpy**
34' boom work boats - 4																	
WB-1 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.68E-03	lb/hr	1.12E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.07E-04	lb/hr	1.94E-05	tpy
WB-1 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.68E-03	lb/hr	1.12E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.07E-04	lb/hr	1.94E-05	tpy
WB-2 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.68E-03	lb/hr	1.12E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.07E-04	lb/hr	1.94E-05	tpy
WB-2 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.68E-03	lb/hr	1.12E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.07E-04	lb/hr	1.94E-05	tpy
WB-3 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.68E-03	lb/hr	1.12E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.07E-04	lb/hr	1.94E-05	tpy
WB-3 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.68E-03	lb/hr	1.12E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.07E-04	lb/hr	1.94E-05	tpy
WB-4 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.68E-03	lb/hr	1.12E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.07E-04	lb/hr	1.94E-05	tpy
WB-4 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.68E-03	lb/hr	1.12E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.07E-04	lb/hr	1.94E-05	tpy
						Vessel Total	**3.74E-02**	**lb/hr**	**8.98E-04**	**tpy**			**Vessel Total**	**6.46E-03**	**lb/hr**	**1.55E-04**	**tpy**
Marine Research Vessel																	
Main Engine	600 hr/yr	45.0 gal/hr	850 **hp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	5.22E-03	lb/hr	1.57E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.21E-03	lb/hr	3.63E-04	tpy
Generator 1	600 hr/yr	9.6 gal/hr	135 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	1.49E-03	lb/hr	4.48E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.58E-04	lb/hr	7.74E-05	tpy
Generator 2	600 hr/yr	6.4 gal/hr	90 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	9.97E-04	lb/hr	2.99E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.72E-04	lb/hr	5.16E-05	tpy
Generator 3	600 hr/yr	2.8 gal/hr	40 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.43E-04	lb/hr	1.33E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.64E-05	lb/hr	2.29E-05	tpy
						Vessel Total	**8.16E-03**	**lb/hr**	**2.45E-03**	**tpy**			**Vessel Total**	**1.72E-03**	**lb/hr**	**5.15E-04**	**tpy**
Spill Storage Tanker																	
Main Engine 1	12 hr/yr	88.7 gal/hr	1674 **hp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.03E-02	lb/hr	6.17E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.39E-03	lb/hr	1.43E-05	tpy
Main Engine 2	12 hr/yr	88.7 gal/hr	1674 **hp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.03E-02	lb/hr	6.17E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.39E-03	lb/hr	1.43E-05	tpy
Generator 1	48 hr/yr	40.9 gal/hr	576.35 **kW**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	4.75E-03	lb/hr	1.14E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.10E-03	lb/hr	2.64E-05	tpy
Boiler 1	48 hr/yr	109.2 gal/hr	14.422 **MMBtu/hr**	3.49E-01	lbs/Mgal	CARB-CATEF	3.81E-02	lb/hr	9.14E-04	tpy	9.16E+00	lb/10^12 Btu	CARB-CATEF	1.32E-04	lb/hr	3.17E-06	tpy
						Vessel Total	**6.34E-02**	**lb/hr**	**1.15E-03**	**tpy**			**Vessel Total**	**6.01E-03**	**lb/hr**	**5.82E-05**	**tpy**
All Vessels Fuel Tanks																	
Fuel Tank	2400 hr/yr	2703975.5 gal/yr*	N A	none							N A		EPA TANKS	2.083E-09	lb/hr	0.000005	tpy
		*max throughput				**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**			**Vessel Total**	**2.08E-09**	**lb/hr**	**5.00E-06**	**tpy**
						HAP Total Option 1			**2.33E-01**	**tpy**			**HAP Total Option 1**			**4.50E-02**	**tpy**
						HAP Total Option 2			**2.32E-01**	**tpy**			**HAP Total Option 2**			**4.49E-02**	**tpy**

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit Description	Allowable Operation	Maximum Fuel Usage	Maximum	Hydrochloric acid (Hydrogen Chloride) Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Naphthalene Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handling Supply Tug (AHST)																	
Main Engine 1	60 hr/yr	160.0 gal/hr	2529 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	2.98E-02	lb/hr	8.94E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-2	2.75E-03	lb/hr	8.24E-05	tpy
Main Engine 2	60 hr/yr	160.0 gal/hr	2529 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	2.98E-02	lb/hr	8.94E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.75E-03	lb/hr	8.24E-05	tpy
Generator 1	60 hr/yr	25.0 gal/hr	380 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	4.66E-03	lb/hr	1.40E-04	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	2.80E-04	lb/hr	8.40E-06	tpy
Generator 2	12 hr/yr	25.0 gal/hr	380 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	4.66E-03	lb/hr	2.79E-05	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-3	2.80E-04	lb/hr	1.68E-06	tpy
Generator 3	0 hr/yr	25.0 gal/hr	380 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	4.66E-03	lb/hr	0.00E+00	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-4	2.80E-04	lb/hr	0.00E+00	tpy
Emergency Generator	6 hr/yr	5.6 gal/hr	170 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.04E-03	lb/hr	3.13E-06	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	6.27E-05	lb/hr	1.88E-07	tpy
						Vessel Total	**7.46E-02**	**lb/hr**	**1.96E-03**	**tpy**			**Vessel Total**	**6.40E-03**	**lb/hr**	**1.75E-04**	**tpy**
Offshore Supply Vessels (OSV1 & OSV2)																	
Main Engine 1	360 hr/yr	75.0 gal/hr	3000 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.40E-02	lb/hr	2.52E-03	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-2	1.29E-03	lb/hr	2.32E-04	tpy
Main Engine 1	100 hr/yr	67.0 gal/hr	3000 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.25E-02	lb/hr	6.24E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.15E-03	lb/hr	5.75E-05	tpy
Main Engine 2	360 hr/yr	75.0 gal/hr	3000 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.40E-02	lb/hr	2.52E-03	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.29E-03	lb/hr	2.32E-04	tpy
Main Engine 2	100 hr/yr	67.0 gal/hr	3000 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.25E-02	lb/hr	6.24E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.15E-03	lb/hr	5.75E-05	tpy
Thruster Engine 1	360 hr/yr	58.0 gal/hr	950 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.08E-02	lb/hr	1.94E-03	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-3	9.96E-04	lb/hr	1.79E-04	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.08E-02	lb/hr	1.94E-03	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-3	9.96E-04	lb/hr	1.79E-04	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.08E-02	lb/hr	1.94E-03	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-7	9.96E-04	lb/hr	1.79E-04	tpy
Generator	820 hr/yr	27.0 gal/hr	400 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.03E-03	lb/hr	2.06E-03	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.02E-04	lb/hr	1.24E-04	tpy
Generator	120 hr/yr	27.0 gal/hr	400 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.03E-03	lb/hr	3.02E-04	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.02E-04	lb/hr	1.81E-05	tpy
Generator	0 hr/yr	27.0 gal/hr	400 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.03E-03	lb/hr	0.00E+00	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.02E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.49E-03	lb/hr	2.24E-05	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	8.96E-05	lb/hr	1.34E-06	tpy
						Vessel Total	**1.02E-01**	**lb/hr**	**1.45E-02**	**tpy**			**Vessel Total**	**8.86E-03**	**lb/hr**	**1.26E-03**	**tpy**
Ware Vessel (WV) w/ backup OSV																	
Main Engine 1	300 hr/yr	87.0 gal/hr	3200 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.62E-02	lb/hr	2.43E-03	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-2	1.49E-03	lb/hr	2.24E-04	tpy
Main Engine 2	300 hr/yr	87.0 gal/hr	3200 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.62E-02	lb/hr	2.43E-03	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.49E-03	lb/hr	2.24E-04	tpy
Main Engine 3	400 hr/yr	81.0 gal/hr	3200 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.51E-02	lb/hr	3.02E-03	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.39E-03	lb/hr	2.78E-04	tpy
Main Engine 4	400 hr/yr	81.0 gal/hr	3200 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.51E-02	lb/hr	3.02E-03	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-5	1.39E-03	lb/hr	2.78E-04	tpy
Generator 1	700 hr/yr	32.0 gal/hr	500 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.96E-03	lb/hr	2.09E-03	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-5	5.50E-04	lb/hr	1.92E-04	tpy
Generator 2	100 hr/yr	32.0 gal/hr	500 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.96E-03	lb/hr	2.98E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-5	5.50E-04	lb/hr	2.75E-05	tpy
Generator 3	0 hr/yr	32.0 gal/hr	500 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.96E-03	lb/hr	0.00E+00	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-5	5.50E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	12.0 gal/hr	170 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	2.24E-03	lb/hr	3.35E-05	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.34E-04	lb/hr	2.02E-06	tpy
						Vessel Total	**8.27E-02**	**lb/hr**	**1.33E-02**	**tpy**			**Vessel Total**	**7.55E-03**	**lb/hr**	**1.23E-03**	**tpy**
34' boom work boats - 4																	
WB-1 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.59E-03	lb/hr	1.34E-04	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.36E-04	lb/hr	8.07E-06	tpy
WB-1 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.59E-03	lb/hr	1.34E-04	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.36E-04	lb/hr	8.07E-06	tpy
WB-2 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.59E-03	lb/hr	1.34E-04	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.36E-04	lb/hr	8.07E-06	tpy
WB-2 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.59E-03	lb/hr	1.34E-04	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.36E-04	lb/hr	8.07E-06	tpy
WB-3 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.59E-03	lb/hr	1.34E-04	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.36E-04	lb/hr	8.07E-06	tpy
WB-3 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.59E-03	lb/hr	1.34E-04	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.36E-04	lb/hr	8.07E-06	tpy
WB-4 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.59E-03	lb/hr	1.34E-04	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.36E-04	lb/hr	8.07E-06	tpy
WB-4 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.59E-03	lb/hr	1.34E-04	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.36E-04	lb/hr	8.07E-06	tpy
						Vessel Total	**4.47E-02**	**lb/hr**	**1.07E-03**	**tpy**			**Vessel Total**	**2.69E-03**	**lb/hr**	**6.45E-05**	**tpy**
Marine Research Vessel																	
Main Engine	600 hr/yr	45.0 gal/hr	850 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	8.39E-03	lb/hr	2.52E-03	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-2	7.74E-04	lb/hr	2.32E-04	tpy
Generator 1	600 hr/yr	9.6 gal/hr	135 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.79E-03	lb/hr	5.36E-04	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.07E-04	lb/hr	3.22E-05	tpy
Generator 2	600 hr/yr	6.4 gal/hr	90 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.19E-03	lb/hr	3.57E-04	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	7.16E-05	lb/hr	2.15E-05	tpy
Generator 3	600 hr/yr	2.8 gal/hr	40 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.29E-04	lb/hr	1.59E-04	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.18E-05	lb/hr	9.55E-06	tpy
						Vessel Total	**1.19E-02**	**lb/hr**	**3.57E-03**	**tpy**			**Vessel Total**	**9.84E-04**	**lb/hr**	**2.95E-04**	**tpy**
Spill Storage Tanker																	
Main Engine 1	12 hr/yr	88.7 gal/hr	1674 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.65E-02	lb/hr	9.92E-05	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-2	1.52E-03	lb/hr	9.14E-06	tpy
Main Engine 2	12 hr/yr	88.7 gal/hr	1674 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.65E-02	lb/hr	9.92E-05	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-5	1.52E-03	lb/hr	9.14E-06	tpy
Generator 1	48 hr/yr	40.9 gal/hr	576.35 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	7.63E-03	lb/hr	1.83E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-5	7.03E-04	lb/hr	1.69E-05	tpy
Boiler 1	48 hr/yr	109.2 gal/hr	14.422 **MMBtu/hr**	1.41E+03	lb/10^12 Btu	VCAPCD	2.03E-02	lb/hr	4.88E-04	tpy	2.78E+03	lb/10^12 Btu	CARB-CATEF	4.01E-02	lb/hr	9.62E-04	tpy
						Vessel Total	**6.10E-02**	**lb/hr**	**8.70E-04**	**tpy**			**Vessel Total**	**4.38E-02**	**lb/hr**	**9.97E-04**	**tpy**
All Vessels Fuel Tanks																	
Fuel Tank	2400 hr/yr	2703975.5 gal/yr*	N A	none							none						
		*max throughput				**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**
						HAP Total Option 1			**3.30E-01**	**tpy**			**HAP Total Option 1**			**6.64E-02**	**tpy**
						HAP Total Option 2			**3.29E-01**	**tpy**			**HAP Total Option 2**			**6.64E-02**	**tpy**

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Toluene							Xylenes (mixed isomers)						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handling Supply Tug (AHST)																	
Main Engine 1	60 hr/yr	160.0 gal/hr	2529 **kW**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-1	5.94E-03	lb/hr	1.78E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-1	4.08E-03	lb/hr	1.22E-04	tpy
Main Engine 2	60 hr/yr	160.0 gal/hr	2529 **kW**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-2	5.94E-03	lb/hr	1.78E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-2	4.08E-03	lb/hr	1.22E-04	tpy
Generator 1	60 hr/yr	25.0 gal/hr	380 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.35E-03	lb/hr	4.05E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	9.41E-04	lb/hr	2.82E-05	tpy
Generator 2	12 hr/yr	25.0 gal/hr	380 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-3	1.35E-03	lb/hr	8.10E-06	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-3	9.41E-04	lb/hr	5.65E-06	tpy
Generator 3	0 hr/yr	25.0 gal/hr	380 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-4	1.35E-03	lb/hr	0.00E+00	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-4	9.41E-04	lb/hr	0.00E+00	tpy
Emergency Generator	6 hr/yr	5.6 gal/hr	170 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.03E-04	lb/hr	9.08E-07	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.11E-04	lb/hr	6.32E-07	tpy
						Vessel Total	**1.62E-02**	**lb/hr**	**4.06E-04**	**tpy**			**Vessel Total**	**1.12E-02**	**lb/hr**	**2.79E-04**	**tpy**
Offshore Supply Vessels (OSV1 & OSV2)																	
Main Engine 1	360 hr/yr	75.0 gal/hr	3000 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-1	2.78E-03	lb/hr	5.01E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-1	1.91E-03	lb/hr	3.44E-04	tpy
Main Engine 1	100 hr/yr	67.0 gal/hr	3000 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-2	2.49E-03	lb/hr	1.24E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-2	1.71E-03	lb/hr	8.54E-05	tpy
Main Engine 2	360 hr/yr	75.0 gal/hr	3000 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-2	2.78E-03	lb/hr	5.01E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-2	1.91E-03	lb/hr	3.44E-04	tpy
Main Engine 2	100 hr/yr	67.0 gal/hr	3000 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-2	2.49E-03	lb/hr	1.24E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-2	1.71E-03	lb/hr	8.54E-05	tpy
Thruster Engine 1	360 hr/yr	58.0 gal/hr	950 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-2	2.15E-03	lb/hr	3.88E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-2	1.48E-03	lb/hr	2.66E-04	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-2	2.15E-03	lb/hr	3.88E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-2	1.48E-03	lb/hr	2.66E-04	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-6	2.15E-03	lb/hr	3.88E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-6	1.48E-03	lb/hr	2.66E-04	tpy
Generator	820 hr/yr	27.0 gal/hr	400 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.46E-03	lb/hr	5.98E-04	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.02E-03	lb/hr	4.17E-04	tpy
Generator	120 hr/yr	27.0 gal/hr	400 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.46E-03	lb/hr	8.75E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.02E-03	lb/hr	6.10E-05	tpy
Generator	0 hr/yr	27.0 gal/hr	400 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.46E-03	lb/hr	0.00E+00	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.02E-03	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	4.32E-04	lb/hr	6.48E-06	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.01E-04	lb/hr	4.52E-06	tpy
						Vessel Total	**2.18E-02**	**lb/hr**	**3.11E-03**	**tpy**			**Vessel Total**	**1.50E-02**	**lb/hr**	**2.14E-03**	**tpy**
Ware Vessel (WV) w/ backup OSV																	
Main Engine 1	300 hr/yr	87.0 gal/hr	3200 **hp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-1	3.23E-03	lb/hr	4.84E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-1	2.22E-03	lb/hr	3.33E-04	tpy
Main Engine 2	300 hr/yr	87.0 gal/hr	3200 **hp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-2	3.23E-03	lb/hr	4.84E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-2	2.22E-03	lb/hr	3.33E-04	tpy
Main Engine 3	400 hr/yr	81.0 gal/hr	3200 **hp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.01E-03	lb/hr	6.01E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.07E-03	lb/hr	4.13E-04	tpy
Main Engine 4	400 hr/yr	81.0 gal/hr	3200 **hp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-4	3.01E-03	lb/hr	6.01E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.07E-03	lb/hr	4.13E-04	tpy
Generator 1	700 hr/yr	32.0 gal/hr	500 **kW**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.19E-03	lb/hr	4.16E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.16E-04	lb/hr	2.86E-04	tpy
Generator 2	100 hr/yr	32.0 gal/hr	500 **kW**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.19E-03	lb/hr	5.94E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.16E-04	lb/hr	4.08E-05	tpy
Generator 3	0 hr/yr	32.0 gal/hr	500 **kW**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.19E-03	lb/hr	0.00E+00	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.16E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	12.0 gal/hr	170 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.48E-04	lb/hr	9.72E-06	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	4.52E-04	lb/hr	6.78E-06	tpy
						Vessel Total	**1.67E-02**	**lb/hr**	**2.66E-03**	**tpy**			**Vessel Total**	**1.15E-02**	**lb/hr**	**1.82E-03**	**tpy**
34' boom work boats - 4																	
WB-1 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.62E-03	lb/hr	3.89E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.13E-03	lb/hr	2.71E-05	tpy
WB-1 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.62E-03	lb/hr	3.89E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.13E-03	lb/hr	2.71E-05	tpy
WB-2 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.62E-03	lb/hr	3.89E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.13E-03	lb/hr	2.71E-05	tpy
WB-2 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.62E-03	lb/hr	3.89E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.13E-03	lb/hr	2.71E-05	tpy
WB-3 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.62E-03	lb/hr	3.89E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.13E-03	lb/hr	2.71E-05	tpy
WB-3 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.62E-03	lb/hr	3.89E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.13E-03	lb/hr	2.71E-05	tpy
WB-4 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.62E-03	lb/hr	3.89E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.13E-03	lb/hr	2.71E-05	tpy
WB-4 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.62E-03	lb/hr	3.89E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.13E-03	lb/hr	2.71E-05	tpy
						Vessel Total	**1.30E-02**	**lb/hr**	**3.11E-04**	**tpy**			**Vessel Total**	**9.04E-03**	**lb/hr**	**2.17E-04**	**tpy**
Marine Research Vessel																	
Main Engine	600 hr/yr	45.0 gal/hr	850 **hp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-1	1.67E-03	lb/hr	5.02E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-1	1.15E-03	lb/hr	3.45E-04	tpy
Generator 1	600 hr/yr	9.6 gal/hr	135 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.18E-04	lb/hr	1.55E-04	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.61E-04	lb/hr	1.08E-04	tpy
Generator 2	600 hr/yr	6.4 gal/hr	90 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.45E-04	lb/hr	1.04E-04	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.41E-04	lb/hr	7.22E-05	tpy
Generator 3	600 hr/yr	2.8 gal/hr	40 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.54E-04	lb/hr	4.61E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.07E-04	lb/hr	3.21E-05	tpy
						Vessel Total	**2.69E-03**	**lb/hr**	**8.07E-04**	**tpy**			**Vessel Total**	**1.86E-03**	**lb/hr**	**5.57E-04**	**tpy**
Spill Storage Tanker																	
Main Engine 1	12 hr/yr	88.7 gal/hr	1674 **hp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-1	3.29E-03	lb/hr	1.98E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-1	2.26E-03	lb/hr	1.36E-05	tpy
Main Engine 2	12 hr/yr	88.7 gal/hr	1674 **hp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-4	3.29E-03	lb/hr	1.98E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.26E-03	lb/hr	1.36E-05	tpy
Generator 1	48 hr/yr	40.9 gal/hr	576.35 **kW**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.52E-03	lb/hr	3.65E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.04E-03	lb/hr	2.51E-05	tpy
Boiler 1	48 hr/yr	109.2 gal/hr	14.422 **MMBtu/hr**	1.14E+01	lb/10^12 Btu	CARB-CATEF	1.64E-04	lb/hr	3.93E-06	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	1.63E-04	lb/hr	3.90E-06	tpy
						Vessel Total	**8.27E-03**	**lb/hr**	**7.99E-05**	**tpy**			**Vessel Total**	**5.73E-03**	**lb/hr**	**5.61E-05**	**tpy**
All Vessels Fuel Tanks																	
Fuel Tank	2400 hr/yr	2703975.5 gal/yr*	N A	N A		EPA TANKS	6.667E-08	lb/hr	0.00016	tpy	none						
		*max throughput				**Vessel Total**	**6.67E-08**	**lb/hr**	**1.60E-04**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**
						HAP Total Option 1			**6.35E-02**	**tpy**			**HAP Total Option 1**			**4.36E-02**	**tpy**
						HAP Total Option 2			**6.31E-02**	**tpy**			**HAP Total Option 2**			**4.32E-02**	**tpy**

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit Description	Allowable Operation	Maximum Fuel Usage	Maximum	o-Xylene Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	m-Xylene Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handling Supply Tug (AHST)																	
Main Engine 1	60 hr/yr	160.0 gal/hr	2529 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.34E-03	lb/hr	1.00E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.46E-03	lb/hr	1.04E-04	tpy
Main Engine 2	60 hr/yr	160.0 gal/hr	2529 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.34E-03	lb/hr	1.00E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.46E-03	lb/hr	1.04E-04	tpy
Generator 1	60 hr/yr	25.0 gal/hr	380 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.23E-04	lb/hr	1.57E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	5.40E-04	lb/hr	1.62E-05	tpy
Generator 2	12 hr/yr	25.0 gal/hr	380 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.23E-04	lb/hr	3.14E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	5.40E-04	lb/hr	3.24E-06	tpy
Generator 3	0 hr/yr	25.0 gal/hr	380 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.23E-04	lb/hr	0.00E+00	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	5.40E-04	lb/hr	0.00E+00	tpy
Emergency Generator	6 hr/yr	5.6 gal/hr	170 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.17E-04	lb/hr	3.51E-07	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.21E-04	lb/hr	3.63E-07	tpy
						Vessel Total	**8.37E-03**	**lb/hr**	**2.20E-04**	**tpy**			**Vessel Total**	**8.65E-03**	**lb/hr**	**2.27E-04**	**tpy**
Offshore Supply Vessels (OSV1 & OSV2)																	
Main Engine 1	360 hr/yr	75.0 gal/hr	3000 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.57E-03	lb/hr	2.82E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.62E-03	lb/hr	2.92E-04	tpy
Main Engine 1	100 hr/yr	67.0 gal/hr	3000 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.40E-03	lb/hr	7.00E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.45E-03	lb/hr	7.24E-05	tpy
Main Engine 2	360 hr/yr	75.0 gal/hr	3000 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.57E-03	lb/hr	2.82E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.62E-03	lb/hr	2.92E-04	tpy
Main Engine 2	100 hr/yr	67.0 gal/hr	3000 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.40E-03	lb/hr	7.00E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.45E-03	lb/hr	7.24E-05	tpy
Thruster Engine 1	360 hr/yr	58.0 gal/hr	950 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.21E-03	lb/hr	2.18E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.25E-03	lb/hr	2.26E-04	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.21E-03	lb/hr	2.18E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.25E-03	lb/hr	2.26E-04	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.21E-03	lb/hr	2.18E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.25E-03	lb/hr	2.26E-04	tpy
Generator	820 hr/yr	27.0 gal/hr	400 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.64E-04	lb/hr	2.31E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	5.83E-04	lb/hr	2.39E-04	tpy
Generator	120 hr/yr	27.0 gal/hr	400 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.64E-04	lb/hr	3.39E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	5.83E-04	lb/hr	3.50E-05	tpy
Generator	0 hr/yr	27.0 gal/hr	400 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.64E-04	lb/hr	0.00E+00	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	5.83E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.67E-04	lb/hr	2.51E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.73E-04	lb/hr	2.59E-06	tpy
						Vessel Total	**1.14E-02**	**lb/hr**	**1.63E-03**	**tpy**			**Vessel Total**	**1.18E-02**	**lb/hr**	**1.68E-03**	**tpy**
Ware Vessel (WV) w/ backup OSV																	
Main Engine 1	300 hr/yr	87.0 gal/hr	3200 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.82E-03	lb/hr	2.73E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.88E-03	lb/hr	2.82E-04	tpy
Main Engine 2	300 hr/yr	87.0 gal/hr	3200 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.82E-03	lb/hr	2.73E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.88E-03	lb/hr	2.82E-04	tpy
Main Engine 3	400 hr/yr	81.0 gal/hr	3200 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.69E-03	lb/hr	3.39E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.75E-03	lb/hr	3.50E-04	tpy
Main Engine 4	400 hr/yr	81.0 gal/hr	3200 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.69E-03	lb/hr	3.39E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.75E-03	lb/hr	3.50E-04	tpy
Generator 1	700 hr/yr	32.0 gal/hr	500 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.69E-04	lb/hr	2.34E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.91E-04	lb/hr	2.42E-04	tpy
Generator 2	100 hr/yr	32.0 gal/hr	500 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.69E-04	lb/hr	3.34E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.91E-04	lb/hr	3.46E-05	tpy
Generator 3	0 hr/yr	32.0 gal/hr	500 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.69E-04	lb/hr	0.00E+00	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.91E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	12.0 gal/hr	170 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	2.51E-04	lb/hr	3.76E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	2.59E-04	lb/hr	3.89E-06	tpy
						Vessel Total	**9.28E-03**	**lb/hr**	**1.49E-03**	**tpy**			**Vessel Total**	**9.59E-03**	**lb/hr**	**1.54E-03**	**tpy**
34' boom work boats - 4																	
WB-1 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.27E-04	lb/hr	1.50E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.48E-04	lb/hr	1.56E-05	tpy
WB-1 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.27E-04	lb/hr	1.50E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.48E-04	lb/hr	1.56E-05	tpy
WB-2 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.27E-04	lb/hr	1.50E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.48E-04	lb/hr	1.56E-05	tpy
WB-2 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.27E-04	lb/hr	1.50E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.48E-04	lb/hr	1.56E-05	tpy
WB-3 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.27E-04	lb/hr	1.50E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.48E-04	lb/hr	1.56E-05	tpy
WB-3 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.27E-04	lb/hr	1.50E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.48E-04	lb/hr	1.56E-05	tpy
WB-4 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.27E-04	lb/hr	1.50E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.48E-04	lb/hr	1.56E-05	tpy
WB-4 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.27E-04	lb/hr	1.50E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.48E-04	lb/hr	1.56E-05	tpy
						Vessel Total	**5.02E-03**	**lb/hr**	**1.20E-04**	**tpy**			**Vessel Total**	**5.18E-03**	**lb/hr**	**1.24E-04**	**tpy**
Marine Research Vessel																	
Main Engine	600 hr/yr	45.0 gal/hr	850 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	9.41E-04	lb/hr	2.82E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	9.73E-04	lb/hr	2.92E-04	tpy
Generator 1	600 hr/yr	9.6 gal/hr	135 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	2.00E-04	lb/hr	6.01E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	2.07E-04	lb/hr	6.21E-05	tpy
Generator 2	600 hr/yr	6.4 gal/hr	90 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.34E-04	lb/hr	4.01E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.38E-04	lb/hr	4.14E-05	tpy
Generator 3	600 hr/yr	2.8 gal/hr	40 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.94E-05	lb/hr	1.78E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.14E-05	lb/hr	1.84E-05	tpy
						Vessel Total	**1.33E-03**	**lb/hr**	**4.00E-04**	**tpy**			**Vessel Total**	**1.38E-03**	**lb/hr**	**4.14E-04**	**tpy**
Spill Storage Tanker																	
Main Engine 1	12 hr/yr	88.7 gal/hr	1674 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.85E-03	lb/hr	1.11E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.92E-03	lb/hr	1.15E-05	tpy
Main Engine 2	12 hr/yr	88.7 gal/hr	1674 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.85E-03	lb/hr	1.11E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.92E-03	lb/hr	1.15E-05	tpy
Generator 1	48 hr/yr	40.9 gal/hr	576.35 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	8.56E-04	lb/hr	2.05E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	8.84E-04	lb/hr	2.12E-05	tpy
Boiler 1	48 hr/yr	109.2 gal/hr	14.422 **MMBtu/hr**	none							none						
						Vessel Total	**4.56E-03**	**lb/hr**	**4.28E-05**	**tpy**			**Vessel Total**	**4.72E-03**	**lb/hr**	**4.42E-05**	**tpy**
All Vessels Fuel Tanks																	
Fuel Tank	2400 hr/yr	2703975.5 gal/yr*	N A	none							N A		EPA TANKS	1.375E-07	lb/hr	0.00033	tpy
		*max throughput				**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**			**Vessel Total**	**1.38E-07**	**lb/hr**	**3.30E-04**	**tpy**
						HAP Total Option 1			**3.49E-02**	**tpy**			**HAP Total Option 1**			**3.66E-02**	**tpy**
						HAP Total Option 2			**3.48E-02**	**tpy**			**HAP Total Option 2**			**3.64E-02**	**tpy**

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Arsenic Compounds (inorganic including arsine)							Beryllium Compounds						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handling Supply Tug (AHST)																	
Main Engine 1	60 hr/yr	160.0 gal/hr	2529 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.56E-04	lb/hr	7.68E-06	tpy	none						
Main Engine 2	60 hr/yr	160.0 gal/hr	2529 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.56E-04	lb/hr	7.68E-06	tpy	none						
Generator 1	60 hr/yr	25.0 gal/hr	380 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.00E-05	lb/hr	1.20E-06	tpy	none						
Generator 2	12 hr/yr	25.0 gal/hr	380 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.00E-05	lb/hr	2.40E-07	tpy	none						
Generator 3	0 hr/yr	25.0 gal/hr	380 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.00E-05	lb/hr	0.00E+00	tpy	none						
Emergency Generator	6 hr/yr	5.6 gal/hr	170 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	8.96E-06	lb/hr	2.69E-08	tpy	none						
						Vessel Total	**6.41E-04**	**lb/hr**	**1.68E-05**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**
Offshore Supply Vessels (OSV1 & OSV2)																	
Main Engine 1	360 hr/yr	75.0 gal/hr	3000 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.20E-04	lb/hr	2.16E-05	tpy	none						
Main Engine 1	100 hr/yr	67.0 gal/hr	3000 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.07E-04	lb/hr	5.36E-06	tpy	none						
Main Engine 2	360 hr/yr	75.0 gal/hr	3000 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.20E-04	lb/hr	2.16E-05	tpy	none						
Main Engine 2	100 hr/yr	67.0 gal/hr	3000 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.07E-04	lb/hr	5.36E-06	tpy	none						
Thruster Engine 1	360 hr/yr	58.0 gal/hr	950 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	9.28E-05	lb/hr	1.67E-05	tpy	none						
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	9.28E-05	lb/hr	1.67E-05	tpy	none						
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	9.28E-05	lb/hr	1.67E-05	tpy	none						
Generator	820 hr/yr	27.0 gal/hr	400 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.32E-05	lb/hr	1.77E-05	tpy	none						
Generator	120 hr/yr	27.0 gal/hr	400 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.32E-05	lb/hr	2.59E-06	tpy	none						
Generator	0 hr/yr	27.0 gal/hr	400 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.32E-05	lb/hr	0.00E+00	tpy	none						
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.28E-05	lb/hr	1.92E-07	tpy	none						
						Vessel Total	**8.75E-04**	**lb/hr**	**1.25E-04**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**
Ware Vessel (WV) w/ backup OSV																	
Main Engine 1	300 hr/yr	87.0 gal/hr	3200 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.39E-04	lb/hr	2.09E-05	tpy	none						
Main Engine 2	300 hr/yr	87.0 gal/hr	3200 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.39E-04	lb/hr	2.09E-05	tpy	none						
Main Engine 3	400 hr/yr	81.0 gal/hr	3200 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.30E-04	lb/hr	2.59E-05	tpy	none						
Main Engine 4	400 hr/yr	81.0 gal/hr	3200 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.30E-04	lb/hr	2.59E-05	tpy	none						
Generator 1	700 hr/yr	32.0 gal/hr	500 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	5.12E-05	lb/hr	1.79E-05	tpy	none						
Generator 2	100 hr/yr	32.0 gal/hr	500 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	5.12E-05	lb/hr	2.56E-06	tpy	none						
Generator 3	0 hr/yr	32.0 gal/hr	500 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	5.12E-05	lb/hr	0.00E+00	tpy	none						
Emergency Generator	30 hr/yr	12.0 gal/hr	170 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.92E-05	lb/hr	2.88E-07	tpy	none						
						Vessel Total	**7.10E-04**	**lb/hr**	**1.14E-04**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**
34' boom work boats - 4																	
WB-1 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.80E-05	lb/hr	1.15E-06	tpy	none						
WB-1 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.80E-05	lb/hr	1.15E-06	tpy	none						
WB-2 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.80E-05	lb/hr	1.15E-06	tpy	none						
WB-2 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.80E-05	lb/hr	1.15E-06	tpy	none						
WB-3 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.80E-05	lb/hr	1.15E-06	tpy	none						
WB-3 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.80E-05	lb/hr	1.15E-06	tpy	none						
WB-4 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.80E-05	lb/hr	1.15E-06	tpy	none						
WB-4 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.80E-05	lb/hr	1.15E-06	tpy	none						
						Vessel Total	**3.84E-04**	**lb/hr**	**9.22E-06**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**
Marine Research Vessel																	
Main Engine	600 hr/yr	45.0 gal/hr	850 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	7.21E-05	lb/hr	2.16E-05	tpy	none						
Generator 1	600 hr/yr	9.6 gal/hr	135 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.53E-05	lb/hr	4.60E-06	tpy	none						
Generator 2	600 hr/yr	6.4 gal/hr	90 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.02E-05	lb/hr	3.07E-06	tpy	none						
Generator 3	600 hr/yr	2.8 gal/hr	40 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.55E-06	lb/hr	1.36E-06	tpy	none						
						Vessel Total	**1.02E-04**	**lb/hr**	**3.07E-05**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**
Spill Storage Tanker																	
Main Engine 1	12 hr/yr	88.7 gal/hr	1674 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.42E-04	lb/hr	8.52E-07	tpy	none						
Main Engine 2	12 hr/yr	88.7 gal/hr	1674 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.42E-04	lb/hr	8.52E-07	tpy	none						
Generator 1	48 hr/yr	40.9 gal/hr	576.35 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	6.55E-05	lb/hr	1.57E-06	tpy	none						
Boiler 1	48 hr/yr	109.2 gal/hr	14.422 **MMBtu/hr**	4.00E+00	lb/10^12 Btu	AP-42 1.3-10	5.77E-05	lb/hr	1.38E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	4.33E-05	lb/hr	1.04E-06	tpy
						Vessel Total	**4.07E-04**	**lb/hr**	**4.66E-06**	**tpy**			**Vessel Total**	**4.33E-05**	**lb/hr**	**1.04E-06**	**tpy**
All Vessels Fuel Tanks																	
Fuel Tank	2400 hr/yr	2703975.5 gal/yr*	N A	none							none						
		*max throughput				**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**
						HAP Total Option 1			**3.71E-03**	**tpy**			**HAP Total Option 1**			**4.12E-05**	**tpy**
						HAP Total Option 2			**3.70E-03**	**tpy**			**HAP Total Option 2**			**4.12E-05**	**tpy**

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Cadmium Compounds							Chromium Compounds						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handling Supply Tug (AHST)																	
Main Engine 1	60 hr/yr	160.0 gal/hr	2529 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	2.40E-04	lb/hr	7.20E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.12E-04	lb/hr	3.36E-06	tpy
Main Engine 2	60 hr/yr	160.0 gal/hr	2529 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	2.40E-04	lb/hr	7.20E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.12E-04	lb/hr	3.36E-06	tpy
Generator 1	60 hr/yr	25.0 gal/hr	380 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	3.75E-05	lb/hr	1.13E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.75E-05	lb/hr	5.25E-07	tpy
Generator 2	12 hr/yr	25.0 gal/hr	380 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	3.75E-05	lb/hr	2.25E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.75E-05	lb/hr	1.05E-07	tpy
Generator 3	0 hr/yr	25.0 gal/hr	380 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	3.75E-05	lb/hr	0.00E+00	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.75E-05	lb/hr	0.00E+00	tpy
Emergency Generator	6 hr/yr	5.6 gal/hr	170 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	8.40E-06	lb/hr	2.52E-08	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	3.92E-06	lb/hr	1.18E-08	tpy
						Vessel Total	**6.01E-04**	**lb/hr**	**1.58E-05**	**tpy**			**Vessel Total**	**2.80E-04**	**lb/hr**	**7.36E-06**	**tpy**
Offshore Supply Vessels (OSV1 & OSV2)																	
Main Engine 1	360 hr/yr	75.0 gal/hr	3000 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.13E-04	lb/hr	2.03E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.25E-05	lb/hr	9.45E-06	tpy
Main Engine 1	100 hr/yr	67.0 gal/hr	3000 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.01E-04	lb/hr	5.03E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.69E-05	lb/hr	2.35E-06	tpy
Main Engine 2	360 hr/yr	75.0 gal/hr	3000 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.13E-04	lb/hr	2.03E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.25E-05	lb/hr	9.45E-06	tpy
Main Engine 2	100 hr/yr	67.0 gal/hr	3000 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.01E-04	lb/hr	5.03E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.69E-05	lb/hr	2.35E-06	tpy
Thruster Engine 1	360 hr/yr	58.0 gal/hr	950 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	8.70E-05	lb/hr	1.57E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.06E-05	lb/hr	7.31E-06	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	8.70E-05	lb/hr	1.57E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.06E-05	lb/hr	7.31E-06	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	8.70E-05	lb/hr	1.57E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.06E-05	lb/hr	7.31E-06	tpy
Generator	820 hr/yr	27.0 gal/hr	400 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.05E-05	lb/hr	1.66E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.89E-05	lb/hr	7.75E-06	tpy
Generator	120 hr/yr	27.0 gal/hr	400 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.05E-05	lb/hr	2.43E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.89E-05	lb/hr	1.13E-06	tpy
Generator	0 hr/yr	27.0 gal/hr	400 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.05E-05	lb/hr	0.00E+00	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.89E-05	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.20E-05	lb/hr	1.80E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.60E-06	lb/hr	8.40E-08	tpy
						Vessel Total	**8.21E-04**	**lb/hr**	**1.17E-04**	**tpy**			**Vessel Total**	**3.83E-04**	**lb/hr**	**5.45E-05**	**tpy**
Ware Vessel (WV) w/ backup OSV																	
Main Engine 1	300 hr/yr	87.0 gal/hr	3200 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.31E-04	lb/hr	1.96E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	6.09E-05	lb/hr	9.14E-06	tpy
Main Engine 2	300 hr/yr	87.0 gal/hr	3200 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.31E-04	lb/hr	1.96E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	6.09E-05	lb/hr	9.14E-06	tpy
Main Engine 3	400 hr/yr	81.0 gal/hr	3200 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.22E-04	lb/hr	2.43E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.67E-05	lb/hr	1.13E-05	tpy
Main Engine 4	400 hr/yr	81.0 gal/hr	3200 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.22E-04	lb/hr	2.43E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.67E-05	lb/hr	1.13E-05	tpy
Generator 1	700 hr/yr	32.0 gal/hr	500 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.80E-05	lb/hr	1.68E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.24E-05	lb/hr	7.84E-06	tpy
Generator 2	100 hr/yr	32.0 gal/hr	500 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.80E-05	lb/hr	2.40E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.24E-05	lb/hr	1.12E-06	tpy
Generator 3	0 hr/yr	32.0 gal/hr	500 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.80E-05	lb/hr	0.00E+00	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.24E-05	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	12.0 gal/hr	170 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.80E-05	lb/hr	2.70E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	8.40E-06	lb/hr	1.26E-07	tpy
						Vessel Total	**6.66E-04**	**lb/hr**	**1.07E-04**	**tpy**			**Vessel Total**	**3.11E-04**	**lb/hr**	**5.00E-05**	**tpy**
34' boom work boats - 4																	
WB-1 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.50E-05	lb/hr	1.08E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.10E-05	lb/hr	5.04E-07	tpy
WB-1 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.50E-05	lb/hr	1.08E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.10E-05	lb/hr	5.04E-07	tpy
WB-2 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.50E-05	lb/hr	1.08E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.10E-05	lb/hr	5.04E-07	tpy
WB-2 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.50E-05	lb/hr	1.08E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.10E-05	lb/hr	5.04E-07	tpy
WB-3 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.50E-05	lb/hr	1.08E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.10E-05	lb/hr	5.04E-07	tpy
WB-3 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.50E-05	lb/hr	1.08E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.10E-05	lb/hr	5.04E-07	tpy
WB-4 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.50E-05	lb/hr	1.08E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.10E-05	lb/hr	5.04E-07	tpy
WB-4 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.50E-05	lb/hr	1.08E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.10E-05	lb/hr	5.04E-07	tpy
						Vessel Total	**3.60E-04**	**lb/hr**	**8.64E-06**	**tpy**			**Vessel Total**	**1.68E-04**	**lb/hr**	**4.03E-06**	**tpy**
Marine Research Vessel																	
Main Engine	600 hr/yr	45.0 gal/hr	850 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	6.76E-05	lb/hr	2.03E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	3.15E-05	lb/hr	9.46E-06	tpy
Generator 1	600 hr/yr	9.6 gal/hr	135 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.44E-05	lb/hr	4.32E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	6.71E-06	lb/hr	2.01E-06	tpy
Generator 2	600 hr/yr	6.4 gal/hr	90 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	9.59E-06	lb/hr	2.88E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.48E-06	lb/hr	1.34E-06	tpy
Generator 3	600 hr/yr	2.8 gal/hr	40 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.26E-06	lb/hr	1.28E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.99E-06	lb/hr	5.97E-07	tpy
						Vessel Total	**9.58E-05**	**lb/hr**	**2.87E-05**	**tpy**			**Vessel Total**	**4.47E-05**	**lb/hr**	**1.34E-05**	**tpy**
Spill Storage Tanker																	
Main Engine 1	12 hr/yr	88.7 gal/hr	1674 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.33E-04	lb/hr	7.98E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	6.21E-05	lb/hr	3.73E-07	tpy
Main Engine 2	12 hr/yr	88.7 gal/hr	1674 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.33E-04	lb/hr	7.98E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	6.21E-05	lb/hr	3.73E-07	tpy
Generator 1	48 hr/yr	40.9 gal/hr	576.35 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	6.14E-05	lb/hr	1.47E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.87E-05	lb/hr	6.88E-07	tpy
Boiler 1	48 hr/yr	109.2 gal/hr	14.422 **MMBtu/hr**	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	4.33E-05	lb/hr	1.04E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	4.33E-05	lb/hr	1.04E-06	tpy
						Vessel Total	**3.71E-04**	**lb/hr**	**4.11E-06**	**tpy**			**Vessel Total**	**1.96E-04**	**lb/hr**	**2.47E-06**	**tpy**
All Vessels Fuel Tanks																	
Fuel Tank	2400 hr/yr	2703975.5 gal/yr*	N A	none							none						
		*max throughput				**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**
						HAP Total Option 1			**4.99E-03**	**tpy**			**HAP Total Option 1**			**3.23E-03**	**tpy**
						HAP Total Option 2			**4.99E-03**	**tpy**			**HAP Total Option 2**			**3.22E-03**	**tpy**

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Lead Compounds							Manganese Compounds						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handling Supply Tug (AHST)																	
Main Engine 1	60 hr/yr	160.0 gal/hr	2529 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.33E-03	lb/hr	3.98E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	4.96E-04	lb/hr	1.49E-05	tpy
Main Engine 2	60 hr/yr	160.0 gal/hr	2529 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.33E-03	lb/hr	3.98E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	4.96E-04	lb/hr	1.49E-05	tpy
Generator 1	60 hr/yr	25.0 gal/hr	380 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.08E-04	lb/hr	6.23E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	7.75E-05	lb/hr	2.33E-06	tpy
Generator 2	12 hr/yr	25.0 gal/hr	380 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.08E-04	lb/hr	1.25E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	7.75E-05	lb/hr	4.65E-07	tpy
Generator 3	0 hr/yr	25.0 gal/hr	380 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.08E-04	lb/hr	0.00E+00	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	7.75E-05	lb/hr	0.00E+00	tpy
Emergency Generator	6 hr/yr	5.6 gal/hr	170 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.65E-05	lb/hr	1.39E-07	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.74E-05	lb/hr	5.21E-08	tpy
						Vessel Total	**3.32E-03**	**lb/hr**	**8.73E-05**	**tpy**			**Vessel Total**	**1.24E-03**	**lb/hr**	**3.26E-05**	**tpy**
Offshore Supply Vessels (OSV1 & OSV2)																	
Main Engine 1	360 hr/yr	75.0 gal/hr	3000 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	6.23E-04	lb/hr	1.12E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.33E-04	lb/hr	4.19E-05	tpy
Main Engine 1	100 hr/yr	67.0 gal/hr	3000 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	5.56E-04	lb/hr	2.78E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.08E-04	lb/hr	1.04E-05	tpy
Main Engine 2	360 hr/yr	75.0 gal/hr	3000 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	6.23E-04	lb/hr	1.12E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.33E-04	lb/hr	4.19E-05	tpy
Main Engine 2	100 hr/yr	67.0 gal/hr	3000 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	5.56E-04	lb/hr	2.78E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.08E-04	lb/hr	1.04E-05	tpy
Thruster Engine 1	360 hr/yr	58.0 gal/hr	950 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.81E-04	lb/hr	8.67E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.80E-04	lb/hr	3.24E-05	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.81E-04	lb/hr	8.67E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.80E-04	lb/hr	3.24E-05	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.81E-04	lb/hr	8.67E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.80E-04	lb/hr	3.24E-05	tpy
Generator	820 hr/yr	27.0 gal/hr	400 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	9.19E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.37E-05	lb/hr	3.43E-05	tpy
Generator	120 hr/yr	27.0 gal/hr	400 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	1.34E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.37E-05	lb/hr	5.02E-06	tpy
Generator	0 hr/yr	27.0 gal/hr	400 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	0.00E+00	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.37E-05	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	6.64E-05	lb/hr	9.96E-07	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.48E-05	lb/hr	3.72E-07	tpy
						Vessel Total	**4.54E-03**	**lb/hr**	**6.46E-04**	**tpy**			**Vessel Total**	**1.70E-03**	**lb/hr**	**2.41E-04**	**tpy**
Ware Vessel (WV) w/ backup OSV																	
Main Engine 1	300 hr/yr	87.0 gal/hr	3200 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	7.22E-04	lb/hr	1.08E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.70E-04	lb/hr	4.05E-05	tpy
Main Engine 2	300 hr/yr	87.0 gal/hr	3200 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	7.22E-04	lb/hr	1.08E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.70E-04	lb/hr	4.05E-05	tpy
Main Engine 3	400 hr/yr	81.0 gal/hr	3200 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	6.72E-04	lb/hr	1.34E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.51E-04	lb/hr	5.02E-05	tpy
Main Engine 4	400 hr/yr	81.0 gal/hr	3200 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	6.72E-04	lb/hr	1.34E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.51E-04	lb/hr	5.02E-05	tpy
Generator 1	700 hr/yr	32.0 gal/hr	500 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.66E-04	lb/hr	9.30E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.92E-05	lb/hr	3.47E-05	tpy
Generator 2	100 hr/yr	32.0 gal/hr	500 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.66E-04	lb/hr	1.33E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.92E-05	lb/hr	4.96E-06	tpy
Generator 3	0 hr/yr	32.0 gal/hr	500 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.66E-04	lb/hr	0.00E+00	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.92E-05	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	12.0 gal/hr	170 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	9.96E-05	lb/hr	1.49E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	3.72E-05	lb/hr	5.58E-07	tpy
						Vessel Total	**3.69E-03**	**lb/hr**	**5.93E-04**	**tpy**			**Vessel Total**	**1.38E-03**	**lb/hr**	**2.22E-04**	**tpy**
34' boom work boats - 4																	
WB-1 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.49E-04	lb/hr	5.98E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.30E-05	lb/hr	2.23E-06	tpy
WB-1 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.49E-04	lb/hr	5.98E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.30E-05	lb/hr	2.23E-06	tpy
WB-2 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.49E-04	lb/hr	5.98E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.30E-05	lb/hr	2.23E-06	tpy
WB-2 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.49E-04	lb/hr	5.98E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.30E-05	lb/hr	2.23E-06	tpy
WB-3 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.49E-04	lb/hr	5.98E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.30E-05	lb/hr	2.23E-06	tpy
WB-3 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.49E-04	lb/hr	5.98E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.30E-05	lb/hr	2.23E-06	tpy
WB-4 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.49E-04	lb/hr	5.98E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.30E-05	lb/hr	2.23E-06	tpy
WB-4 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.49E-04	lb/hr	5.98E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.30E-05	lb/hr	2.23E-06	tpy
						Vessel Total	**1.99E-03**	**lb/hr**	**4.78E-05**	**tpy**			**Vessel Total**	**7.44E-04**	**lb/hr**	**1.79E-05**	**tpy**
Marine Research Vessel																	
Main Engine	600 hr/yr	45.0 gal/hr	850 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	3.74E-04	lb/hr	1.12E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.40E-04	lb/hr	4.19E-05	tpy
Generator 1	600 hr/yr	9.6 gal/hr	135 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	7.96E-05	lb/hr	2.39E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.97E-05	lb/hr	8.92E-06	tpy
Generator 2	600 hr/yr	6.4 gal/hr	90 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	5.31E-05	lb/hr	1.59E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.98E-05	lb/hr	5.95E-06	tpy
Generator 3	600 hr/yr	2.8 gal/hr	40 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.36E-05	lb/hr	7.08E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.81E-06	lb/hr	2.64E-06	tpy
						Vessel Total	**5.30E-04**	**lb/hr**	**1.59E-04**	**tpy**			**Vessel Total**	**1.98E-04**	**lb/hr**	**5.94E-05**	**tpy**
Spill Storage Tanker																	
Main Engine 1	12 hr/yr	88.7 gal/hr	1674 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	7.36E-04	lb/hr	4.42E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.75E-04	lb/hr	1.65E-06	tpy
Main Engine 2	12 hr/yr	88.7 gal/hr	1674 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	7.36E-04	lb/hr	4.42E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.75E-04	lb/hr	1.65E-06	tpy
Generator 1	48 hr/yr	40.9 gal/hr	576.35 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	3.40E-04	lb/hr	8.16E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.27E-04	lb/hr	3.05E-06	tpy
Boiler 1	48 hr/yr	109.2 gal/hr	14.422 **MMBtu/hr**	9.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.30E-04	lb/hr	3.12E-06	tpy	0.00E+00	0.00E+00	AP-42 1.3-10	0.00E+00	lb/hr	0.00E+00	tpy
						Vessel Total	**1.94E-03**	**lb/hr**	**2.01E-05**	**tpy**			**Vessel Total**	**6.77E-04**	**lb/hr**	**6.35E-06**	**tpy**
All Vessels Fuel Tanks																	
Fuel Tank	2400 hr/yr	2703975.5 gal/yr*	N A	none							none						
		*max throughput				**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**
						HAP Total Option 1			**6.18E-02**	**tpy**			**HAP Total Option 1**			**5.24E-03**	**tpy**
						HAP Total Option 2			**6.18E-02**	**tpy**			**HAP Total Option 2**			**5.22E-03**	**tpy**

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Mercury Compounds							Nickel Compounds						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handling Supply Tug (AHST)																	
Main Engine 1	60 hr/yr	160.0 gal/hr	2529 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	3.20E-04	lb/hr	9.60E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	6.24E-04	lb/hr	1.87E-05	tpy
Main Engine 2	60 hr/yr	160.0 gal/hr	2529 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	3.20E-04	lb/hr	9.60E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	6.24E-04	lb/hr	1.87E-05	tpy
Generator 1	60 hr/yr	25.0 gal/hr	380 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.00E-05	lb/hr	1.50E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	9.75E-05	lb/hr	2.93E-06	tpy
Generator 2	12 hr/yr	25.0 gal/hr	380 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.00E-05	lb/hr	3.00E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	9.75E-05	lb/hr	5.85E-07	tpy
Generator 3	0 hr/yr	25.0 gal/hr	380 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.00E-05	lb/hr	0.00E+00	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	9.75E-05	lb/hr	0.00E+00	tpy
Emergency Generator	6 hr/yr	5.6 gal/hr	170 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.12E-05	lb/hr	3.36E-08	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.18E-05	lb/hr	6.55E-08	tpy
						Vessel Total	**8.01E-04**	**lb/hr**	**2.10E-05**	**tpy**			**Vessel Total**	**1.56E-03**	**lb/hr**	**4.10E-05**	**tpy**
Offshore Supply Vessels (OSV1 & OSV2)																	
Main Engine 1	360 hr/yr	75.0 gal/hr	3000 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.50E-04	lb/hr	2.70E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.93E-04	lb/hr	5.27E-05	tpy
Main Engine 1	100 hr/yr	67.0 gal/hr	3000 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.34E-04	lb/hr	6.70E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.61E-04	lb/hr	1.31E-05	tpy
Main Engine 2	360 hr/yr	75.0 gal/hr	3000 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.50E-04	lb/hr	2.70E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.93E-04	lb/hr	5.27E-05	tpy
Main Engine 2	100 hr/yr	67.0 gal/hr	3000 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.34E-04	lb/hr	6.70E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.61E-04	lb/hr	1.31E-05	tpy
Thruster Engine 1	360 hr/yr	58.0 gal/hr	950 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.16E-04	lb/hr	2.09E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.26E-04	lb/hr	4.07E-05	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.16E-04	lb/hr	2.09E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.26E-04	lb/hr	4.07E-05	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.16E-04	lb/hr	2.09E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.26E-04	lb/hr	4.07E-05	tpy
Generator	820 hr/yr	27.0 gal/hr	400 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.40E-05	lb/hr	2.21E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.05E-04	lb/hr	4.32E-05	tpy
Generator	120 hr/yr	27.0 gal/hr	400 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.40E-05	lb/hr	3.24E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.05E-04	lb/hr	6.32E-06	tpy
Generator	0 hr/yr	27.0 gal/hr	400 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.40E-05	lb/hr	0.00E+00	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.05E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.60E-05	lb/hr	2.40E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.12E-05	lb/hr	4.68E-07	tpy
						Vessel Total	**1.09E-03**	**lb/hr**	**1.56E-04**	**tpy**			**Vessel Total**	**2.13E-03**	**lb/hr**	**3.04E-04**	**tpy**
Ware Vessel (WV) w/ backup OSV																	
Main Engine 1	300 hr/yr	87.0 gal/hr	3200 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.74E-04	lb/hr	2.61E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.39E-04	lb/hr	5.09E-05	tpy
Main Engine 2	300 hr/yr	87.0 gal/hr	3200 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.74E-04	lb/hr	2.61E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.39E-04	lb/hr	5.09E-05	tpy
Main Engine 3	400 hr/yr	81.0 gal/hr	3200 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.62E-04	lb/hr	3.24E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.16E-04	lb/hr	6.32E-05	tpy
Main Engine 4	400 hr/yr	81.0 gal/hr	3200 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.62E-04	lb/hr	3.24E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.16E-04	lb/hr	6.32E-05	tpy
Generator 1	700 hr/yr	32.0 gal/hr	500 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.40E-05	lb/hr	2.24E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.25E-04	lb/hr	4.37E-05	tpy
Generator 2	100 hr/yr	32.0 gal/hr	500 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.40E-05	lb/hr	3.20E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.25E-04	lb/hr	6.24E-06	tpy
Generator 3	0 hr/yr	32.0 gal/hr	500 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.40E-05	lb/hr	0.00E+00	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.25E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	12.0 gal/hr	170 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	2.40E-05	lb/hr	3.60E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	4.68E-05	lb/hr	7.02E-07	tpy
						Vessel Total	**8.88E-04**	**lb/hr**	**1.43E-04**	**tpy**			**Vessel Total**	**1.73E-03**	**lb/hr**	**2.79E-04**	**tpy**
34' boom work boats - 4																	
WB-1 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.00E-05	lb/hr	1.44E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	2.81E-06	tpy
WB-1 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.00E-05	lb/hr	1.44E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	2.81E-06	tpy
WB-2 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.00E-05	lb/hr	1.44E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	2.81E-06	tpy
WB-2 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.00E-05	lb/hr	1.44E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	2.81E-06	tpy
WB-3 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.00E-05	lb/hr	1.44E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	2.81E-06	tpy
WB-3 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.00E-05	lb/hr	1.44E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	2.81E-06	tpy
WB-4 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.00E-05	lb/hr	1.44E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	2.81E-06	tpy
WB-4 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.00E-05	lb/hr	1.44E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	2.81E-06	tpy
						Vessel Total	**4.80E-04**	**lb/hr**	**1.15E-05**	**tpy**			**Vessel Total**	**9.36E-04**	**lb/hr**	**2.25E-05**	**tpy**
Marine Research Vessel																	
Main Engine	600 hr/yr	45.0 gal/hr	850 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	9.01E-05	lb/hr	2.70E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.76E-04	lb/hr	5.27E-05	tpy
Generator 1	600 hr/yr	9.6 gal/hr	135 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.92E-05	lb/hr	5.75E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.74E-05	lb/hr	1.12E-05	tpy
Generator 2	600 hr/yr	6.4 gal/hr	90 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.28E-05	lb/hr	3.84E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.49E-05	lb/hr	7.48E-06	tpy
Generator 3	600 hr/yr	2.8 gal/hr	40 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.68E-06	lb/hr	1.70E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.11E-05	lb/hr	3.32E-06	tpy
						Vessel Total	**1.28E-04**	**lb/hr**	**3.83E-05**	**tpy**			**Vessel Total**	**2.49E-04**	**lb/hr**	**7.47E-05**	**tpy**
Spill Storage Tanker																	
Main Engine 1	12 hr/yr	88.7 gal/hr	1674 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.77E-04	lb/hr	1.06E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.46E-04	lb/hr	2.08E-06	tpy
Main Engine 2	12 hr/yr	88.7 gal/hr	1674 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.77E-04	lb/hr	1.06E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.46E-04	lb/hr	2.08E-06	tpy
Generator 1	48 hr/yr	40.9 gal/hr	576.35 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	8.19E-05	lb/hr	1.97E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.60E-04	lb/hr	3.83E-06	tpy
Boiler 1	48 hr/yr	109.2 gal/hr	14.422 **MMBtu/hr**	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	4.33E-05	lb/hr	1.04E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	4.33E-05	lb/hr	1.04E-06	tpy
						Vessel Total	**4.80E-04**	**lb/hr**	**5.13E-06**	**tpy**			**Vessel Total**	**8.95E-04**	**lb/hr**	**9.02E-06**	**tpy**
All Vessels Fuel Tanks																	
Fuel Tank	2400 hr/yr	2703975.5 gal/yr*	N A	none							none						
		*max throughput				**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**
						HAP Total Option 1			**1.39E-02**	**tpy**			**HAP Total Option 1**			**8.32E-03**	**tpy**
						HAP Total Option 2			**1.39E-02**	**tpy**			**HAP Total Option 2**			**8.29E-03**	**tpy**

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Polycyclic Organic Matter (See notes 13 & 14)							Selenium Compounds						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handling Supply Tug (AHST)																	
Main Engine 1	60 hr/yr	160.0 gal/hr	2529 **kW**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-2	4.48E-03	lb/hr	1.34E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.52E-04	lb/hr	1.06E-05	tpy
Main Engine 2	60 hr/yr	160.0 gal/hr	2529 **kW**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.48E-03	lb/hr	1.34E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.52E-04	lb/hr	1.06E-05	tpy
Generator 1	60 hr/yr	25.0 gal/hr	380 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.55E-04	lb/hr	1.66E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	5.50E-05	lb/hr	1.65E-06	tpy
Generator 2	12 hr/yr	25.0 gal/hr	380 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-3	5.55E-04	lb/hr	3.33E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	5.50E-05	lb/hr	3.30E-07	tpy
Generator 3	0 hr/yr	25.0 gal/hr	380 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-4	5.55E-04	lb/hr	0.00E+00	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	5.50E-05	lb/hr	0.00E+00	tpy
Emergency Generator	6 hr/yr	5.6 gal/hr	170 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.24E-04	lb/hr	3.73E-07	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.23E-05	lb/hr	3.70E-08	tpy
						Vessel Total	**1.08E-02**	**lb/hr**	**2.89E-04**	**tpy**			**Vessel Total**	**8.81E-04**	**lb/hr**	**2.31E-05**	**tpy**
Offshore Supply Vessels (OSV1 & OSV2)																	
Main Engine 1	360 hr/yr	75.0 gal/hr	3000 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-2	2.10E-03	lb/hr	3.78E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.65E-04	lb/hr	2.97E-05	tpy
Main Engine 1	100 hr/yr	67.0 gal/hr	3000 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.88E-03	lb/hr	9.38E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.47E-04	lb/hr	7.37E-06	tpy
Main Engine 2	360 hr/yr	75.0 gal/hr	3000 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.10E-03	lb/hr	3.78E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.65E-04	lb/hr	2.97E-05	tpy
Main Engine 2	100 hr/yr	67.0 gal/hr	3000 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.88E-03	lb/hr	9.38E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.47E-04	lb/hr	7.37E-06	tpy
Thruster Engine 1	360 hr/yr	58.0 gal/hr	950 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.62E-03	lb/hr	2.92E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.28E-04	lb/hr	2.30E-05	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.62E-03	lb/hr	2.92E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.28E-04	lb/hr	2.30E-05	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-7	1.62E-03	lb/hr	2.92E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.28E-04	lb/hr	2.30E-05	tpy
Generator	820 hr/yr	27.0 gal/hr	400 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.99E-04	lb/hr	2.46E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	5.94E-05	lb/hr	2.44E-05	tpy
Generator	120 hr/yr	27.0 gal/hr	400 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.99E-04	lb/hr	3.60E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	5.94E-05	lb/hr	3.56E-06	tpy
Generator	0 hr/yr	27.0 gal/hr	400 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.99E-04	lb/hr	0.00E+00	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	5.94E-05	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.78E-04	lb/hr	2.66E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.76E-05	lb/hr	2.64E-07	tpy
						Vessel Total	**1.48E-02**	**lb/hr**	**2.11E-03**	**tpy**			**Vessel Total**	**1.20E-03**	**lb/hr**	**1.71E-04**	**tpy**
Ware Vessel (WV) w/ backup OSV																	
Main Engine 1	300 hr/yr	87.0 gal/hr	3200 **hp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-2	2.44E-03	lb/hr	3.65E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.91E-04	lb/hr	2.87E-05	tpy
Main Engine 2	300 hr/yr	87.0 gal/hr	3200 **hp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.44E-03	lb/hr	3.65E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.91E-04	lb/hr	2.87E-05	tpy
Main Engine 3	400 hr/yr	81.0 gal/hr	3200 **hp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.27E-03	lb/hr	4.54E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.78E-04	lb/hr	3.56E-05	tpy
Main Engine 4	400 hr/yr	81.0 gal/hr	3200 **hp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-5	2.27E-03	lb/hr	4.54E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.78E-04	lb/hr	3.56E-05	tpy
Generator 1	700 hr/yr	32.0 gal/hr	500 **kW**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-5	8.96E-04	lb/hr	3.14E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	7.04E-05	lb/hr	2.46E-05	tpy
Generator 2	100 hr/yr	32.0 gal/hr	500 **kW**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-5	8.96E-04	lb/hr	4.48E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	7.04E-05	lb/hr	3.52E-06	tpy
Generator 3	0 hr/yr	32.0 gal/hr	500 **kW**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-5	8.96E-04	lb/hr	0.00E+00	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	7.04E-05	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	12.0 gal/hr	170 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.66E-04	lb/hr	3.99E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	2.64E-05	lb/hr	3.96E-07	tpy
						Vessel Total	**1.24E-02**	**lb/hr**	**2.00E-03**	**tpy**			**Vessel Total**	**9.77E-04**	**lb/hr**	**1.57E-04**	**tpy**
34' boom work boats - 4																	
WB-1 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.66E-04	lb/hr	1.60E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	6.60E-05	lb/hr	1.58E-06	tpy
WB-1 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.66E-04	lb/hr	1.60E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	6.60E-05	lb/hr	1.58E-06	tpy
WB-2 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.66E-04	lb/hr	1.60E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	6.60E-05	lb/hr	1.58E-06	tpy
WB-2 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.66E-04	lb/hr	1.60E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	6.60E-05	lb/hr	1.58E-06	tpy
WB-3 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.66E-04	lb/hr	1.60E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	6.60E-05	lb/hr	1.58E-06	tpy
WB-3 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.66E-04	lb/hr	1.60E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	6.60E-05	lb/hr	1.58E-06	tpy
WB-4 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.66E-04	lb/hr	1.60E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	6.60E-05	lb/hr	1.58E-06	tpy
WB-4 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.66E-04	lb/hr	1.60E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	6.60E-05	lb/hr	1.58E-06	tpy
						Vessel Total	**5.33E-03**	**lb/hr**	**1.28E-04**	**tpy**			**Vessel Total**	**5.28E-04**	**lb/hr**	**1.27E-05**	**tpy**
Marine Research Vessel																	
Main Engine	600 hr/yr	45.0 gal/hr	850 **hp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-2	1.26E-03	lb/hr	3.78E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	9.91E-05	lb/hr	2.97E-05	tpy
Generator 1	600 hr/yr	9.6 gal/hr	135 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.13E-04	lb/hr	6.38E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	2.11E-05	lb/hr	6.33E-06	tpy
Generator 2	600 hr/yr	6.4 gal/hr	90 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.42E-04	lb/hr	4.26E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.41E-05	lb/hr	4.22E-06	tpy
Generator 3	600 hr/yr	2.8 gal/hr	40 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.31E-05	lb/hr	1.89E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	6.25E-06	lb/hr	1.88E-06	tpy
						Vessel Total	**1.68E-03**	**lb/hr**	**5.04E-04**	**tpy**			**Vessel Total**	**1.41E-04**	**lb/hr**	**4.22E-05**	**tpy**
Spill Storage Tanker																	
Main Engine 1	12 hr/yr	88.7 gal/hr	1674 **hp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-2	2.48E-03	lb/hr	1.49E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.95E-04	lb/hr	1.17E-06	tpy
Main Engine 2	12 hr/yr	88.7 gal/hr	1674 **hp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-5	2.48E-03	lb/hr	1.49E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.95E-04	lb/hr	1.17E-06	tpy
Generator 1	48 hr/yr	40.9 gal/hr	576.35 **kW**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-5	1.15E-03	lb/hr	2.75E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	9.01E-05	lb/hr	2.16E-06	tpy
Boiler 1	48 hr/yr	109.2 gal/hr	14.422 **MMBtu/hr**	3.30E-03	lbs/Mgal	AP-42 1.3-8	3.60E-04	lb/hr	8.65E-06	tpy	1.50E+01	lb/10^12 Btu	AP-42 1.3-10	2.16E-04	lb/hr	5.19E-06	tpy
						Vessel Total	**6.48E-03**	**lb/hr**	**6.60E-05**	**tpy**			**Vessel Total**	**6.97E-04**	**lb/hr**	**9.70E-06**	**tpy**
All Vessels Fuel Tanks																	
Fuel Tank	2400 hr/yr	2703975.5 gal/yr*	N A	N A		EPA TANKS	8.542E-08	lb/hr	0.000205	tpy	none						
		*max throughput				**Vessel Total**	**8.54E-08**	**lb/hr**	**2.05E-04**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**
						HAP Total Option 1			**4.70E-02**	**tpy**			**HAP Total Option 1**			**3.88E-03**	**tpy**
						HAP Total Option 2			**4.69E-02**	**tpy**			**HAP Total Option 2**			**3.87E-03**	**tpy**

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit Description	Allowable Operation	Maximum Fuel Usage	Maximum	Total HAPs	Hourly (lb/hr)	Annual (tons/yr)
Anchor Handling Supply Tug (AHST)						
Main Engine 1	60 hr/yr	160.0 gal/hr	2529 **kW**		1.19E-01	3.56E-03
Main Engine 2	60 hr/yr	160.0 gal/hr	2529 **kW**		1.19E-01	3.56E-03
Generator 1	60 hr/yr	25.0 gal/hr	380 **kW**		2.03E-02	6.10E-04
Generator 2	12 hr/yr	25.0 gal/hr	380 **kW**		2.03E-02	1.22E-04
Generator 3	0 hr/yr	25.0 gal/hr	380 **kW**		2.03E-02	0.00E+00
Emergency Generator	6 hr/yr	5.6 gal/hr	170 **kW**		4.55E-03	1.37E-05
				Vessel Total	**3.03E-01**	**7.87E-03**
Offshore Supply Vessels (OSV1 & OSV2)						
Main Engine 1	360 hr/yr	75.0 gal/hr	3000 **bhp**		5.56E-02	1.00E-02
Main Engine 1	100 hr/yr	67.0 gal/hr	3000 **bhp**		4.97E-02	2.49E-03
Main Engine 2	360 hr/yr	75.0 gal/hr	3000 **bhp**		5.56E-02	1.00E-02
Main Engine 2	100 hr/yr	67.0 gal/hr	3000 **bhp**		4.97E-02	2.49E-03
Thruster Engine 1	360 hr/yr	58.0 gal/hr	950 **bhp**		4.30E-02	7.74E-03
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**		4.30E-02	7.74E-03
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**		4.30E-02	7.74E-03
Generator	820 hr/yr	27.0 gal/hr	400 **kW**		2.20E-02	9.00E-03
Generator	120 hr/yr	27.0 gal/hr	400 **kW**		2.20E-02	1.32E-03
Generator	0 hr/yr	27.0 gal/hr	400 **kW**		2.20E-02	0.00E+00
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**		6.50E-03	9.76E-05
				Vessel Total	**4.12E-01**	**5.86E-02**
Ware Vessel (WV) w/ backup OSV						
Main Engine 1	300 hr/yr	87.0 gal/hr	3200 **hp**		6.45E-02	9.68E-03
Main Engine 2	300 hr/yr	87.0 gal/hr	3200 **hp**		6.45E-02	9.68E-03
Main Engine 3	400 hr/yr	81.0 gal/hr	3200 **hp**		6.01E-02	1.20E-02
Main Engine 4	400 hr/yr	81.0 gal/hr	3200 **hp**		6.01E-02	1.20E-02
Generator 1	700 hr/yr	32.0 gal/hr	500 **kW**		2.37E-02	8.31E-03
Generator 2	100 hr/yr	32.0 gal/hr	500 **kW**		2.37E-02	1.19E-03
Generator 3	0 hr/yr	32.0 gal/hr	500 **kW**		2.37E-02	0.00E+00
Emergency Generator	30 hr/yr	12.0 gal/hr	170 **kW**		9.76E-03	1.46E-04
				Vessel Total	**3.30E-01**	**5.30E-02**
34' boom work boats - 4						
WB-1 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**		2.44E-02	5.85E-04
WB-1 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**		2.44E-02	5.85E-04
WB-2 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**		2.44E-02	5.85E-04
WB-2 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**		2.44E-02	5.85E-04
WB-3 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**		2.44E-02	5.85E-04
WB-3 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**		2.44E-02	5.85E-04
WB-4 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**		2.44E-02	5.85E-04
WB-4 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**		2.44E-02	5.85E-04
				Vessel Total	**1.95E-01**	**4.68E-03**
Marine Research Vessel						
Main Engine	600 hr/yr	45.0 gal/hr	850 **hp**		3.34E-02	1.00E-02
Generator 1	600 hr/yr	9.6 gal/hr	135 **kW**		7.80E-03	2.34E-03
Generator 2	600 hr/yr	6.4 gal/hr	90 **kW**		5.20E-03	1.56E-03
Generator 3	600 hr/yr	2.8 gal/hr	40 **kW**		2.31E-03	6.93E-04
				Vessel Total	**4.87E-02**	**1.46E-02**
Spill Storage Tanker						
Main Engine 1	12 hr/yr	88.7 gal/hr	1674 **hp**		6.58E-02	3.95E-04
Main Engine 2	12 hr/yr	88.7 gal/hr	1674 **hp**		6.58E-02	3.95E-04
Generator 1	48 hr/yr	40.9 gal/hr	576.35 **kW**		3.04E-02	7.29E-04
Boiler 1	48 hr/yr	109.2 gal/hr	14.422 **MMBtu/hr**		1.79E-01	4.29E-03
				Vessel Total	**3.41E-01**	**5.80E-03**
All Vessels Fuel Tanks						
Fuel Tank	2400 hr/yr	2703975.5 gal/yr*	N A		3.06E-07	7.35E-04
		*max throughput		**Vessel Total**	**3.06E-07**	**7.35E-04**
				HAP Total Option 1		1.48E+00
				HAP Total Option 2		1.47E+00

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Unit Inventory - Annual PTE

Notes:

1 I kW = 1.3405 hp; 1 lb = 454 g; assumed break specific fuel consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1) and fuel heat content of 132,096 Btu/gal ULSD #1 (Tesoro/Kenai Refinery).

2 Assumed well gas heat content of 1,085 Btu/scf for test flare (email from Dan Lowe 1/7/09) and propane heat content of 2,516 Btu/scf for flare pilot & purge (National Propane Gas Association http://www.npga.org/i4a/pages/index.cfm?pageid=633).

3 ULSD #1 has a density of 0.8094 kg/L (Tesoro/Kenai Refinery); so assume 6.74 lbs/ gal diesel

4 Incinerator waste fuel heat content is assumed 6,203 Btu/lb ("Air Pollution Training Institue, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17).

5 Incinerators will burn ULSD for ignition purposes only.

6 An equivalent of 2 main drilling engines at 100% load will operate continuously for up to 100 days per season (4800 hrs).

7 Mud degassing emission rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig resevoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977)

8 OSRV cruising time includes laying & remoivng boom for rig fuel transfer activities (up to 6 times per year).

10 Polycyclic organic matter EF includes napthalene - napthalene also accounted for individually

11 POM EF calculated by adding EFs for individual pollutants based on: Guidance on the Major Source Determination for Certain Hazardous Air Pollutants (EPA-HQ-OAR-2007-0750-0001)

12 See HAP Emisison Factor Basis for EF detail information and example calculations.

13 Fuel tank emissions are derived from EPA's TANKS Emissions Estimation Software, Version 4.09D: http://www.epa.gov/ttnchie1/software/tanks/index.html

14 Fuel tank POM emissions are 1,2,4- Trimethylbenzene only.

15 100 Seasonal drilling days

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Inventory - Option 1 - Ware Barge/Tug and 2 OSV's

Source Description	Potential Emissions Totals (tpy)																	
	Acet-aldehyde		Acrolein		Benzene		1,3-Butadiene		Chloro-benzene		Ethyl-benzene		Form-aldehyde		Hexane		Hydrochloric acid	
	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr
Drill Rig Equipment	1.40E-01	6.82E-02	3.33E-02	2.79E-02	1.18E-01	4.43E-02	6.92E-03	3.26E-03	2.38E-04	9.86E-05	1.25E-02	4.79E-03	1.53E-01	7.22E-02	3.07E-02	1.16E-02	2.22E-01	9.19E-02
Ice Breaker 1	1.87E-01	6.06E-02	4.00E-02	1.32E-02	1.61E-01	5.18E-02	9.29E-03	3.01E-03	3.24E-04	1.05E-04	1.71E-02	5.53E-03	2.02E-01	6.52E-02	4.21E-02	1.36E-02	3.02E-01	9.76E-02
Ice Breaker 2	1.87E-01	6.06E-02	4.00E-02	1.32E-02	1.61E-01	5.18E-02	9.29E-03	3.01E-03	3.24E-04	1.05E-04	1.71E-02	5.53E-03	2.02E-01	6.52E-02	4.21E-02	1.36E-02	3.02E-01	9.76E-02
Oil Spill Response Vessel 1 (Dedicated OSRV)	4.37E-02	1.10E-02	5.30E-03	1.34E-03	4.42E-02	1.15E-02	2.21E-03	5.60E-04	8.26E-05	2.10E-05	4.50E-03	1.15E-03	5.15E-02	1.37E-02	1.11E-02	2.83E-03	7.69E-02	1.96E-02
Oil Spill Response Vessel 2	4.37E-02	1.05E-03	5.30E-03	1.28E-04	4.42E-02	1.04E-03	2.21E-03	5.33E-05	8.26E-05	1.98E-06	4.50E-03	1.08E-04	5.15E-02	1.20E-03	1.11E-02	2.66E-04	7.69E-02	1.84E-03
Anchor Handling Supply Tug (AHST)	4.24E-02	1.12E-03	5.14E-03	1.36E-04	4.27E-02	1.10E-03	2.15E-03	5.67E-05	8.01E-05	2.10E-06	4.37E-03	1.15E-04	4.97E-02	1.26E-03	1.08E-02	2.83E-04	7.46E-02	1.96E-03
Offshore Supply Vessels (OSV1 & OSV2)	5.80E-02	8.26E-03	7.04E-03	1.00E-03	5.79E-02	8.24E-03	2.94E-03	4.18E-04	1.09E-04	1.56E-05	5.96E-03	8.48E-04	6.70E-02	9.54E-03	1.47E-02	2.09E-03	1.02E-01	1.45E-02
34' boom work boats - 4	2.43E-02	5.84E-04	2.93E-03	7.04E-05	2.96E-02	7.10E-04	1.24E-03	2.98E-05	4.80E-05	1.15E-06	2.62E-03	6.28E-05	3.74E-02	8.98E-04	6.46E-03	1.55E-04	4.47E-02	1.07E-03
Marine Research Vessel	6.73E-03	2.02E-03	8.16E-04	2.45E-04	6.94E-03	2.08E-03	3.41E-04	1.02E-04	1.28E-05	3.83E-06	6.96E-04	2.09E-04	8.16E-03	2.45E-03	1.72E-03	5.15E-04	1.19E-02	3.57E-03
Spill Storage Tanker	6.16E-02	1.14E-03	4.11E-02	9.45E-04	2.27E-02	2.16E-04	2.80E-03	4.99E-05	6.55E-05	9.33E-07	2.54E-03	2.62E-05	6.34E-02	1.15E-03	6.01E-03	5.82E-05	6.10E-02	8.70E-04
All Vessels Fuel Tanks	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.25E-09	1.50E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.33E-09	2.00E-05	0.00E+00	0.00E+00	2.08E-09	5.00E-06	0.00E+00	0.00E+00

Source Description	Naphthalene		Toluene		Xylenes		o-xylene		m-xylene		Arsenic Compounds		Beryllium Compounds		Cadmium Compounds		Chromium Compounds	
	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr
Drill Rig Equipment	3.86E-02	3.07E-02	4.35E-02	1.62E-02	3.00E-02	1.11E-02	2.38E-02	8.98E-03	2.46E-02	9.44E-03	2.45E-03	1.44E-03	2.10E-05	2.52E-05	3.23E-03	2.47E-03	2.06E-03	1.81E-03
Ice Breaker 1	4.73E-02	1.56E-02	5.85E-02	1.88E-02	4.02E-02	1.29E-02	3.27E-02	1.06E-02	3.38E-02	1.09E-02	2.91E-03	9.47E-04	2.22E-05	7.49E-06	3.32E-03	1.09E-03	1.90E-03	6.26E-04
Ice Breaker 2	4.73E-02	1.56E-02	5.85E-02	1.88E-02	4.02E-02	1.29E-02	3.27E-02	1.06E-02	3.38E-02	1.09E-02	2.91E-03	9.47E-04	2.22E-05	7.49E-06	3.32E-03	1.09E-03	1.90E-03	6.26E-04
Oil Spill Response Vessel 1 (Dedicated OSRV)	6.56E-03	1.59E-03	1.68E-02	4.52E-03	1.16E-02	3.12E-03	8.63E-03	2.20E-03	8.92E-03	2.27E-03	6.61E-04	1.68E-04	0.00E+00	0.00E+00	6.20E-04	1.58E-04	2.89E-04	7.36E-05
Oil Spill Response Vessel 2	6.56E-03	1.63E-04	1.68E-02	3.88E-04	1.16E-02	2.67E-04	8.63E-03	2.07E-04	8.92E-03	2.14E-04	6.61E-04	1.58E-05	0.00E+00	0.00E+00	6.20E-04	1.48E-05	2.89E-04	6.93E-06
Anchor Handling Supply Tug (AHST)	6.40E-03	1.75E-04	1.62E-02	4.06E-04	1.12E-02	2.79E-04	8.37E-03	2.20E-04	8.65E-03	2.27E-04	6.41E-04	1.68E-05	0.00E+00	0.00E+00	6.01E-04	1.58E-05	2.80E-04	7.36E-06
Offshore Supply Vessels (OSV1 & OSV2)	8.86E-03	1.26E-03	2.18E-02	3.11E-03	1.50E-02	2.14E-03	1.14E-02	1.63E-03	1.18E-02	1.68E-03	8.75E-04	1.25E-04	0.00E+00	0.00E+00	8.21E-04	1.17E-04	3.83E-04	5.45E-05
34' boom work boats - 4	2.69E-03	6.45E-05	1.30E-02	3.11E-04	9.04E-03	2.17E-04	5.02E-03	1.20E-04	5.18E-03	1.24E-04	3.84E-04	9.22E-06	0.00E+00	0.00E+00	3.60E-04	8.64E-06	1.68E-04	4.03E-06
Marine Research Vessel	9.84E-04	2.95E-04	2.69E-03	8.07E-04	1.86E-03	5.57E-04	1.33E-03	4.00E-04	1.38E-03	4.14E-04	1.02E-04	3.07E-05	0.00E+00	0.00E+00	9.58E-05	2.87E-05	4.47E-05	1.34E-05
Spill Storage Tanker	4.38E-02	9.97E-04	8.27E-03	7.99E-05	5.73E-03	5.61E-05	4.56E-03	4.28E-05	4.72E-03	4.42E-05	4.07E-04	4.66E-06	4.33E-05	1.04E-06	3.71E-04	4.11E-06	1.96E-04	2.47E-06
All Vessels Fuel Tanks	0.00E+00	0.00E+00	6.67E-08	1.60E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.38E-07	3.30E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Source Description	Lead Compounds		Manganese Compounds		Mercury Compounds		Nickel Compounds		Polycyclic Organic Matter		Selenium Compounds		Hourly (lb/hr)	Annual (tons/yr)
	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr		
Drill Rig Equipment	3.89E-02	3.89E-02	3.58E-03	1.39E-03	3.07E-03	7.60E-03	5.54E-03	3.00E-03	3.16E-02	1.23E-02	2.61E-03	1.07E-03	**9.70E-01**	**4.71E-01**
Ice Breaker 1	3.17E-02	1.05E-02	4.85E-03	1.57E-03	3.64E-03	2.91E-03	6.81E-03	2.21E-03	4.39E-02	1.42E-02	3.55E-03	1.15E-03	**1.28E+00**	**4.15E-01**
Ice Breaker 2	3.17E-02	1.05E-02	4.85E-03	1.57E-03	3.64E-03	2.91E-03	6.81E-03	2.21E-03	4.39E-02	1.42E-02	3.55E-03	1.15E-03	**1.28E+00**	**4.15E-01**
Oil Spill Response Vessel 1 (Dedicated OSRV)	3.43E-03	8.72E-04	1.28E-03	3.26E-04	8.26E-04	2.10E-04	1.61E-03	4.10E-04	1.10E-02	2.73E-03	9.09E-04	2.31E-04	**3.13E-01**	**8.06E-02**
Oil Spill Response Vessel 2	3.43E-03	8.22E-05	1.28E-03	3.07E-05	8.26E-04	1.98E-05	1.61E-03	3.86E-05	1.10E-02	2.70E-04	9.09E-04	2.18E-05	**3.13E-01**	**7.43E-03**
Anchor Handling Supply Tug (AHST)	3.32E-03	8.73E-05	1.24E-03	3.26E-05	8.01E-04	2.10E-05	1.56E-03	4.10E-05	1.08E-02	2.89E-04	8.81E-04	2.31E-05	**3.03E-01**	**7.87E-03**
Offshore Supply Vessels (OSV1 & OSV2)	4.54E-03	6.46E-04	1.70E-03	2.41E-04	1.09E-03	1.56E-04	2.13E-03	3.04E-04	1.48E-02	2.11E-03	1.20E-03	1.71E-04	**4.12E-01**	**5.86E-02**
34' boom work boats - 4	1.99E-03	4.78E-05	7.44E-04	1.79E-05	4.80E-04	1.15E-05	9.36E-04	2.25E-05	5.33E-03	1.28E-04	5.28E-04	1.27E-05	**1.95E-01**	**4.68E-03**
Marine Research Vessel	5.30E-04	1.59E-04	1.98E-04	5.94E-05	1.28E-04	3.83E-05	2.49E-04	7.47E-05	1.68E-03	5.04E-04	1.41E-04	4.22E-05	**4.87E-02**	**1.46E-02**
Spill Storage Tanker	1.94E-03	2.01E-05	6.77E-04	6.35E-06	4.80E-04	5.13E-06	8.95E-04	9.02E-06	6.48E-03	6.60E-05	6.97E-04	9.70E-06	**3.41E-01**	**5.80E-03**
All Vessels Fuel Tanks	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.54E-08	2.05E-04	0.00E+00	0.00E+00	**3.06E-07**	**7.35E-04**

TOTALS	**5.45**	**1.48**

Devil's Paw Prospect Proposed Allowable Emissions
HAP Emissions Inventory - Option 2 - Ware Vessel (w/ backup OSV)

Source Description	Potential Emissions Totals (tpy)																	
	Acet-aldehyde		Acrolein		Benzene		1,3-Butadiene		Chloro-benzene		Ethyl-benzene		Form-aldehyde		Hexane		Hydrochloric acid	
	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr
Drill Rig Equipment	1.40E-01	6.82E-02	3.33E-02	2.79E-02	1.18E-01	4.43E-02	6.92E-03	3.26E-03	2.38E-04	9.86E-05	1.25E-02	4.79E-03	1.53E-01	7.22E-02	3.07E-02	1.16E-02	2.22E-01	9.19E-02
Ice Breaker 1	1.87E-01	6.06E-02	4.00E-02	1.32E-02	1.61E-01	5.18E-02	9.29E-03	3.01E-03	3.24E-04	1.05E-04	1.71E-02	5.53E-03	2.02E-01	6.52E-02	4.21E-02	1.36E-02	3.02E-01	9.76E-02
Ice Breaker 2	1.87E-01	6.06E-02	4.00E-02	1.32E-02	1.61E-01	5.18E-02	9.29E-03	3.01E-03	3.24E-04	1.05E-04	1.71E-02	5.53E-03	2.02E-01	6.52E-02	4.21E-02	1.36E-02	3.02E-01	9.76E-02
Oil Spill Response Vessel 1 (Dedicated OSRV)	4.37E-02	1.10E-02	5.30E-03	1.34E-03	4.42E-02	1.15E-02	2.21E-03	5.60E-04	8.26E-05	2.10E-05	4.50E-03	1.15E-03	5.15E-02	1.37E-02	1.11E-02	2.83E-03	7.69E-02	1.96E-02
Oil Spill Response Vessel 2	4.37E-02	1.05E-03	5.30E-03	1.28E-04	4.42E-02	1.04E-03	2.21E-03	5.33E-05	8.26E-05	1.98E-06	4.50E-03	1.08E-04	5.15E-02	1.20E-03	1.11E-02	2.66E-04	7.69E-02	1.84E-03
Anchor Handling Supply Tug (AHST)	4.24E-02	1.12E-03	5.14E-03	1.36E-04	4.27E-02	1.10E-03	2.15E-03	5.67E-05	8.01E-05	2.10E-06	4.37E-03	1.15E-04	4.97E-02	1.26E-03	1.08E-02	2.83E-04	7.46E-02	1.96E-03
Ware Vessel (WV) w/ backup OSV	4.74E-02	7.65E-03	5.76E-03	9.29E-04	4.58E-02	7.33E-03	2.40E-03	3.87E-04	8.88E-05	1.43E-05	4.84E-03	7.79E-04	5.20E-02	8.30E-03	1.19E-02	1.92E-03	8.27E-02	1.33E-02
34' boom work boats - 4	2.43E-02	5.84E-04	2.93E-03	7.04E-05	2.96E-02	7.10E-04	1.24E-03	2.98E-05	4.80E-05	1.15E-06	2.62E-03	6.28E-05	3.74E-02	8.98E-04	6.46E-03	1.55E-04	4.47E-02	1.07E-03
Marine Research Vessel	6.73E-03	2.02E-03	8.16E-04	2.45E-04	6.94E-03	2.08E-03	3.41E-04	1.02E-04	1.28E-05	3.83E-06	6.96E-04	2.09E-04	8.16E-03	2.45E-03	1.72E-03	5.15E-04	1.19E-02	3.57E-03
Spill Storage Tanker	6.16E-02	1.14E-03	4.11E-02	9.45E-04	2.27E-02	2.16E-04	2.80E-03	4.99E-05	6.55E-05	9.33E-07	2.54E-03	2.62E-05	6.34E-02	1.15E-03	6.01E-03	5.82E-05	6.10E-02	8.70E-04
All Vessels Fuel Tanks	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.25E-09	1.50E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.33E-09	2.00E-05	0.00E+00	0.00E+00	2.08E-09	5.00E-06	0.00E+00	0.00E+00

Source Description																		
	Naphthalene		Toluene		Xylenes		o-xylene		m-xylene		Arsenic Compounds		Beryllium Compounds		Cadmium Compounds		Chromium Compounds	
	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr
Drill Rig Equipment	3.86E-02	3.07E-02	4.35E-02	1.62E-02	3.00E-02	1.11E-02	2.38E-02	8.98E-03	2.46E-02	9.44E-03	2.45E-03	1.44E-03	2.10E-05	2.52E-05	3.23E-03	2.47E-03	2.06E-03	1.81E-03
Ice Breaker 1	4.73E-02	1.56E-02	5.85E-02	1.88E-02	4.02E-02	1.29E-02	3.27E-02	1.06E-02	3.38E-02	1.09E-02	2.91E-03	9.47E-04	2.22E-05	7.49E-06	3.32E-03	1.09E-03	1.90E-03	6.26E-04
Ice Breaker 2	4.73E-02	1.56E-02	5.85E-02	1.88E-02	4.02E-02	1.29E-02	3.27E-02	1.06E-02	3.38E-02	1.09E-02	2.91E-03	9.47E-04	2.22E-05	7.49E-06	3.32E-03	1.09E-03	1.90E-03	6.26E-04
Oil Spill Response Vessel 1 (Dedicated OSRV)	6.56E-03	1.59E-03	1.68E-02	4.52E-03	1.16E-02	3.12E-03	8.63E-03	2.20E-03	8.92E-03	2.27E-03	6.61E-04	1.68E-04	0.00E+00	0.00E+00	6.20E-04	1.58E-04	2.89E-04	7.36E-05
Oil Spill Response Vessel 2	6.56E-03	1.63E-04	1.68E-02	3.88E-04	1.16E-02	2.67E-04	8.63E-03	2.07E-04	8.92E-03	2.14E-04	6.61E-04	1.58E-05	0.00E+00	0.00E+00	6.20E-04	1.48E-05	2.89E-04	6.93E-06
Anchor Handling Supply Tug (AHST)	6.40E-03	1.75E-04	1.62E-02	4.06E-04	1.12E-02	2.79E-04	8.37E-03	2.20E-04	8.65E-03	2.27E-04	6.41E-04	1.68E-05	0.00E+00	0.00E+00	6.01E-04	1.58E-05	2.80E-04	7.36E-06
Ware Vessel (WV) w/ backup OSV	7.55E-03	1.23E-03	1.67E-02	2.66E-03	1.15E-02	1.82E-03	9.28E-03	1.49E-03	9.59E-03	1.54E-03	7.10E-04	1.14E-04	0.00E+00	0.00E+00	6.66E-04	1.07E-04	3.11E-04	5.00E-05
34' boom work boats - 4	2.69E-03	6.45E-05	1.30E-02	3.11E-04	9.04E-03	2.17E-04	5.02E-03	1.20E-04	5.18E-03	1.24E-04	3.84E-04	9.22E-06	0.00E+00	0.00E+00	3.60E-04	8.64E-06	1.68E-04	4.03E-06
Marine Research Vessel	9.84E-04	2.95E-04	2.69E-03	8.07E-04	1.86E-03	5.57E-04	1.33E-03	4.00E-04	1.38E-03	4.14E-04	1.02E-04	3.07E-05	0.00E+00	0.00E+00	9.58E-05	2.87E-05	4.47E-05	1.34E-05
Spill Storage Tanker	4.38E-02	9.97E-04	8.27E-03	7.99E-05	5.73E-03	5.61E-05	4.56E-03	4.28E-05	4.72E-03	4.42E-05	4.07E-04	4.66E-06	4.33E-05	1.04E-06	3.71E-04	4.11E-06	1.96E-04	2.47E-06
All Vessels Fuel Tanks	0.00E+00	0.00E+00	6.67E-08	1.60E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.38E-07	3.30E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Source Description														
	Lead Compounds		Manganese Compounds		Mercury Compounds		Nickel Compounds		Polycyclic Organic Matter		Selenium Compounds		Hourly (lb/hr)	Annual (tons/yr)
	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr		
Drill Rig Equipment	3.89E-02	3.89E-02	3.58E-03	1.39E-03	3.07E-03	7.60E-03	5.54E-03	3.00E-03	3.16E-02	1.23E-02	2.61E-03	1.07E-03	**9.70E-01**	**4.71E-01**
Ice Breaker 1	3.17E-02	1.05E-02	4.85E-03	1.57E-03	3.64E-03	2.91E-03	6.81E-03	2.21E-03	4.39E-02	1.42E-02	3.55E-03	1.15E-03	**1.28E+00**	**4.15E-01**
Ice Breaker 2	3.17E-02	1.05E-02	4.85E-03	1.57E-03	3.64E-03	2.91E-03	6.81E-03	2.21E-03	4.39E-02	1.42E-02	3.55E-03	1.15E-03	**1.28E+00**	**4.15E-01**
Oil Spill Response Vessel 1 (Dedicated OSRV)	3.43E-03	8.72E-04	1.28E-03	3.26E-04	8.26E-04	2.10E-04	1.61E-03	4.10E-04	1.10E-02	2.73E-03	9.09E-04	2.31E-04	**3.13E-01**	**8.06E-02**
Oil Spill Response Vessel 2	3.43E-03	8.22E-05	1.28E-03	3.07E-05	8.26E-04	1.98E-05	1.61E-03	3.86E-05	1.10E-02	2.70E-04	9.09E-04	2.18E-05	**3.13E-01**	**7.43E-03**
Anchor Handling Supply Tug (AHST)	3.32E-03	8.73E-05	1.24E-03	3.26E-05	8.01E-04	2.10E-05	1.56E-03	4.10E-05	1.08E-02	2.89E-04	8.81E-04	2.31E-05	**3.03E-01**	**7.87E-03**
Ware Vessel (WV) w/ backup OSV	3.69E-03	5.93E-04	1.38E-03	2.22E-04	8.88E-04	1.43E-04	1.73E-03	2.79E-04	1.24E-02	2.00E-03	9.77E-04	1.57E-04	**3.30E-01**	**5.30E-02**
34' boom work boats - 4	1.99E-03	4.78E-05	7.44E-04	1.79E-05	4.80E-04	1.15E-05	9.36E-04	2.25E-05	5.33E-03	1.28E-04	5.28E-04	1.27E-05	**1.95E-01**	**4.68E-03**
Marine Research Vessel	5.30E-04	1.59E-04	1.98E-04	5.94E-05	1.28E-04	3.83E-05	2.49E-04	7.47E-05	1.68E-03	5.04E-04	1.41E-04	4.22E-05	**4.87E-02**	**1.46E-02**
Spill Storage Tanker	1.94E-03	2.01E-05	6.77E-04	6.35E-06	4.80E-04	5.13E-06	8.95E-04	9.02E-06	6.48E-03	6.60E-05	6.97E-04	9.70E-06	**3.41E-01**	**5.80E-03**
All Vessels Fuel Tanks	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.54E-08	2.05E-04	0.00E+00	0.00E+00	**3.06E-07**	**7.35E-04**

TOTALS	**5.36**	**1.47**

Projected Maximum Emissions Inventories

Devil's Paw Prospect Projected Maximum Emissions

Emissions Unit Inventory

Emissions Unit			Classification /	Fuel	Allowable	Maximum	Maximum	Form EUD	
	Description	Type	Mode	Type	Operation	Fuel Usage	Output Capacity	Maximum Heat Input	Maximum Annual Fuel usage
								*(fuel usage x fuel heat content)	
Drill Rig Equipment									
	Main Drill Rig Engine 1	Wärtsilä 8L26A2	Non-propulsion	ULSD	1200 hr/yr	205.8 g fuel/kWh	2480 kW	22 MMBtu/hr	200153 gal/yr
	Main Drill Rig Engine 2	Wärtsilä 8L26A2	Non-propulsion	ULSD	1200 hr/yr	205.8 g fuel/kWh	2480 kW	22 MMBtu/hr	200153 gal/yr
	Main Drill Rig Engine 3	Wärtsilä 8L26A3	Non-propulsion	ULSD	1200 hr/yr	205.8 g fuel/kWh	2480 kW	22 MMBtu/hr	200153 gal/yr
	Main Drill Rig Engine 4	Wärtsilä 8L26A4	Non-propulsion	ULSD	1200 hr/yr	205.8 g fuel/kWh	2480 kW	22 MMBtu/hr	200153 gal/yr
	Emergency Back-up Engine	Caterpillar Diesel 3508 B	Non-propulsion	ULSD	75 hr/yr	205 g fuel/kWh	968 kW	8.6 MMBtu/hr	4864 gal/yr
	Cement Engine 1	Caterpillar 15 DITA	Non-propulsion	ULSD	131 hr/yr	29 gal/hr	403 kW	3.8 MMBtu/hr	3799 gal/yr
	Cement Engine 2	Caterpillar 15 DITA	Non-propulsion	ULSD	131 hr/yr	29 gal/hr	403 kW	3.8 MMBtu/hr	3799 gal/yr
	Logging Winch	Caterpillar C7 Acert Engine	Non-propulsion	ULSD	273 hr/yr	13 gal/hr	187 kW	1.8 MMBtu/hr	3626 gal/yr
	Heater 1	To be determined	Non-propulsion	ULSD	2400 hr/yr	26 gal/hr	3.5 MMBtu/hr [a]	3.5 MMBtu/hr	63590 gal/yr
	Heater 2	To be determined	Non-propulsion	ULSD	2400 hr/yr	26 gal/hr	3.5 MMBtu/hr [a]	3.5 MMBtu/hr	63590 gal/yr
	Incinerator	To be determined	Non-propulsion	Waste	65 tons/yr	276 lbs/hr	N A	1.7 MMBtu/hr	65 tons/yr
	Fuel Tank 1	71,000 gallons	Non-propulsion	ULSD	2400 hrs/yr	471941 gal/yr*	N A	N A	471941 gal/yr*
	Fuel Tank 2	71,000 gallons	Non-propulsion	ULSD	2400 hrs/yr	471941 gal/yr*	N A	N A	471941 gal/yr*
	Mud Degassing	Water Based Mud & Cuttings	Non-propulsion	Well Gas	100 days/yr	N A	20000 scf/day	N A	N A
							[a] Heat input rate		*Max throughput
Ice Breaker 1									
	Main Engine 1	Wärtsilä Vasa 16V32/6000kW	Propulsion	ULSD	515 hr/yr	426 gal/hr	8046 bhp	56.3 MMBtu/hr	219581 galyr
	Main Engine 2	Wärtsilä Vasa 16V32/6000kW	Propulsion	ULSD	515 hr/yr	426 gal/hr	8046 bhp	56.3 MMBtu/hr	219581 galyr
	Main Engine 3	Wärtsilä Vasa 12V32/4500 kW	Propulsion	ULSD	515 hr/yr	320 gal/hr	6035 bhp	42.2 MMBtu/hr	164700 galyr
	Main Engine 4	Wärtsilä Vasa 12V32/4500 kW	Propulsion	ULSD	515 hr/yr	320 gal/hr	6035 bhp	42.2 MMBtu/hr	164700 galyr
	Harbor Generator	Wärtsilä Vasa 4R22 - 710kW	Propulsion	ULSD	35 hr/yr	50 gal/hr	952 bhp	6.7 MMBtu/hr	1765 galyr
	Emergency Generator	Caterpillar 3412 - 300kW	Propulsion	ULSD	35 hr/yr	21 gal/hr	402 bhp	2.8 MMBtu/hr	746 galyr
	Boiler 1	Aquamaster Rauma Unex BH-2000	Propulsion	ULSD	515 hr/yr	28 gal/hr	3.7 MMBtu/hr [a]	3.7 MMBtu/hr	14420 galyr
	Boiler 2	Aquamaster Rauma Unex BH-2000	Propulsion	ULSD	515 hr/yr	28 gal/hr	3.7 MMBtu/hr [a]	3.7 MMBtu/hr	14420 galyr
	Incinerator	Aquamaster Rauma Unex BH-2000	Propulsion	Waste	515 hr/yr	175 lb/hr	N A	1.1 MMBtu/hr	90125 lb/yr
							[a] Heat input rate		
Ice Breaker 2									
	Main Engine 1	Wärtsilä Vasa 16V32/6000kW	Propulsion	ULSD	515 hr/yr	426 gal/hr	8046 bhp	56.3 MMBtu/hr	219581 gal/yr
	Main Engine 2	Wärtsilä Vasa 16V32/6000kW	Propulsion	ULSD	515 hr/yr	426 gal/hr	8046 bhp	56.3 MMBtu/hr	219581 gal/yr
	Main Engine 3	Wärtsilä Vasa 12V32/4500 kW	Propulsion	ULSD	515 hr/yr	320 gal/hr	6035 bhp	42.2 MMBtu/hr	164700 gal/yr
	Main Engine 4	Wärtsilä Vasa 12V32/4500 kW	Propulsion	ULSD	515 hr/yr	320 gal/hr	6035 bhp	42.2 MMBtu/hr	164700 gal/yr
	Harbor Generator	Wärtsilä Vasa 4R22 - 710kW	Propulsion	ULSD	35 hr/yr	50 gal/hr	952 bhp	6.7 MMBtu/hr	1765 gal/yr
	Emergency Generator	Caterpillar 3412 - 300kW	Propulsion	ULSD	35 hr/yr	21 gal/hr	402 bhp	2.8 MMBtu/hr	746 gal/yr
	Boiler 1	Aquamaster Rauma Unex BH-2000	Propulsion	ULSD	515 hr/yr	28 gal/hr	3.7 MMBtu/hr [a]	3.7 MMBtu/hr	14420 gal/yr
	Boiler 2	Aquamaster Rauma Unex BH-2000	Propulsion	ULSD	515 hr/yr	28 gal/hr	3.7 MMBtu/hr [a]	3.7 MMBtu/hr	14420 gal/yr
	Incinerator	Aquamaster Rauma Unex BH-2000	Propulsion	Waste	515 hr/yr	175 lb/hr	N A	1.1 MMBtu/hr	90125 lb/yr
							[a] Heat input rate		
Oil Spill Response Vessel 1 (Dedicated OSRV)			**Operates continuously within 25 Mile Zone = 1600 hours anchored and 800 hours cruising**						
	Main Engine 1	Caterpillar 3516C	Propulsion-Cruising	ULSD	800 hr/yr	75 gal/hr	3000 bhp	9.9 MMBtu/hr	60000 gal/yr
	Main Engine 2	Caterpillar 3516C	Propulsion-Cruising	ULSD	800 hr/yr	75 gal/hr	3000 bhp	9.9 MMBtu/hr	60000 gal/yr
	Thruster Engine 1	Caterpillar C32	Refueling	ULSD	12 hr/yr	58 gal/hr	950 hp	7.7 MMBtu/hr	696 gal/yr
	Thruster Engine 2	Caterpillar C32	Refueling	ULSD	12 hr/yr	58 gal/hr	950 hp	7.7 MMBtu/hr	696 gal/yr
	Thruster Engine 3	Caterpillar C32	Refueling	ULSD	12 hr/yr	58 gal/hr	950 hp	7.7 MMBtu/hr	696 gal/yr
	Generator 1	Caterpillar C18	Propulsion-Anchored	ULSD	2400 hr/yr	27 gal/hr	400 kW	3.6 MMBtu/hr	64800 gal/yr
	Generator 2	Caterpillar C18	Propulsion-Anchored	ULSD	300 hr/yr	27 gal/hr	400 kW	3.6 MMBtu/hr	8100 gal/yr
	Generator 3	Caterpillar C18	Propulsion-Anchored	ULSD	0 hr/yr	27 gal/hr	400 kW	3.6 MMBtu/hr	0 gal/yr
	Emergency Generator	Caterpillar C4.4	Propulsion-Anchored	ULSD	30 hr/yr	8 gal/hr	99 kW	1.1 MMBtu/hr	240 gal/yr

Devil's Paw Prospect Projected Maximum Emissions

Emissions Unit Inventory

Emissions Unit			Classification /	Fuel	Allowable	Maximum	Maximum	Form EUD	
	Description	Type	Mode	Type	Operation	Fuel Usage	Output Capacity	Maximum Heat Input	Maximum Annual Fuel usage
								*(fuel usage x fuel heat content)	
Oil Spill Response Vessel 2			**Only operates during spill exercises 48 hrs + 12 hrs travel time**						
	Main Engine 1	Caterpillar 3516C	Propulsion-Cruising	ULSD	60 hr/yr	75 gal/hr	3000 bhp	9.9 MMBtu/hr	4500 gal/yr
	Main Engine 2	Caterpillar 3516C	Propulsion-Cruising	ULSD	60 hr/yr	75 gal/hr	3000 bhp	9.9 MMBtu/hr	4500 gal/yr
	Thruster Engine 1	Caterpillar C32	Propulsion-idling	ULSD	48 hr/yr	58 gal/hr	950 hp	7.7 MMBtu/hr	2784 gal/yr
	Thruster Engine 2	Caterpillar C32	Propulsion-idling	ULSD	48 hr/yr	58 gal/hr	950 hp	7.7 MMBtu/hr	2784 gal/yr
	Thruster Engine 3	Caterpillar C32	Propulsion-idling	ULSD	48 hr/yr	58 gal/hr	950 hp	7.7 MMBtu/hr	2784 gal/yr
	Generator 1	Caterpillar C18	Propulsion-Anchored & Cruising	ULSD	60 hr/yr	27 gal/hr	400 kW	3.6 MMBtu/hr	1620 gal/yr
	Generator 2	Caterpillar C18	Propulsion- Anchored	ULSD	30 hr/yr	27 gal/hr	400 kW	3.6 MMBtu/hr	810 gal/yr
	Generator 3	Caterpillar C18	Propulsion-Anchored	ULSD	0 hr/yr	27 gal/hr	400 kW	3.6 MMBtu/hr	0 gal/yr
	Emergency Generator	Caterpillar C4.4	Propulsion- Anchored	ULSD	2 hr/yr	8 gal/hr	99 kW	1.1 MMBtu/hr	16 gal/yr
Anchor Handling Supply Tug (AHST)			**20 hours for 3-movement events**						
	Main Engine 1	Cat 3608	Propulsion	ULSD	60 hr/yr	160 gal/hr	2529 kW	21.1 MMBtu/hr	9600 gal/yr
	Main Engine 2	Cat 3608	Propulsion	ULSD	60 hr/yr	160 gal/hr	2529 kW	21.1 MMBtu/hr	9600 gal/yr
	Generator 1	Cat 3406	Propulsion	ULSD	60 hr/yr	25 gal/hr	380 kW	3.3 MMBtu/hr	1500 gal/yr
	Generator 2	Cat 3406	Propulsion	ULSD	12 hr/yr	25 gal/hr	380 kW	3.3 MMBtu/hr	300 gal/yr
	Generator 3	Cat 3406	Propulsion	ULSD	0 hr/yr	25 gal/hr	380 kW	3.3 MMBtu/hr	0 gal/yr
	Emergency Generator	Cat 3306	Propulsion	ULSD	6 hr/yr	6 gal/hr	170 kW	0.7 MMBtu/hr	34 gal/yr
Offshore Supply Vessels (OSV1 & OSV2)			**Up to 60 trips per year (6 hrs transit and 6 hrs DP for offloading per trip)**						
	Main Engine 1	Caterpillar 3516C	Propulsion -cruising	ULSD	360 hr/yr	75 gal/hr	3000 bhp	9.9 MMBtu/hr	27000 gal/yr
	Main Engine 1	Caterpillar 3516C	Propulsion-idling	ULSD	100 hr/yr	67 gal/hr	3000 bhp	8.9 MMBtu/hr	6700 gal/yr
	Main Engine 2	Caterpillar 3516C	Propulsion -cruising	ULSD	360 hr/yr	75 gal/hr	3000 bhp	9.9 MMBtu/hr	27000 gal/yr
	Main Engine 2	Caterpillar 3516C	Propulsion-idling	ULSD	100 hr/yr	67 gal/hr	3000 bhp	8.9 MMBtu/hr	6700 gal/yr
	Thruster Engine 1	Caterpillar C32	dynamic positioning	ULSD	360 hr/yr	58 gal/hr	950 bhp	7.7 MMBtu/hr	20880 gal/yr
	Thruster Engine 2	Caterpillar C32	dynamic positioning	ULSD	360 hr/yr	58 gal/hr	950 bhp	7.7 MMBtu/hr	20880 gal/yr
	Thruster Engine 3	Caterpillar C32	dynamic positioning	ULSD	360 hr/yr	58 gal/hr	950 bhp	7.7 MMBtu/hr	20880 gal/yr
	Generator	Caterpillar C18	Propulsion	ULSD	820 hr/yr	27 gal/hr	400 kW	3.6 MMBtu/hr	22140 gal/yr
	Generator	Caterpillar C18	Propulsion	ULSD	120 hr/yr	27 gal/hr	400 kW	3.6 MMBtu/hr	3240 gal/yr
	Generator	Caterpillar C18	Propulsion	ULSD	0 hr/yr	27 gal/hr	400 kW	3.6 MMBtu/hr	0 gal/yr
	Emergency Generator	Caterpillar C4.4	Propulsion	ULSD	30 hr/yr	8 gal/hr	99 kW	1.1 MMBtu/hr	240 gal/yr
Ware Vessel (WV) w/ OSV backup			**Up to 50 trips per year (6 hrs transit and 6 hrs DP for offloading per trip)**						
	Main Engine 1	Caterpillar 3516C	Propulsion Cruising	ULSD	300 hr/yr	87 gal/hr	3200 hp	11.5 MMBtu/hr	26100 gal/yr
	Main Engine 2	Caterpillar 3516C	Propulsion-Cruising	ULSD	300 hr/yr	87 gal/hr	3200 hp	11.5 MMBtu/hr	26100 gal/yr
	Main Engine 3	Caterpillar 3516C	DP and Idling	ULSD	400 hr/yr	81 gal/hr	3200 hp	10.7 MMBtu/hr	32400 gal/yr
	Main Engine 4	Caterpillar 3516C	DP and Idling	ULSD	400 hr/yr	81 gal/hr	3200 hp	10.7 MMBtu/hr	32400 gal/yr
	Generator 1	Caterpillar C18	Propulsion	ULSD	700 hr/yr	32 gal/hr	500 kW	4.2 MMBtu/hr	22400 gal/yr
	Generator 2	Caterpillar C18	Propulsion	ULSD	100 hr/yr	32 gal/hr	500 kW	4.2 MMBtu/hr	3200 gal/yr
	Generator 3	Caterpillar C18	Propulsion	ULSD	0 hr/yr	32 gal/hr	500 kW	4.2 MMBtu/hr	0 gal/yr
	Emergency Generator	Caterpillar 3306	Propulsion	ULSD	30 hr/yr	12 gal/hr	170 kW	1.6 MMBtu/hr	360 gal/yr
34' boom work boats - 4			**48 hours for spill exercises**						
	WB-1 Propulsion Engine 1	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp	4.0 MMBtu/hr	1440 gal/yr
	WB-1 Propulsion Engine 2	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp	4.0 MMBtu/hr	1440 gal/yr
	WB-2 Propulsion Engine 1	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp	4.0 MMBtu/hr	1440 gal/yr
	WB-2 Propulsion Engine 2	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp	4.0 MMBtu/hr	1440 gal/yr
	WB-3 Propulsion Engine 1	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp	4.0 MMBtu/hr	1440 gal/yr
	WB-3 Propulsion Engine 2	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp	4.0 MMBtu/hr	1440 gal/yr
	WB-4 Propulsion Engine 1	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp	4.0 MMBtu/hr	1440 gal/yr
	WB-4 Propulsion Engine 2	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp	4.0 MMBtu/hr	1440 gal/yr

Devil's Paw Prospect Projected Maximum Emissions

Emissions Unit Inventory

Emissions Unit			Classification /	Fuel	Allowable	Maximum	Maximum	Form EUD	
	Description	Type	Mode	Type	Operation	Fuel Usage	Output Capacity	Maximum Heat Input	Maximum Annual Fuel usage
								*(fuel usage x fuel heat content)	
Marine Research Vessel			**600 hours per year**						
	Main Engine	Caterpillar	Propulsion	ULSD	600 hr/yr	45 gal/hr	850 hp	6.0 MMBtu/hr	27026 gal/yr
	Generator 1	Caterpillar	Propulsion	ULSD	600 hr/yr	10 gal/hr	135 kW	1.3 MMBtu/hr	5754 gal/yr
	Generator 2	Caterpillar	Propulsion	ULSD	600 hr/yr	6 gal/hr	90 kW	0.8 MMBtu/hr	3836 gal/yr
	Generator 3	Caterpillar	Propulsion	ULSD	600 hr/yr	3 gal/hr	40 kW	0.4 MMBtu/hr	1705 gal/yr
Spill Storage Tanker			**48 hours for spill exercises**						
	Main Engine 1	Panamax class sized	Propulsion	ULSD	12 hr/yr	89 gal/hr	1674 hp	11.7 MMBtu/hr	1064 gal/yr
	Main Engine 2	Panamax class sized	Propulsion	ULSD	12 hr/yr	89 gal/hr	1674 hp	11.7 MMBtu/hr	1064 gal/yr
	Generator 1	Panamax class sized	Propulsion	ULSD	48 hr/yr	41 gal/hr	576 kW	5.4 MMBtu/hr	1965 gal/yr
	Boiler 1	Panamax class sized	Propulsion	ULSD	48 hr/yr	109.2 gal/hr	14.4 MMBtu/hr	14.4 MMBtu/hr	5240 gal/yr
All Vessels Fuel Tanks									
	Fuel Tank	100,000 gallons	Propulsion	ULSD	2400 hr/yr	2193682 gal/yr*	N A	N A	2193682 gal/yr*

*Max throughput

Notes:

Seasonal drilling days= **100**

1 I kW = 1.3405 hp; 1 lb = 454 g; assumed break specific fuel consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1) and fuel heat content of 132,096 Btu/gal ULSD #1 (Tesoro/Kenai Refinery).
2 Assumed well gas heat content of 1,085 Btu/scf for test flare (email from Dan Lowe 1/7/09) and propane heat content of 2,516 Btu/scf for flare pilot & purge (National Propane Gas Association http://www.npga.org/i4a/pages/index.cfm?pageid=633).
3 ULSD #1 has a density of 0.8094 kg/L (Tesoro/Kenai Refinery); so assume 6.74 lbs/ gal diesel
4 Incinerator waste fuel heat content is assumed 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17).
5 Fuel Usage is back calculated from Max Output capacity when not available from manufacturer specifications (see calculations below).
6 Incinerators will burn ULSD for ignition purposes only.
7 An equivalent of 2 main drilling engines at 100% load will operate continuously for up to 100 days per season (4800 hrs).
8 Mud degassing emission rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977)
9 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 6 times per year).
10 Drill Rig incinerator operating hours calculated in the following way: (840 cubic feet of waste/week)/(27 cubic feet/cubic yard)*(14 weeks/season)*(300 lbs/cubic yard (EPA factor))/(2,000 lb/ton) = 65 tons/season

Calculations:

Max Fuel Usage (gal/hr) = Max output Capacity (hp)*(7,000 Btu/hp-h)/(132096 Btu/gal)
Max Fuel Usage (gal/hr) = Max output Capacity (kW)*(1.3405 hp/kW)*(7,000 Btu/hp-h)/(132096 Btu/gal)
Max Heat Input (MMBtu/hr) = Max output Capacity (kW)*Max fuel usage (g fuel/kWh)/(1000 g/Kg)/(0.8094 Kg/L)/(3.78 L/gal)*(132096 Btu/gal)/(1000000 Btu/MMBtu)
Max Heat Input (MMBtu/hr) = Max fuel usage (gal/hr)*(132096 Btu/gal)/1000000
Max Heat Input (MMBtu/hr) = Max fuel usage (lb/hr)*(6203 Btu/lb)/1000000

Devil's Paw Prospect Projected Maximum Emissions

Emissions Unit Inventory - Annual PTE Options Summary

	Option Description	Potential Emissions Totals (tpy)								
		NO_x	CO	$PM_{10}/PM_{2.5}$	PM	VOC	SO_2	H2S	Pb	H2SO4
1	Ware Barge/Tug and 2 OSVs	194.5	145.5	11.6	19.1	22.3	0.5	0.02	0.02	0.03
2	Ware Vessel (w/ 2 backup OSVs)	191.8	144.7	11.5	19.0	22.2	0.5	0.02	0.02	0.03

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Option 1 - Ware Barge/Tug and 2 OSV's

Source Description	Potential Emissions Totals (tpy)								
	NO_X	CO	$PM_{10}/PM_{2.5}$	PM	VOC	SO_2	H2S	Pb	H2SO4
Drill Rig Equipment	28.85	44.98	3.57	5.83	10.11	1.8E-01	0.02	8.7E-03	0.01
Ice Breaker 1	35.45	40.22	3.09	5.27	4.83	1.4E-01	0.00	6.3E-03	0.01
Ice Breaker 2	35.45	40.22	3.09	5.28	4.83	1.4E-01	0.00	6.3E-03	0.01
Oil Spill Response Vessel 1 (Dedicated OSRV)	41.57	8.10	0.80	1.15	1.11	2.0E-02	0.00	3.7E-04	0.00
Oil Spill Response Vessel 2	4.19	1.02	0.08	0.13	0.11	2.0E-03	0.00	3.8E-05	0.00
Anchor Handling Supply Tug (AHST)	4.45	1.11	0.08	0.14	0.12	2.1E-03	0.00	4.0E-05	0.00
Offshore Supply Vessels (OSV1 & OSV2)	33.01	7.74	0.61	0.98	0.86	1.6E-02	0.00	3.0E-04	0.00
34' boom work boats - 4	2.48	0.20	0.05	0.05	0.07	1.2E-03	0.00	2.2E-05	0.00
Marine Research Vessel	8.15	1.71	0.15	0.23	0.22	3.9E-03	0.00	7.3E-05	0.00
Spill Storage Tanker	0.93	0.17	0.02	0.03	0.02	9.4E-04	0.00	1.1E-05	0.00
All Vessels Fuel Tanks	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Totals	194.53	145.47	11.56	19.09	22.30	0.50	0.02	0.02	0.03

Source Description	Non- OCS Source Emissions (tpy)								
	NO_X	CO	$PM_{10}/PM_{2.5}$	PM	VOC	SO_2	H2S	Pb	H2SO4
Drill Rig Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ice Breaker 1	35.45	40.22	3.09	5.27	4.83	1.4E-01	0.00	6.3E-03	0.01
Ice Breaker 2	35.45	40.22	3.09	5.28	4.83	1.4E-01	0.00	6.3E-03	0.01
Oil Spill Response Vessel 1 (Dedicated OSRV)	41.57	8.10	0.80	1.15	1.11	2.0E-02	0.00	3.7E-04	0.00
Oil Spill Response Vessel 2	4.19	1.02	0.08	0.13	0.11	2.0E-03	0.00	3.8E-05	0.00
Anchor Handling Supply Tug (AHST)	4.45	1.11	0.08	0.14	0.12	2.1E-03	0.00	4.0E-05	0.00
Offshore Supply Vessels (OSV1 & OSV2)	33.01	7.74	0.61	0.98	0.86	1.6E-02	0.00	3.0E-04	0.00
34' boom work boats - 4	2.48	0.20	0.05	0.05	0.07	1.2E-03	0.00	2.2E-05	0.00
Marine Research Vessel	8.15	1.71	0.15	0.23	0.22	3.9E-03	0.00	7.3E-05	0.00
Spill Storage Tanker	0.93	0.17	0.02	0.03	0.02	9.4E-04	0.00	1.1E-05	0.00
All Vessels Fuel Tanks	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Totals	165.68	100.49	7.99	13.26	12.18	0.32	0.00	0.01	0.02

Source Description	OCS Source Emissions (tpy)								
	NO_X	CO	$PM_{10}/PM_{2.5}$	PM	VOC	SO_2	H2S	Pb	H2SO4
Drill Rig Equipment	28.85	44.98	3.57	5.83	10.11	0.18	0.02	0.01	0.01
Ice Breaker 1	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
Ice Breaker 2	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
Oil Spill Response Vessel 1 (Dedicated OSRV)	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
Oil Spill Response Vessel 2	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
Anchor Handling Supply Tug (AHST)	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
Offshore Supply Vessels (OSV1 & OSV2)	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
34' boom work boats - 4	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
Marine Research Vessel	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
Spill Storage Tanker	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
All Vessels Fuel Tanks	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
Totals	28.85	44.98	3.57	5.83	10.11	0.18	0.02	0.01	0.01

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Option 2 - Ware Vessel (w/ 2 backup OSVs)

Source Description	Potential Emissions Totals (tpy)								
	NO_X	CO	$PM_{10}/PM_{2.5}$	PM	VOC	SO_2	H2S	Pb	H2SO4
Drill Rig Equipment	28.85	44.98	3.57	5.83	10.11	1.8E-01	0.02	8.7E-03	0.01
Ice Breaker 1	35.45	40.22	3.09	5.27	4.83	1.4E-01	0.00	6.3E-03	0.01
Ice Breaker 2	35.45	40.22	3.09	5.28	4.83	1.4E-01	0.00	6.3E-03	0.01
Oil Spill Response Vessel 1 (Dedicated OSRV)	41.57	8.10	0.80	1.15	1.11	2.0E-02	0.00	3.7E-04	0.00
Oil Spill Response Vessel 2	4.19	1.02	0.08	0.13	0.11	2.0E-03	0.00	3.8E-05	0.00
Anchor Handling Supply Tug (AHST)	4.45	1.11	0.08	0.14	0.12	2.1E-03	0.00	4.0E-05	0.00
Ware Vessel (WV) w/ OSV backup	30.32	7.01	0.56	0.89	0.79	1.4E-02	0.00	2.7E-04	0.00
34' boom work boats - 4	2.48	0.20	0.05	0.05	0.07	1.2E-03	0.00	2.2E-05	0.00
Marine Research Vessel	8.15	1.71	0.15	0.23	0.22	3.9E-03	0.00	7.3E-05	0.00
Spill Storage Tanker	0.93	0.17	0.02	0.03	0.02	9.4E-04	0.00	1.1E-05	0.00
All Vessels Fuel Tanks	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Totals	191.84	144.74	11.51	19.00	22.23	0.50	0.02	0.02	0.03

Source Description	Non- OCS Source Emissions (tpy)								
	NO_X	CO	$PM_{10}/PM_{2.5}$	PM	VOC	SO_2	H2S	Pb	H2SO4
Drill Rig Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ice Breaker 1	35.45	40.22	3.09	5.27	4.83	1.4E-01	0.00	6.3E-03	0.01
Ice Breaker 2	35.45	40.22	3.09	5.28	4.83	1.4E-01	0.00	6.3E-03	0.01
Oil Spill Response Vessel 1 (Dedicated OSRV)	41.57	8.10	0.80	1.15	1.11	2.0E-02	0.00	3.7E-04	0.00
Oil Spill Response Vessel 2	4.19	1.02	0.08	0.13	0.11	2.0E-03	0.00	3.8E-05	0.00
Anchor Handling Supply Tug (AHST)	4.45	1.11	0.08	0.14	0.12	2.1E-03	0.00	4.0E-05	0.00
Ware Vessel (WV) w/ OSV backup	30.32	7.01	0.56	0.89	0.79	1.4E-02	0.00	2.7E-04	0.00
34' boom work boats - 4	2.48	0.20	0.05	0.05	0.07	1.2E-03	0.00	2.2E-05	0.00
Marine Research Vessel	8.15	1.71	0.15	0.23	0.22	3.9E-03	0.00	7.3E-05	0.00
Spill Storage Tanker	0.93	0.17	0.02	0.03	0.02	9.4E-04	0.00	1.1E-05	0.00
All Vessels Fuel Tanks	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Totals	163.00	99.76	7.94	13.17	12.11	0.32	0.00	0.01	0.02

Source Description	OCS Source Emissions (tpy)								
	NO_X	CO	$PM_{10}/PM_{2.5}$	PM	VOC	SO_2	H2S	Pb	H2SO4
Drill Rig Equipment	28.85	44.98	3.57	5.83	10.11	0.18	0.02	0.01	0.01
Ice Breaker 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ice Breaker 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oil Spill Response Vessel 1 (Dedicated OSRV)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oil Spill Response Vessel 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Anchor Handling Supply Tug (AHST)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ware Vessel (WV) w/ OSV backup	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34' boom work boats - 4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Marine Research Vessel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Spill Storage Tanker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
All Vessels Fuel Tanks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Totals	28.85	44.98	3.57	5.83	10.11	0.18	0.02	0.01	0.01

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Uncontrolled Emissions Summary

Source Description	Option 1 - Ware Barge/Tug and 2 OSV's Emissions Totals (tpy)								
	NO_X	CO	$PM_{10}/PM_{2.5}$	PM	VOC	SO_2	H2S	Pb	H2SO4
Drill Rig Equipment	114.98	44.98	3.57	5.83	10.11	1.81E-01	0.02	8.68E-03	0.01
Ice Breaker 1	162.44	40.22	3.09	5.27	4.83	1.37E-01	0.00	6.29E-03	0.01
Ice Breaker 2	162.44	40.22	3.09	5.28	4.83	1.37E-01	0.00	6.29E-03	0.01
Oil Spill Response Vessel 1 (Dedicated OSRV)	41.57	8.10	0.80	1.15	1.11	1.97E-02	0.00	3.74E-04	0.00
Oil Spill Response Vessel 2	4.19	1.02	0.08	0.13	0.11	2.00E-03	0.00	3.79E-05	0.00
Anchor Handling Supply Tug (AHST)	4.45	1.11	0.08	0.14	0.12	2.13E-03	0.00	4.03E-05	0.00
Offshore Supply Vessels (OSV1 & OSV2)	33.01	7.74	0.61	0.98	0.86	1.57E-02	0.00	2.98E-04	0.00
34' boom work boats - 4	2.48	0.20	0.05	0.05	0.07	1.16E-03	0.00	2.21E-05	0.00
Marine Research Vessel	8.15	1.71	0.15	0.23	0.22	3.87E-03	0.00	7.34E-05	0.00
Spill Storage Tanker	0.93	0.17	0.02	0.03	0.02	9.44E-04	0.00	1.10E-05	0.00
All Vessels Fuel Tanks	0.00	0.00	0.00	0.00	0.01	0.00E+00	0.00	0.00E+00	0.00
Totals	534.63	145.47	11.56	19.09	22.30	0.50	0.02	0.02	0.03

Source Description	Option 2 - Ware Vessel (w/ 2 backup OSVs) Emissions Totals (tpy)								
	NO_X	CO	$PM_{10}/PM_{2.5}$	PM	VOC	SO_2	H2S	Pb	H2SO4
Drill Rig Equipment	114.98	44.98	3.57	5.83	10.11	1.81E-01	0.02	8.68E-03	0.01
Ice Breaker 1	162.44	40.22	3.09	5.27	4.83	1.37E-01	0.00	6.29E-03	0.01
Ice Breaker 2	162.44	40.22	3.09	5.28	4.83	1.37E-01	0.00	6.29E-03	0.01
Oil Spill Response Vessel 1 (Dedicated OSRV)	41.57	8.10	0.80	1.15	1.11	1.97E-02	0.00	3.74E-04	0.00
Oil Spill Response Vessel 2	4.19	1.02	0.08	0.13	0.11	2.00E-03	0.00	3.79E-05	0.00
Anchor Handling Supply Tug (AHST)	4.45	1.11	0.08	0.14	0.12	2.13E-03	0.00	4.03E-05	0.00
Ware Vessel (WV) w/ OSV backup	30.32	7.01	0.56	0.89	0.79	1.45E-02	0.00	2.74E-04	0.00
34' boom work boats - 4	2.48	0.20	0.05	0.05	0.07	1.16E-03	0.00	2.21E-05	0.00
Marine Research Vessel	8.15	1.71	0.15	0.23	0.22	3.87E-03	0.00	7.34E-05	0.00
Spill Storage Tanker	0.00	0.17	0.02	0.03	0.02	9.44E-04	0.00	1.10E-05	0.00
All Vessels Fuel Tanks	0.00	0.00	0.00	0.00	0.01	0.00E+00	0.00	0.00E+00	0.00
Totals	531.02	144.74	11.51	19.00	22.23	0.50	0.02	0.02	0.03

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Potential NO_X Emissions			Potential CO Emissions		
Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Drill Rig Equipment									
Main Drill Rig Engine 1	1200 hr/yr	206 g fuel/kWh	2480 kW		6.00E+00	6.00E+00		1.10E+01	1.10E+01
Main Drill Rig Engine 2	1200 hr/yr	206 g fuel/kWh	2480 kW		6.00E+00	6.00E+00		1.10E+01	1.10E+01
Main Drill Rig Engine 3	1200 hr/yr	206 g fuel/kWh	2480 kW		6.00E+00	6.00E+00		1.10E+01	1.10E+01
Main Drill Rig Engine 4	1200 hr/yr	206 g fuel/kWh	2480 kW		6.00E+00	6.00E+00		1.10E+01	1.10E+01
Emergency Back-up Engine	75 hr/yr	205 g fuel/kWh	968 kW		1.09E+00	1.09E+00		2.68E-01	2.68E-01
Cement Engine 1	131 hr/yr	29 gal/hr	403 kW		8.08E-01	8.08E-01		6.39E-02	6.39E-02
Cement Engine 2	131 hr/yr	29 gal/hr	403 kW		8.08E-01	8.08E-01		6.39E-02	6.39E-02
Logging Winch	273 hr/yr	13 gal/hr	187 kW		7.82E-01	7.82E-01		6.18E-02	6.18E-02
Heater 1	2400 hr/yr	26 gal/hr	4 MMBtu/hr a		6.36E-01	6.36E-01		1.59E-01	1.59E-01
Heater 2	2400 hr/yr	26 gal/hr	4 MMBtu/hr a		6.36E-01	6.36E-01		1.59E-01	1.59E-01
Incinerator	65 tons/yr	276 lbs/hr	N A		9.80E-02	9.80E-02		3.27E-01	3.27E-01
Fuel Tank 1	2400 hrs/yr	471941 gal/yr*	N A		N	N		N	N
Fuel Tank 2	2400 hrs/yr	471941 gal/yr*	N A		N	N		N	N
Mud Degassing	100 days/yr	N A	20000 scf/day		N	N		N	N
		*max throughput		0.00E+00	2.88E+01	2.88E+01	0.00E+00	4.50E+01	4.50E+01
Ice Breaker 1									
Main Engine 1	515 hr/yr	426 gal/hr	8046 bhp	9.87E+00		9.87E+00	1.14E+01		1.14E+01
Main Engine 2	515 hr/yr	426 gal/hr	8046 bhp	9.87E+00		9.87E+00	1.14E+01		1.14E+01
Main Engine 3	515 hr/yr	320 gal/hr	6035 bhp	7.41E+00		7.41E+00	8.55E+00		8.55E+00
Main Engine 4	515 hr/yr	320 gal/hr	6035 bhp	7.41E+00		7.41E+00	8.55E+00		8.55E+00
Harbor Generator	35 hr/yr	50 gal/hr	952 bhp	3.80E-01		3.80E-01	3.01E-02		3.01E-02
Emergency Generator	35 hr/yr	21 gal/hr	402 bhp	1.61E-01		1.61E-01	1.27E-02		1.27E-02
Boiler 1	515 hr/yr	28 gal/hr	4 MMBtu/hr a	1.44E-01		1.44E-01	3.61E-02		3.61E-02
Boiler 2	515 hr/yr	28 gal/hr	4 MMBtu/hr a	1.44E-01		1.44E-01	3.61E-02		3.61E-02
Incinerator	515 hr/yr	175 lb/hr	N A	6.76E-02		6.76E-02	2.25E-01		2.25E-01
				3.55E+01	0.00E+00	3.55E+01	4.02E+01	0.00E+00	4.02E+01
Ice Breaker 2									
Main Engine 1	515 hr/yr	426 gal/hr	8046 bhp	9.87E+00		9.87E+00	1.14E+01		1.14E+01
Main Engine 2	515 hr/yr	426 gal/hr	8046 bhp	9.87E+00		9.87E+00	1.14E+01		1.14E+01
Main Engine 3	515 hr/yr	320 gal/hr	6035 bhp	7.41E+00		7.41E+00	8.55E+00		8.55E+00
Main Engine 4	515 hr/yr	320 gal/hr	6035 bhp	7.41E+00		7.41E+00	8.55E+00		8.55E+00
Harbor Generator	35 hr/yr	50 gal/hr	952 bhp	3.80E-01		3.80E-01	3.01E-02		3.01E-02
Emergency Generator	35 hr/yr	21 gal/hr	402 bhp	1.61E-01		1.61E-01	1.27E-02		1.27E-02
Boiler 1	515 hr/yr	28 gal/hr	4 MMBtu/hr a	1.44E-01		1.44E-01	3.61E-02		3.61E-02
Boiler 2	515 hr/yr	28 gal/hr	4 MMBtu/hr a	1.44E-01		1.44E-01	3.61E-02		3.61E-02
Incinerator	515 hr/yr	175 lb/hr	N A	6.76E-02		6.76E-02	2.25E-01		2.25E-01
				3.55E+01	0.00E+00	3.55E+01	4.02E+01	0.00E+00	4.02E+01

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit		Allowable	Maximum	Maximum	Potential $PM_{10}/PM_{2.5}$ Emissions			Potential PM Emissions		
	Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Drill Rig Equipment										
	Main Drill Rig Engine 1	1200 hr/yr	206 g fuel/kWh	2480 kW		8.00E-01	8.00E-01		1.40E+00	1.40E+00
	Main Drill Rig Engine 2	1200 hr/yr	206 g fuel/kWh	2480 kW		8.00E-01	8.00E-01		1.40E+00	1.40E+00
	Main Drill Rig Engine 3	1200 hr/yr	206 g fuel/kWh	2480 kW		8.00E-01	8.00E-01		1.40E+00	1.40E+00
	Main Drill Rig Engine 4	1200 hr/yr	206 g fuel/kWh	2480 kW		8.00E-01	8.00E-01		1.40E+00	1.40E+00
	Emergency Back-up Engine	75 hr/yr	205 g fuel/kWh	968 kW		1.95E-02	1.95E-02		3.41E-02	3.41E-02
	Cement Engine 1	131 hr/yr	29 gal/hr	403 kW		1.75E-02	1.75E-02		1.74E-02	1.74E-02
	Cement Engine 2	131 hr/yr	29 gal/hr	403 kW		1.75E-02	1.75E-02		1.74E-02	1.74E-02
	Logging Winch	273 hr/yr	13 gal/hr	187 kW		1.69E-02	1.69E-02		1.69E-02	1.69E-02
	Heater 1	2400 hr/yr	26 gal/hr	4 MMBtu/hr a		3.43E-02	3.43E-02		6.36E-02	6.36E-02
	Heater 2	2400 hr/yr	26 gal/hr	4 MMBtu/hr a		3.43E-02	3.43E-02		6.36E-02	6.36E-02
	Incinerator	65 tons/yr	276 lbs/hr	N A		2.29E-01	2.29E-01		3.16E-02	3.16E-02
	Fuel Tank 1	2400 hrs/yr	471941 gal/yr*	N A		N	N		N	N
	Fuel Tank 2	2400 hrs/yr	471941 gal/yr*	N A		N	N		N	N
	Mud Degassing	100 days/yr	N A	20000 scf/day		N	N		N	N
			*max throughput		0.00E+00	3.57E+00	3.57E+00	0.00E+00	5.83E+00	5.83E+00
Ice Breaker 1										
	Main Engine 1	515 hr/yr	426 gal/hr	8046 bhp	8.31E-01		8.31E-01	1.45E+00		1.45E+00
	Main Engine 2	515 hr/yr	426 gal/hr	8046 bhp	8.31E-01		8.31E-01	1.45E+00		1.45E+00
	Main Engine 3	515 hr/yr	320 gal/hr	6035 bhp	6.23E-01		6.23E-01	1.09E+00		1.09E+00
	Main Engine 4	515 hr/yr	320 gal/hr	6035 bhp	6.23E-01		6.23E-01	1.09E+00		1.09E+00
	Harbor Generator	35 hr/yr	50 gal/hr	952 bhp	8.22E-03		8.22E-03	8.21E-03		8.21E-03
	Emergency Generator	35 hr/yr	21 gal/hr	402 bhp	3.47E-03		3.47E-03	3.47E-03		3.47E-03
	Boiler 1	515 hr/yr	28 gal/hr	4 MMBtu/hr a	7.79E-03		7.79E-03	1.44E-02		1.44E-02
	Boiler 2	515 hr/yr	28 gal/hr	4 MMBtu/hr a	7.79E-03		7.79E-03	1.44E-02		1.44E-02
	Incinerator	515 hr/yr	175 lb/hr	N A	1.58E-01		1.58E-01	1.58E-01		1.58E-01
					3.09E+00	0.00E+00	3.09E+00	5.27E+00	0.00E+00	5.27E+00
Ice Breaker 2										
	Main Engine 1	515 hr/yr	426 gal/hr	8046 bhp	8.31E-01		8.31E-01	1.45E+00		1.45E+00
	Main Engine 2	515 hr/yr	426 gal/hr	8046 bhp	8.31E-01		8.31E-01	1.45E+00		1.45E+00
	Main Engine 3	515 hr/yr	320 gal/hr	6035 bhp	6.23E-01		6.23E-01	1.09E+00		1.09E+00
	Main Engine 4	515 hr/yr	320 gal/hr	6035 bhp	6.23E-01		6.23E-01	1.09E+00		1.09E+00
	Harbor Generator	35 hr/yr	50 gal/hr	952 bhp	8.22E-03		8.22E-03	1.48E-02		1.48E-02
	Emergency Generator	35 hr/yr	21 gal/hr	402 bhp	3.47E-03		3.47E-03	6.23E-03		6.23E-03
	Boiler 1	515 hr/yr	28 gal/hr	4 MMBtu/hr a	7.79E-03		7.79E-03	1.44E-02		1.44E-02
	Boiler 2	515 hr/yr	28 gal/hr	4 MMBtu/hr a	7.79E-03		7.79E-03	1.44E-02		1.44E-02
	Incinerator	515 hr/yr	175 lb/hr	N A	1.58E-01		1.58E-01	1.58E-01		1.58E-01
					3.09E+00	0.00E+00	3.09E+00	5.28E+00	0.00E+00	5.28E+00

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Potential VOC Emissions			Potential SO_2 Emissions		
Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Drill Rig Equipment									
Main Drill Rig Engine 1	1200 hr/yr	206 g fuel/kWh	2480 kW		1.28E+00	1.28E+00		2.14E-02	2.14E-02
Main Drill Rig Engine 2	1200 hr/yr	206 g fuel/kWh	2480 kW		1.28E+00	1.28E+00		2.14E-02	2.14E-02
Main Drill Rig Engine 3	1200 hr/yr	206 g fuel/kWh	2480 kW		1.28E+00	1.28E+00		2.14E-02	2.14E-02
Main Drill Rig Engine 4	1200 hr/yr	206 g fuel/kWh	2480 kW		1.28E+00	1.28E+00		2.14E-02	2.14E-02
Emergency Back-up Engine	75 hr/yr	205 g fuel/kWh	968 kW		3.12E-02	3.12E-02		5.21E-04	5.21E-04
Cement Engine 1	131 hr/yr	29 gal/hr	403 kW		2.32E-02	2.32E-02		2.93E-06	2.93E-06
Cement Engine 2	131 hr/yr	29 gal/hr	403 kW		2.32E-02	2.32E-02		2.93E-06	2.93E-06
Logging Winch	273 hr/yr	13 gal/hr	187 kW		2.25E-02	2.25E-02		3.67E-04	3.67E-04
Heater 1	2400 hr/yr	26 gal/hr	4 MMBtu/hr a		6.36E-03	6.36E-03		6.43E-03	6.43E-03
Heater 2	2400 hr/yr	26 gal/hr	4 MMBtu/hr a		6.36E-03	6.36E-03		6.43E-03	6.43E-03
Incinerator	65 tons/yr	276 lbs/hr	N A		3.16E-02	3.16E-02		8.17E-02	8.17E-02
Fuel Tank 1	2400 hrs/yr	471941 gal/yr*	N A		3.34E-03	3.34E-03		N	N
Fuel Tank 2	2400 hrs/yr	471941 gal/yr*	N A		3.34E-03	3.34E-03		N	N
Mud Degassing	100 days/yr	N A	20000 scf/day		4.85E+00	4.85E+00		N	N
		*max throughput		0.00E+00	1.01E+01	1.01E+01	0.00E+00	1.81E-01	1.81E-01
Ice Breaker 1									
Main Engine 1	515 hr/yr	426 gal/hr	8046 bhp	1.33E+00		1.33E+00	2.22E-02		2.22E-02
Main Engine 2	515 hr/yr	426 gal/hr	8046 bhp	1.33E+00		1.33E+00	2.22E-02		2.22E-02
Main Engine 3	515 hr/yr	320 gal/hr	6035 bhp	9.97E-01		9.97E-01	1.67E-02		1.67E-02
Main Engine 4	515 hr/yr	320 gal/hr	6035 bhp	9.97E-01		9.97E-01	1.67E-02		1.67E-02
Harbor Generator	35 hr/yr	50 gal/hr	952 bhp	1.09E-02		1.09E-02	1.78E-04		1.78E-04
Emergency Generator	35 hr/yr	21 gal/hr	402 bhp	4.63E-03		4.63E-03	7.54E-05		7.54E-05
Boiler 1	515 hr/yr	28 gal/hr	4 MMBtu/hr a	1.44E-03		1.44E-03	1.46E-03		1.46E-03
Boiler 2	515 hr/yr	28 gal/hr	4 MMBtu/hr a	1.44E-03		1.44E-03	1.46E-03		1.46E-03
Incinerator	515 hr/yr	175 lb/hr	N A	1.58E-01		1.58E-01	5.63E-02		5.63E-02
				4.83E+00	0.00E+00	4.83E+00	1.37E-01	0.00E+00	1.37E-01
Ice Breaker 2									
Main Engine 1	515 hr/yr	426 gal/hr	8046 bhp	1.33E+00		1.33E+00	2.22E-02		2.22E-02
Main Engine 2	515 hr/yr	426 gal/hr	8046 bhp	1.33E+00		1.33E+00	2.22E-02		2.22E-02
Main Engine 3	515 hr/yr	320 gal/hr	6035 bhp	9.97E-01		9.97E-01	1.67E-02		1.67E-02
Main Engine 4	515 hr/yr	320 gal/hr	6035 bhp	9.97E-01		9.97E-01	1.67E-02		1.67E-02
Harbor Generator	35 hr/yr	50 gal/hr	952 bhp	1.09E-02		1.09E-02	1.78E-04		1.78E-04
Emergency Generator	35 hr/yr	21 gal/hr	402 bhp	4.63E-03		4.63E-03	7.54E-05		7.54E-05
Boiler 1	515 hr/yr	28 gal/hr	4 MMBtu/hr a	1.44E-03		1.44E-03	1.46E-03		1.46E-03
Boiler 2	515 hr/yr	28 gal/hr	4 MMBtu/hr a	1.44E-03		1.44E-03	1.46E-03		1.46E-03
Incinerator	515 hr/yr	175 lb/hr	N A	1.58E-01		1.58E-01	5.63E-02		5.63E-02
				4.83E+00	0.00E+00	4.83E+00	1.37E-01	0.00E+00	1.37E-01

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit		Allowable	Maximum	Maximum	Potential H2S Emissions			Potential Pb Emissions		
	Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Drill Rig Equipment										
	Main Drill Rig Engine 1	1200 hr/yr	206 g fuel/kWh	2480 kW		NA	NA		4.05E-04	4.05E-04
	Main Drill Rig Engine 2	1200 hr/yr	206 g fuel/kWh	2480 kW		NA	NA		4.05E-04	4.05E-04
	Main Drill Rig Engine 3	1200 hr/yr	206 g fuel/kWh	2480 kW		NA	NA		4.05E-04	4.05E-04
	Main Drill Rig Engine 4	1200 hr/yr	206 g fuel/kWh	2480 kW		NA	NA		4.05E-04	4.05E-04
	Emergency Back-up Engine	75 hr/yr	205 g fuel/kWh	968 kW		NA	NA		9.88E-06	9.88E-06
	Cement Engine 1	131 hr/yr	29 gal/hr	403 kW		NA	NA		7.18E-06	7.18E-06
	Cement Engine 2	131 hr/yr	29 gal/hr	403 kW		NA	NA		7.18E-06	7.18E-06
	Logging Winch	273 hr/yr	13 gal/hr	187 kW		NA	NA		6.95E-06	6.95E-06
	Heater 1	2400 hr/yr	26 gal/hr	4 MMBtu/hr a		NA	NA		3.78E-05	3.78E-05
	Heater 2	2400 hr/yr	26 gal/hr	4 MMBtu/hr a		NA	NA		3.78E-05	3.78E-05
	Incinerator	65 tons/yr	276 lbs/hr	N A		NA	NA		6.96E-03	6.96E-03
	Fuel Tank 1	2400 hrs/yr	471941 gal/yr*	N A		NA	NA		N	N
	Fuel Tank 2	2400 hrs/yr	471941 gal/yr*	N A		NA	NA		N	N
	Mud Degassing	100 days/yr	N A	20000 scf/day		2.17E-02	2.17E-02		N	N
			*max throughput		0.00E+00	2.17E-02	2.17E-02	0.00E+00	8.68E-03	8.68E-03
Ice Breaker 1										
	Main Engine 1	515 hr/yr	426 gal/hr	8046 bhp	NA		NA	4.21E-04		4.21E-04
	Main Engine 2	515 hr/yr	426 gal/hr	8046 bhp	NA		NA	4.21E-04		4.21E-04
	Main Engine 3	515 hr/yr	320 gal/hr	6035 bhp	NA		NA	3.15E-04		3.15E-04
	Main Engine 4	515 hr/yr	320 gal/hr	6035 bhp	NA		NA	3.15E-04		3.15E-04
	Harbor Generator	35 hr/yr	50 gal/hr	952 bhp	NA		NA	3.38E-06		3.38E-06
	Emergency Generator	35 hr/yr	21 gal/hr	402 bhp	NA		NA	1.43E-06		1.43E-06
	Boiler 1	515 hr/yr	28 gal/hr	4 MMBtu/hr a	NA		NA	8.57E-06		8.57E-06
	Boiler 2	515 hr/yr	28 gal/hr	4 MMBtu/hr a	NA		NA	8.57E-06		8.57E-06
	Incinerator	515 hr/yr	175 lb/hr	N A	NA		NA	4.80E-03		4.80E-03
					0.00E+00	0.00E+00	0.00E+00	6.29E-03	0.00E+00	6.29E-03
Ice Breaker 2										
	Main Engine 1	515 hr/yr	426 gal/hr	8046 bhp	NA		NA	4.21E-04		4.21E-04
	Main Engine 2	515 hr/yr	426 gal/hr	8046 bhp	NA		NA	4.21E-04		4.21E-04
	Main Engine 3	515 hr/yr	320 gal/hr	6035 bhp	NA		NA	3.15E-04		3.15E-04
	Main Engine 4	515 hr/yr	320 gal/hr	6035 bhp	NA		NA	3.15E-04		3.15E-04
	Harbor Generator	35 hr/yr	50 gal/hr	952 bhp	NA		NA	3.38E-06		3.38E-06
	Emergency Generator	35 hr/yr	21 gal/hr	402 bhp	NA		NA	1.43E-06		1.43E-06
	Boiler 1	515 hr/yr	28 gal/hr	4 MMBtu/hr a	NA		NA	8.57E-06		8.57E-06
	Boiler 2	515 hr/yr	28 gal/hr	4 MMBtu/hr a	NA		NA	8.57E-06		8.57E-06
	Incinerator	515 hr/yr	175 lb/hr	N A	NA		NA	4.80E-03		4.80E-03
					0.00E+00	0.00E+00	0.00E+00	6.29E-03	0.00E+00	6.29E-03

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit		Allowable	Maximum	Maximum	Potential H2SO4 Emissions		
	Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total
Drill Rig Equipment							
	Main Drill Rig Engine 1	1200 hr/yr	206 g fuel/kWh	2480 kW		2.95E-03	2.95E-03
	Main Drill Rig Engine 2	1200 hr/yr	206 g fuel/kWh	2480 kW		2.95E-03	2.95E-03
	Main Drill Rig Engine 3	1200 hr/yr	206 g fuel/kWh	2480 kW		2.95E-03	2.95E-03
	Main Drill Rig Engine 4	1200 hr/yr	206 g fuel/kWh	2480 kW		2.95E-03	2.95E-03
	Emergency Back-up Engine	75 hr/yr	205 g fuel/kWh	968 kW		NA	NA
	Cement Engine 1	131 hr/yr	29 gal/hr	403 kW		NA	NA
	Cement Engine 2	131 hr/yr	29 gal/hr	403 kW		NA	NA
	Logging Winch	273 hr/yr	13 gal/hr	187 kW		NA	NA
	Heater 1	2400 hr/yr	26 gal/hr	4 MMBtu/hr a		NA	NA
	Heater 2	2400 hr/yr	26 gal/hr	4 MMBtu/hr a		NA	NA
	Incinerator	65 tons/yr	276 lbs/hr	N A		NA	NA
	Fuel Tank 1	2400 hrs/yr	471941 gal/yr*	N A		NA	NA
	Fuel Tank 2	2400 hrs/yr	471941 gal/yr*	N A		NA	NA
	Mud Degassing	100 days/yr	N A	20000 scf/day		NA	NA
			*max throughput		0.00E+00	1.18E-02	1.18E-02
Ice Breaker 1							
	Main Engine 1	515 hr/yr	426 gal/hr	8046 bhp	3.06E-03		3.06E-03
	Main Engine 2	515 hr/yr	426 gal/hr	8046 bhp	3.06E-03		3.06E-03
	Main Engine 3	515 hr/yr	320 gal/hr	6035 bhp	2.29E-03		2.29E-03
	Main Engine 4	515 hr/yr	320 gal/hr	6035 bhp	2.29E-03		2.29E-03
	Harbor Generator	35 hr/yr	50 gal/hr	952 bhp	NA		NA
	Emergency Generator	35 hr/yr	21 gal/hr	402 bhp	NA		NA
	Boiler 1	515 hr/yr	28 gal/hr	4 MMBtu/hr a	NA		NA
	Boiler 2	515 hr/yr	28 gal/hr	4 MMBtu/hr a	NA		NA
	Incinerator	515 hr/yr	175 lb/hr	N A	NA		NA
					1.07E-02	0.00E+00	1.07E-02
Ice Breaker 2							
	Main Engine 1	515 hr/yr	426 gal/hr	8046 bhp	3.06E-03		3.06E-03
	Main Engine 2	515 hr/yr	426 gal/hr	8046 bhp	3.06E-03		3.06E-03
	Main Engine 3	515 hr/yr	320 gal/hr	6035 bhp	2.29E-03		2.29E-03
	Main Engine 4	515 hr/yr	320 gal/hr	6035 bhp	2.29E-03		2.29E-03
	Harbor Generator	35 hr/yr	50 gal/hr	952 bhp	NA		NA
	Emergency Generator	35 hr/yr	21 gal/hr	402 bhp	NA		NA
	Boiler 1	515 hr/yr	28 gal/hr	4 MMBtu/hr a	NA		NA
	Boiler 2	515 hr/yr	28 gal/hr	4 MMBtu/hr a	NA		NA
	Incinerator	515 hr/yr	175 lb/hr	N A	NA		NA
					1.07E-02	0.00E+00	1.07E-02

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit		Allowable	Maximum	Maximum	Potential NO_X Emissions			Potential CO Emissions		
	Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Oil Spill Response Vessel 1 (Dedicated OSRV)										
	Main Engine 1	800 hr/yr	75 gal/hr	3000 bhp	1.27E+01		1.27E+01	3.37E+00		3.37E+00
	Main Engine 2	800 hr/yr	75 gal/hr	3000 bhp	1.27E+01		1.27E+01	3.37E+00		3.37E+00
	Thruster Engine 1	12 hr/yr	58 gal/hr	950 hp	1.47E-01		1.47E-01	3.91E-02		3.91E-02
	Thruster Engine 2	12 hr/yr	58 gal/hr	950 hp	1.47E-01		1.47E-01	3.91E-02		3.91E-02
	Thruster Engine 3	12 hr/yr	58 gal/hr	950 hp	1.47E-01		1.47E-01	3.91E-02		3.91E-02
	Generator 1	2400 hr/yr	27 gal/hr	400 kW	1.40E+01		1.40E+01	1.11E+00		1.11E+00
	Generator 2	300 hr/yr	27 gal/hr	400 kW	1.75E+00		1.75E+00	1.38E-01		1.38E-01
	Generator 3	0 hr/yr	27 gal/hr	400 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	5.17E-02		5.17E-02	4.09E-03		4.09E-03
					4.16E+01	**0.00E+00**	**4.16E+01**	**8.10E+00**	**0.00E+00**	**8.10E+00**
Oil Spill Response Vessel 2										
	Main Engine 1	60 hr/yr	75 gal/hr	3000 bhp	9.51E-01		9.51E-01	2.53E-01		2.53E-01
	Main Engine 2	60 hr/yr	75 gal/hr	3000 bhp	9.51E-01		9.51E-01	2.53E-01		2.53E-01
	Thruster Engine 1	48 hr/yr	58 gal/hr	950 hp	5.88E-01		5.88E-01	1.56E-01		1.56E-01
	Thruster Engine 2	48 hr/yr	58 gal/hr	950 hp	5.88E-01		5.88E-01	1.56E-01		1.56E-01
	Thruster Engine 3	48 hr/yr	58 gal/hr	950 hp	5.88E-01		5.88E-01	1.56E-01		1.56E-01
	Generator 1	60 hr/yr	27 gal/hr	400 kW	3.49E-01		3.49E-01	2.76E-02		2.76E-02
	Generator 2	30 hr/yr	27 gal/hr	400 kW	1.75E-01		1.75E-01	1.38E-02		1.38E-02
	Generator 3	0 hr/yr	27 gal/hr	400 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	2 hr/yr	8 gal/hr	99 kW	3.45E-03		3.45E-03	2.73E-04		2.73E-04
					4.19E+00	**0.00E+00**	**4.19E+00**	**1.02E+00**	**0.00E+00**	**1.02E+00**
Anchor Handling Supply Tug (AHST)										
	Main Engine 1	60 hr/yr	160 gal/hr	2529 kW	2.03E+00		2.03E+00	5.39E-01		5.39E-01
	Main Engine 2	60 hr/yr	160 gal/hr	2529 kW	2.03E+00		2.03E+00	5.39E-01		5.39E-01
	Generator 1	60 hr/yr	25 gal/hr	380 kW	3.23E-01		3.23E-01	2.56E-02		2.56E-02
	Generator 2	12 hr/yr	25 gal/hr	380 kW	6.47E-02		6.47E-02	5.12E-03		5.12E-03
	Generator 3	0 hr/yr	25 gal/hr	380 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	6 hr/yr	6 gal/hr	170 kW	7.24E-03		7.24E-03	5.73E-04		5.73E-04
					4.45E+00	**0.00E+00**	**4.45E+00**	**1.11E+00**	**0.00E+00**	**1.11E+00**
Offshore Supply Vessels (OSV1 & OSV2)										
	Main Engine 1	360 hr/yr	75 gal/hr	3000 bhp	5.71E+00		5.71E+00	1.52E+00		1.52E+00
	Main Engine 1	100 hr/yr	67 gal/hr	3000 bhp	1.42E+00		1.42E+00	3.76E-01		3.76E-01
	Main Engine 2	360 hr/yr	75 gal/hr	3000 bhp	5.71E+00		5.71E+00	1.52E+00		1.52E+00
	Main Engine 2	100 hr/yr	67 gal/hr	3000 bhp	1.42E+00		1.42E+00	3.76E-01		3.76E-01
	Thruster Engine 1	360 hr/yr	58 gal/hr	950 bhp	4.41E+00		4.41E+00	1.17E+00		1.17E+00
	Thruster Engine 2	360 hr/yr	58 gal/hr	950 bhp	4.41E+00		4.41E+00	1.17E+00		1.17E+00
	Thruster Engine 3	360 hr/yr	58 gal/hr	950 bhp	4.41E+00		4.41E+00	1.17E+00		1.17E+00
	Generator	820 hr/yr	27 gal/hr	400 kW	4.77E+00		4.77E+00	3.78E-01		3.78E-01
	Generator	120 hr/yr	27 gal/hr	400 kW	6.98E-01		6.98E-01	5.53E-02		5.53E-02
	Generator	0 hr/yr	27 gal/hr	400 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	5.17E-02		5.17E-02	4.09E-03		4.09E-03
					3.30E+01	**0.00E+00**	**3.30E+01**	**7.74E+00**	**0.00E+00**	**7.74E+00**

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit		Allowable	Maximum	Maximum	Potential $PM_{10}/PM_{2.5}$ Emissions			Potential PM Emissions		
	Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Oil Spill Response Vessel 1 (Dedicated OSRV)										
	Main Engine 1	800 hr/yr	75 gal/hr	3000 bhp	2.27E-01		2.27E-01	3.96E-01		3.96E-01
	Main Engine 2	800 hr/yr	75 gal/hr	3000 bhp	2.27E-01		2.27E-01	3.96E-01		3.96E-01
	Thruster Engine 1	12 hr/yr	58 gal/hr	950 hp	2.63E-03		2.63E-03	4.60E-03		4.60E-03
	Thruster Engine 2	12 hr/yr	58 gal/hr	950 hp	2.63E-03		2.63E-03	4.60E-03		4.60E-03
	Thruster Engine 3	12 hr/yr	58 gal/hr	950 hp	2.63E-03		2.63E-03	4.60E-03		4.60E-03
	Generator 1	2400 hr/yr	27 gal/hr	400 kW	3.01E-01		3.01E-01	3.01E-01		3.01E-01
	Generator 2	300 hr/yr	27 gal/hr	400 kW	3.77E-02		3.77E-02	3.77E-02		3.77E-02
	Generator 3	0 hr/yr	27 gal/hr	400 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	1.12E-03		1.12E-03	1.12E-03		1.12E-03
					8.02E-01	**0.00E+00**	**8.02E-01**	**1.15E+00**	**0.00E+00**	**1.15E+00**
Oil Spill Response Vessel 2										
	Main Engine 1	60 hr/yr	75 gal/hr	3000 bhp	1.70E-02		1.70E-02	2.97E-02		2.97E-02
	Main Engine 2	60 hr/yr	75 gal/hr	3000 bhp	1.70E-02		1.70E-02	2.97E-02		2.97E-02
	Thruster Engine 1	48 hr/yr	58 gal/hr	950 hp	1.05E-02		1.05E-02	1.84E-02		1.84E-02
	Thruster Engine 2	48 hr/yr	58 gal/hr	950 hp	1.05E-02		1.05E-02	1.84E-02		1.84E-02
	Thruster Engine 3	48 hr/yr	58 gal/hr	950 hp	1.05E-02		1.05E-02	1.84E-02		1.84E-02
	Generator 1	60 hr/yr	27 gal/hr	400 kW	7.53E-03		7.53E-03	7.53E-03		7.53E-03
	Generator 2	30 hr/yr	27 gal/hr	400 kW	3.77E-03		3.77E-03	3.77E-03		3.77E-03
	Generator 3	0 hr/yr	27 gal/hr	400 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	2 hr/yr	8 gal/hr	99 kW	7.44E-05		7.44E-05	7.44E-05		7.44E-05
					7.70E-02	**0.00E+00**	**7.70E-02**	**1.26E-01**	**0.00E+00**	**1.26E-01**
Anchor Handling Supply Tug (AHST)										
	Main Engine 1	60 hr/yr	160 gal/hr	2529 kW	3.63E-02		3.63E-02	6.34E-02		6.34E-02
	Main Engine 2	60 hr/yr	160 gal/hr	2529 kW	3.63E-02		3.63E-02	6.34E-02		6.34E-02
	Generator 1	60 hr/yr	25 gal/hr	380 kW	6.98E-03		6.98E-03	7.53E-03		7.53E-03
	Generator 2	12 hr/yr	25 gal/hr	380 kW	1.40E-03		1.40E-03	1.51E-03		1.51E-03
	Generator 3	0 hr/yr	25 gal/hr	380 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	6 hr/yr	6 gal/hr	170 kW	1.56E-04		1.56E-04	1.56E-04		1.56E-04
					8.12E-02	**0.00E+00**	**8.12E-02**	**1.36E-01**	**0.00E+00**	**1.36E-01**
Offshore Supply Vessels (OSV1 & OSV2)										
	Main Engine 1	360 hr/yr	75 gal/hr	3000 bhp	1.02E-01		1.02E-01	1.78E-01		1.78E-01
	Main Engine 1	100 hr/yr	67 gal/hr	3000 bhp	2.54E-02		2.54E-02	4.43E-02		4.43E-02
	Main Engine 2	360 hr/yr	75 gal/hr	3000 bhp	1.02E-01		1.02E-01	1.78E-01		1.78E-01
	Main Engine 2	100 hr/yr	67 gal/hr	3000 bhp	2.54E-02		2.54E-02	4.43E-02		4.43E-02
	Thruster Engine 1	360 hr/yr	58 gal/hr	950 bhp	7.90E-02		7.90E-02	1.38E-01		1.38E-01
	Thruster Engine 2	360 hr/yr	58 gal/hr	950 bhp	7.90E-02		7.90E-02	1.38E-01		1.38E-01
	Thruster Engine 3	360 hr/yr	58 gal/hr	950 bhp	7.90E-02		7.90E-02	1.38E-01		1.38E-01
	Generator	820 hr/yr	27 gal/hr	400 kW	1.03E-01		1.03E-01	1.08E-01		1.08E-01
	Generator	120 hr/yr	27 gal/hr	400 kW	1.51E-02		1.51E-02	1.59E-02		1.59E-02
	Generator	0 hr/yr	27 gal/hr	400 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	1.12E-03		1.12E-03	9.81E-04		9.81E-04
					6.11E-01	**0.00E+00**	**6.11E-01**	**9.84E-01**	**0.00E+00**	**9.84E-01**

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit		Allowable	Maximum	Maximum	Potential VOC Emissions			Potential SO_2 Emissions		
	Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Oil Spill Response Vessel 1 (Dedicated OSRV)										
	Main Engine 1	800 hr/yr	75 gal/hr	3000 bhp	3.25E-01		3.25E-01	6.07E-03		6.07E-03
	Main Engine 2	800 hr/yr	75 gal/hr	3000 bhp	3.25E-01		3.25E-01	6.07E-03		6.07E-03
	Thruster Engine 1	12 hr/yr	58 gal/hr	950 hp	3.76E-03		3.76E-03	7.04E-05		7.04E-05
	Thruster Engine 2	12 hr/yr	58 gal/hr	950 hp	3.76E-03		3.76E-03	7.04E-05		7.04E-05
	Thruster Engine 3	12 hr/yr	58 gal/hr	950 hp	3.76E-03		3.76E-03	7.04E-05		7.04E-05
	Generator 1	2400 hr/yr	27 gal/hr	400 kW	4.02E-01		4.02E-01	6.55E-03		6.55E-03
	Generator 2	300 hr/yr	27 gal/hr	400 kW	5.02E-02		5.02E-02	8.19E-04		8.19E-04
	Generator 3	0 hr/yr	27 gal/hr	400 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	1.49E-03		1.49E-03	2.43E-05		2.43E-05
					1.11E+00	0.00E+00	1.11E+00	1.97E-02	0.00E+00	1.97E-02
Oil Spill Response Vessel 2										
	Main Engine 1	60 hr/yr	75 gal/hr	3000 bhp	2.43E-02		2.43E-02	4.55E-04		4.55E-04
	Main Engine 2	60 hr/yr	75 gal/hr	3000 bhp	2.43E-02		2.43E-02	4.55E-04		4.55E-04
	Thruster Engine 1	48 hr/yr	58 gal/hr	950 hp	1.51E-02		1.51E-02	2.81E-04		2.81E-04
	Thruster Engine 2	48 hr/yr	58 gal/hr	950 hp	1.51E-02		1.51E-02	2.81E-04		2.81E-04
	Thruster Engine 3	48 hr/yr	58 gal/hr	950 hp	1.51E-02		1.51E-02	2.81E-04		2.81E-04
	Generator 1	60 hr/yr	27 gal/hr	400 kW	1.00E-02		1.00E-02	1.64E-04		1.64E-04
	Generator 2	30 hr/yr	27 gal/hr	400 kW	5.02E-03		5.02E-03	8.19E-05		8.19E-05
	Generator 3	0 hr/yr	27 gal/hr	400 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	2 hr/yr	8 gal/hr	99 kW	9.92E-05		9.92E-05	1.62E-06		1.62E-06
					1.09E-01	0.00E+00	1.09E-01	2.00E-03	0.00E+00	2.00E-03
Anchor Handling Supply Tug (AHST)										
	Main Engine 1	60 hr/yr	160 gal/hr	2529 kW	5.19E-02		5.19E-02	9.71E-04		9.71E-04
	Main Engine 2	60 hr/yr	160 gal/hr	2529 kW	5.19E-02		5.19E-02	9.71E-04		9.71E-04
	Generator 1	60 hr/yr	25 gal/hr	380 kW	9.30E-03		9.30E-03	1.52E-04		1.52E-04
	Generator 2	12 hr/yr	25 gal/hr	380 kW	1.86E-03		1.86E-03	3.03E-05		3.03E-05
	Generator 3	0 hr/yr	25 gal/hr	380 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	6 hr/yr	6 gal/hr	170 kW	2.08E-04		2.08E-04	3.40E-06		3.40E-06
					1.15E-01	0.00E+00	1.15E-01	2.13E-03	0.00E+00	2.13E-03
Offshore Supply Vessels (OSV1 & OSV2)										
	Main Engine 1	360 hr/yr	75 gal/hr	3000 bhp	1.46E-01		1.46E-01	2.73E-03		2.73E-03
	Main Engine 1	100 hr/yr	67 gal/hr	3000 bhp	3.62E-02		3.62E-02	6.77E-04		6.77E-04
	Main Engine 2	360 hr/yr	75 gal/hr	3000 bhp	1.46E-01		1.46E-01	2.73E-03		2.73E-03
	Main Engine 2	100 hr/yr	67 gal/hr	3000 bhp	3.62E-02		3.62E-02	6.77E-04		6.77E-04
	Thruster Engine 1	360 hr/yr	58 gal/hr	950 bhp	1.13E-01		1.13E-01	2.11E-03		2.11E-03
	Thruster Engine 2	360 hr/yr	58 gal/hr	950 bhp	1.13E-01		1.13E-01	2.11E-03		2.11E-03
	Thruster Engine 3	360 hr/yr	58 gal/hr	950 bhp	1.13E-01		1.13E-01	2.11E-03		2.11E-03
	Generator	820 hr/yr	27 gal/hr	400 kW	1.37E-01		1.37E-01	2.24E-03		2.24E-03
	Generator	120 hr/yr	27 gal/hr	400 kW	2.01E-02		2.01E-02	3.28E-04		3.28E-04
	Generator	0 hr/yr	27 gal/hr	400 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	1.49E-03		1.49E-03	2.43E-05		2.43E-05
					8.62E-01	0.00E+00	8.62E-01	1.57E-02	0.00E+00	1.57E-02

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit		Allowable	Maximum	Maximum	Potential H2S Emissions			Potential Pb Emissions		
	Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Oil Spill Response Vessel 1 (Dedicated OSRV)										
	Main Engine 1	800 hr/yr	75 gal/hr	3000 bhp	NA		NA	1.15E-04		1.15E-04
	Main Engine 2	800 hr/yr	75 gal/hr	3000 bhp	NA		NA	1.15E-04		1.15E-04
	Thruster Engine 1	12 hr/yr	58 gal/hr	950 hp	NA		NA	1.33E-06		1.33E-06
	Thruster Engine 2	12 hr/yr	58 gal/hr	950 hp	NA		NA	1.33E-06		1.33E-06
	Thruster Engine 3	12 hr/yr	58 gal/hr	950 hp	NA		NA	1.33E-06		1.33E-06
	Generator 1	2400 hr/yr	27 gal/hr	400 kW	NA		NA	1.24E-04		1.24E-04
	Generator 2	300 hr/yr	27 gal/hr	400 kW	NA		NA	1.55E-05		1.55E-05
	Generator 3	0 hr/yr	27 gal/hr	400 kW	NA		NA	0.00E+00		0.00E+00
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	NA		NA	4.60E-07		4.60E-07
					0.00E+00	0.00E+00	0.00E+00	3.74E-04	0.00E+00	3.74E-04
Oil Spill Response Vessel 2										
	Main Engine 1	60 hr/yr	75 gal/hr	3000 bhp	NA		NA	8.62E-06		8.62E-06
	Main Engine 2	60 hr/yr	75 gal/hr	3000 bhp	NA		NA	8.62E-06		8.62E-06
	Thruster Engine 1	48 hr/yr	58 gal/hr	950 hp	NA		NA	5.33E-06		5.33E-06
	Thruster Engine 2	48 hr/yr	58 gal/hr	950 hp	NA		NA	5.33E-06		5.33E-06
	Thruster Engine 3	48 hr/yr	58 gal/hr	950 hp	NA		NA	5.33E-06		5.33E-06
	Generator 1	60 hr/yr	27 gal/hr	400 kW	NA		NA	3.10E-06		3.10E-06
	Generator 2	30 hr/yr	27 gal/hr	400 kW	NA		NA	1.55E-06		1.55E-06
	Generator 3	0 hr/yr	27 gal/hr	400 kW	NA		NA	0.00E+00		0.00E+00
	Emergency Generator	2 hr/yr	8 gal/hr	99 kW	NA		NA	3.06E-08		3.06E-08
					0.00E+00	0.00E+00	0.00E+00	3.79E-05	0.00E+00	3.79E-05
Anchor Handling Supply Tug (AHST)										
	Main Engine 1	60 hr/yr	160 gal/hr	2529 kW	NA		NA	1.84E-05		1.84E-05
	Main Engine 2	60 hr/yr	160 gal/hr	2529 kW	NA		NA	1.84E-05		1.84E-05
	Generator 1	60 hr/yr	25 gal/hr	380 kW	NA		NA	2.87E-06		2.87E-06
	Generator 2	12 hr/yr	25 gal/hr	380 kW	NA		NA	5.75E-07		5.75E-07
	Generator 3	0 hr/yr	25 gal/hr	380 kW	NA		NA	0.00E+00		0.00E+00
	Emergency Generator	6 hr/yr	6 gal/hr	170 kW	NA		NA	6.44E-08		6.44E-08
					0.00E+00	0.00E+00	0.00E+00	4.03E-05	0.00E+00	4.03E-05
Offshore Supply Vessels (OSV1 & OSV2)										
	Main Engine 1	360 hr/yr	75 gal/hr	3000 bhp	NA		NA	5.17E-05		5.17E-05
	Main Engine 1	100 hr/yr	67 gal/hr	3000 bhp	NA		NA	1.28E-05		1.28E-05
	Main Engine 2	360 hr/yr	75 gal/hr	3000 bhp	NA		NA	5.17E-05		5.17E-05
	Main Engine 2	100 hr/yr	67 gal/hr	3000 bhp	NA		NA	1.28E-05		1.28E-05
	Thruster Engine 1	360 hr/yr	58 gal/hr	950 bhp	NA		NA	4.00E-05		4.00E-05
	Thruster Engine 2	360 hr/yr	58 gal/hr	950 bhp	NA		NA	4.00E-05		4.00E-05
	Thruster Engine 3	360 hr/yr	58 gal/hr	950 bhp	NA		NA	4.00E-05		4.00E-05
	Generator	820 hr/yr	27 gal/hr	400 kW	NA		NA	4.24E-05		4.24E-05
	Generator	120 hr/yr	27 gal/hr	400 kW	NA		NA	6.21E-06		6.21E-06
	Generator	0 hr/yr	27 gal/hr	400 kW	NA		NA	0.00E+00		0.00E+00
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	NA		NA	4.60E-07		4.60E-07
					0.00E+00	0.00E+00	0.00E+00	2.98E-04	0.00E+00	2.98E-04

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit		Allowable	Maximum	Maximum	Potential H2SO4 Emissions		
	Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total
Oil Spill Response Vessel 1 (Dedicated OSRV)							
	Main Engine 1	800 hr/yr	75 gal/hr	3000 bhp	NA		NA
	Main Engine 2	800 hr/yr	75 gal/hr	3000 bhp	NA		NA
	Thruster Engine 1	12 hr/yr	58 gal/hr	950 hp	NA		NA
	Thruster Engine 2	12 hr/yr	58 gal/hr	950 hp	NA		NA
	Thruster Engine 3	12 hr/yr	58 gal/hr	950 hp	NA		NA
	Generator 1	2400 hr/yr	27 gal/hr	400 kW	NA		NA
	Generator 2	300 hr/yr	27 gal/hr	400 kW	NA		NA
	Generator 3	0 hr/yr	27 gal/hr	400 kW	NA		NA
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	NA		NA
					0.00E+00	0.00E+00	0.00E+00
Oil Spill Response Vessel 2							
	Main Engine 1	60 hr/yr	75 gal/hr	3000 bhp	NA		NA
	Main Engine 2	60 hr/yr	75 gal/hr	3000 bhp	NA		NA
	Thruster Engine 1	48 hr/yr	58 gal/hr	950 hp	NA		NA
	Thruster Engine 2	48 hr/yr	58 gal/hr	950 hp	NA		NA
	Thruster Engine 3	48 hr/yr	58 gal/hr	950 hp	NA		NA
	Generator 1	60 hr/yr	27 gal/hr	400 kW	NA		NA
	Generator 2	30 hr/yr	27 gal/hr	400 kW	NA		NA
	Generator 3	0 hr/yr	27 gal/hr	400 kW	NA		NA
	Emergency Generator	2 hr/yr	8 gal/hr	99 kW	NA		NA
					0.00E+00	0.00E+00	0.00E+00
Anchor Handling Supply Tug (AHST)							
	Main Engine 1	60 hr/yr	160 gal/hr	2529 kW	NA		NA
	Main Engine 2	60 hr/yr	160 gal/hr	2529 kW	NA		NA
	Generator 1	60 hr/yr	25 gal/hr	380 kW	NA		NA
	Generator 2	12 hr/yr	25 gal/hr	380 kW	NA		NA
	Generator 3	0 hr/yr	25 gal/hr	380 kW	NA		NA
	Emergency Generator	6 hr/yr	6 gal/hr	170 kW	NA		NA
					0.00E+00	0.00E+00	0.00E+00
Offshore Supply Vessels (OSV1 & OSV2)							
	Main Engine 1	360 hr/yr	75 gal/hr	3000 bhp	NA		NA
	Main Engine 1	100 hr/yr	67 gal/hr	3000 bhp	NA		NA
	Main Engine 2	360 hr/yr	75 gal/hr	3000 bhp	NA		NA
	Main Engine 2	100 hr/yr	67 gal/hr	3000 bhp	NA		NA
	Thruster Engine 1	360 hr/yr	58 gal/hr	950 bhp	NA		NA
	Thruster Engine 2	360 hr/yr	58 gal/hr	950 bhp	NA		NA
	Thruster Engine 3	360 hr/yr	58 gal/hr	950 bhp	NA		NA
	Generator	820 hr/yr	27 gal/hr	400 kW	NA		NA
	Generator	120 hr/yr	27 gal/hr	400 kW	NA		NA
	Generator	0 hr/yr	27 gal/hr	400 kW	NA		NA
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	NA		NA
					0.00E+00	0.00E+00	0.00E+00

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit		Allowable	Maximum	Maximum	Potential NO_X Emissions			Potential CO Emissions		
	Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Ware Vessel (WV) w/ OSV backup										
	Main Engine 1	300 hr/yr	87 gal/hr	3200 hp	5.52E+00		5.52E+00	1.47E+00		1.47E+00
	Main Engine 2	300 hr/yr	87 gal/hr	3200 hp	5.52E+00		5.52E+00	1.47E+00		1.47E+00
	Main Engine 3	400 hr/yr	81 gal/hr	3200 hp	6.85E+00		6.85E+00	1.82E+00		1.82E+00
	Main Engine 4	400 hr/yr	81 gal/hr	3200 hp	6.85E+00		6.85E+00	1.82E+00		1.82E+00
	Generator 1	700 hr/yr	32 gal/hr	500 kW	4.83E+00		4.83E+00	3.82E-01		3.82E-01
	Generator 2	100 hr/yr	32 gal/hr	500 kW	6.90E-01		6.90E-01	5.46E-02		5.46E-02
	Generator 3	0 hr/yr	32 gal/hr	500 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	30 hr/yr	12 gal/hr	170 kW	7.76E-02		7.76E-02	6.14E-03		6.14E-03
					3.03E+01	**0.00E+00**	**3.03E+01**	**7.01E+00**	**0.00E+00**	**7.01E+00**
34' boom work boats - 4										
	WB-1 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	3.10E-01		3.10E-01	2.46E-02		2.46E-02
	WB-1 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	3.10E-01		3.10E-01	2.46E-02		2.46E-02
	WB-2 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	3.10E-01		3.10E-01	2.46E-02		2.46E-02
	WB-2 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	3.10E-01		3.10E-01	2.46E-02		2.46E-02
	WB-3 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	3.10E-01		3.10E-01	2.46E-02		2.46E-02
	WB-3 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	3.10E-01		3.10E-01	2.46E-02		2.46E-02
	WB-4 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	3.10E-01		3.10E-01	2.46E-02		2.46E-02
	WB-4 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	3.10E-01		3.10E-01	2.46E-02		2.46E-02
					2.48E+00		**2.48E+00**	**1.96E-01**	**0.00E+00**	**1.96E-01**
Marine Research Vessel										
	Main Engine	600 hr/yr	45 gal/hr	850 hp	5.71E+00		5.71E+00	1.52E+00		1.52E+00
	Generator 1	600 hr/yr	10 gal/hr	135 kW	1.24E+00		1.24E+00	9.81E-02		9.81E-02
	Generator 2	600 hr/yr	6 gal/hr	90 kW	8.27E-01		8.27E-01	6.54E-02		6.54E-02
	Generator 3	600 hr/yr	3 gal/hr	40 kW	3.67E-01		3.67E-01	2.91E-02		2.91E-02
					8.15E+00	**0.00E+00**	**8.15E+00**	**1.71E+00**	**0.00E+00**	**1.71E+00**
Spill Storage Tanker										
	Main Engine 1	12 hr/yr	89 gal/hr	1674 hp	2.25E-01		2.25E-01	5.98E-02		5.98E-02
	Main Engine 2	12 hr/yr	89 gal/hr	1674 hp	2.25E-01		2.25E-01	5.98E-02		5.98E-02
	Generator 1	48 hr/yr	41 gal/hr	576 kW	4.24E-01		4.24E-01	3.35E-02		3.35E-02
	Boiler 1	48 hr/yr	109 gal/hr	14 MMBtu/hr	5.24E-02		5.24E-02	1.31E-02		1.31E-02
					9.26E-01	**0.00E+00**	**9.26E-01**	**1.66E-01**	**0.00E+00**	**1.66E-01**
All Vessels Fuel Tanks										
	Fuel Tank	2400 hr/yr	2193682 gal/yr*	N A	N		N	N		N
			*max throughput		**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit		Allowable	Maximum	Maximum	Potential $PM_{10}/PM_{2.5}$ Emissions			Potential PM Emissions		
	Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Ware Vessel (WV) w/ OSV backup										
	Main Engine 1	300 hr/yr	87 gal/hr	3200 hp	9.88E-02		9.88E-02	1.72E-01		1.72E-01
	Main Engine 2	300 hr/yr	87 gal/hr	3200 hp	9.88E-02		9.88E-02	1.72E-01		1.72E-01
	Main Engine 3	400 hr/yr	81 gal/hr	3200 hp	1.23E-01		1.23E-01	2.14E-01		2.14E-01
	Main Engine 4	400 hr/yr	81 gal/hr	3200 hp	1.23E-01		1.23E-01	2.14E-01		2.14E-01
	Generator 1	700 hr/yr	32 gal/hr	500 kW	1.04E-01		1.04E-01	1.04E-01		1.04E-01
	Generator 2	100 hr/yr	32 gal/hr	500 kW	1.49E-02		1.49E-02	1.49E-02		1.49E-02
	Generator 3	0 hr/yr	32 gal/hr	500 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	30 hr/yr	12 gal/hr	170 kW	1.67E-03		1.67E-03	1.67E-03		1.67E-03
					5.64E-01	**0.00E+00**	**5.64E-01**	**8.94E-01**	**0.00E+00**	**8.94E-01**
34' boom work boats - 4										
	WB-1 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	6.70E-03		6.70E-03	6.70E-03		6.70E-03
	WB-1 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	6.70E-03		6.70E-03	6.70E-03		6.70E-03
	WB-2 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	6.70E-03		6.70E-03	6.70E-03		6.70E-03
	WB-2 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	6.70E-03		6.70E-03	6.70E-03		6.70E-03
	WB-3 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	6.70E-03		6.70E-03	6.70E-03		6.70E-03
	WB-3 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	6.70E-03		6.70E-03	6.70E-03		6.70E-03
	WB-4 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	6.70E-03		6.70E-03	6.70E-03		6.70E-03
	WB-4 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	6.70E-03		6.70E-03	6.70E-03		6.70E-03
					5.36E-02	**0.00E+00**	**5.36E-02**	**5.36E-02**	**0.00E+00**	**5.36E-02**
Marine Research Vessel										
	Main Engine	600 hr/yr	45 gal/hr	850 hp	1.02E-01		1.02E-01	1.79E-01		1.79E-01
	Generator 1	600 hr/yr	10 gal/hr	135 kW	2.68E-02		2.68E-02	2.68E-02		2.68E-02
	Generator 2	600 hr/yr	6 gal/hr	90 kW	1.79E-02		1.79E-02	1.78E-02		1.78E-02
	Generator 3	600 hr/yr	3 gal/hr	40 kW	7.94E-03		7.94E-03	7.93E-03		7.93E-03
					1.55E-01	**0.00E+00**	**1.55E-01**	**2.31E-01**	**0.00E+00**	**2.31E-01**
Spill Storage Tanker										
	Main Engine 1	12 hr/yr	89 gal/hr	1674 hp	4.03E-03		4.03E-03	7.03E-03		7.03E-03
	Main Engine 2	12 hr/yr	89 gal/hr	1674 hp	4.03E-03		4.03E-03	7.03E-03		7.03E-03
	Generator 1	48 hr/yr	41 gal/hr	576 kW	9.15E-03		9.15E-03	9.14E-03		9.14E-03
	Boiler 1	48 hr/yr	109 gal/hr	14 MMBtu/hr	2.83E-03		2.83E-03	5.24E-03		5.24E-03
					2.00E-02	**0.00E+00**	**2.00E-02**	**2.84E-02**	**0.00E+00**	**2.84E-02**
All Vessels Fuel Tanks										
	Fuel Tank	2400 hr/yr	2193682 gal/yr*	N A	N		N	N		N
			*max throughput		**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit		Allowable	Maximum	Maximum	Potential VOC Emissions			Potential SO_2 Emissions		
	Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Ware Vessel (WV) w/ OSV backup										
	Main Engine 1	300 hr/yr	87 gal/hr	3200 hp	1.41E-01		1.41E-01	2.64E-03		2.64E-03
	Main Engine 2	300 hr/yr	87 gal/hr	3200 hp	1.41E-01		1.41E-01	2.64E-03		2.64E-03
	Main Engine 3	400 hr/yr	81 gal/hr	3200 hp	1.75E-01		1.75E-01	3.28E-03		3.28E-03
	Main Engine 4	400 hr/yr	81 gal/hr	3200 hp	1.75E-01		1.75E-01	3.28E-03		3.28E-03
	Generator 1	700 hr/yr	32 gal/hr	500 kW	1.39E-01		1.39E-01	2.26E-03		2.26E-03
	Generator 2	100 hr/yr	32 gal/hr	500 kW	1.98E-02		1.98E-02	3.24E-04		3.24E-04
	Generator 3	0 hr/yr	32 gal/hr	500 kW	0.00E+00		0.00E+00	0.00E+00		0.00E+00
	Emergency Generator	30 hr/yr	12 gal/hr	170 kW	2.23E-03		2.23E-03	3.64E-05		3.64E-05
					7.94E-01	**0.00E+00**	**7.94E-01**	**1.45E-02**	**0.00E+00**	**1.45E-02**
34' boom work boats - 4										
	WB-1 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	8.93E-03		8.93E-03	1.46E-04		1.46E-04
	WB-1 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	8.93E-03		8.93E-03	1.46E-04		1.46E-04
	WB-2 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	8.93E-03		8.93E-03	1.46E-04		1.46E-04
	WB-2 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	8.93E-03		8.93E-03	1.46E-04		1.46E-04
	WB-3 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	8.93E-03		8.93E-03	1.46E-04		1.46E-04
	WB-3 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	8.93E-03		8.93E-03	1.46E-04		1.46E-04
	WB-4 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	8.93E-03		8.93E-03	1.46E-04		1.46E-04
	WB-4 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	8.93E-03		8.93E-03	1.46E-04		1.46E-04
					7.14E-02	**0.00E+00**	**7.14E-02**	**1.16E-03**	**0.00E+00**	**1.16E-03**
Marine Research Vessel										
	Main Engine	600 hr/yr	45 gal/hr	850 hp	1.46E-01		1.46E-01	2.73E-03		2.73E-03
	Generator 1	600 hr/yr	10 gal/hr	135 kW	3.57E-02		3.57E-02	5.82E-04		5.82E-04
	Generator 2	600 hr/yr	6 gal/hr	90 kW	2.38E-02		2.38E-02	3.88E-04		3.88E-04
	Generator 3	600 hr/yr	3 gal/hr	40 kW	1.06E-02		1.06E-02	1.72E-04		1.72E-04
					2.16E-01	**0.00E+00**	**2.16E-01**	**3.87E-03**	**0.00E+00**	**3.87E-03**
Spill Storage Tanker										
	Main Engine 1	12 hr/yr	89 gal/hr	1674 hp	5.76E-03		5.76E-03	1.08E-04		1.08E-04
	Main Engine 2	12 hr/yr	89 gal/hr	1674 hp	5.76E-03		5.76E-03	1.08E-04		1.08E-04
	Generator 1	48 hr/yr	41 gal/hr	576 kW	1.22E-02		1.22E-02	1.99E-04		1.99E-04
	Boiler 1	48 hr/yr	109 gal/hr	14 MMBtu/hr	5.24E-04		5.24E-04	5.30E-04		5.30E-04
					2.42E-02	**0.00E+00**	**2.42E-02**	**9.44E-04**	**0.00E+00**	**9.44E-04**
All Vessels Fuel Tanks										
	Fuel Tank	2400 hr/yr	2193682 gal/yr*	N A	1.16E-02		1.16E-02	N		N
			*max throughput		**1.16E-02**	**0.00E+00**	**1.16E-02**	**0.00E+00**	**0.00E+00**	**0.00E+00**

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit		Allowable	Maximum	Maximum	Potential H2S Emissions			Potential Pb Emissions		
	Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Ware Vessel (WV) w/ OSV backup										
	Main Engine 1	300 hr/yr	87 gal/hr	3200 hp	NA		NA	5.00E-05		5.00E-05
	Main Engine 2	300 hr/yr	87 gal/hr	3200 hp	NA		NA	5.00E-05		5.00E-05
	Main Engine 3	400 hr/yr	81 gal/hr	3200 hp	NA		NA	6.21E-05		6.21E-05
	Main Engine 4	400 hr/yr	81 gal/hr	3200 hp	NA		NA	6.21E-05		6.21E-05
	Generator 1	700 hr/yr	32 gal/hr	500 kW	NA		NA	4.29E-05		4.29E-05
	Generator 2	100 hr/yr	32 gal/hr	500 kW	NA		NA	6.13E-06		6.13E-06
	Generator 3	0 hr/yr	32 gal/hr	500 kW	NA		NA	0.00E+00		0.00E+00
	Emergency Generator	30 hr/yr	12 gal/hr	170 kW	NA		NA	6.90E-07		6.90E-07
					0.00E+00	0.00E+00	0.00E+00	2.74E-04	0.00E+00	2.74E-04
34' boom work boats - 4										
	WB-1 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	NA		NA	2.76E-06		2.76E-06
	WB-1 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	NA		NA	2.76E-06		2.76E-06
	WB-2 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	NA		NA	2.76E-06		2.76E-06
	WB-2 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	NA		NA	2.76E-06		2.76E-06
	WB-3 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	NA		NA	2.76E-06		2.76E-06
	WB-3 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	NA		NA	2.76E-06		2.76E-06
	WB-4 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	NA		NA	2.76E-06		2.76E-06
	WB-4 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	NA		NA	2.76E-06		2.76E-06
					0.00E+00	0.00E+00	0.00E+00	2.21E-05	0.00E+00	2.21E-05
Marine Research Vessel										
	Main Engine	600 hr/yr	45 gal/hr	850 hp	NA		NA	5.18E-05		5.18E-05
	Generator 1	600 hr/yr	10 gal/hr	135 kW	NA		NA	1.10E-05		1.10E-05
	Generator 2	600 hr/yr	6 gal/hr	90 kW	NA		NA	7.35E-06		7.35E-06
	Generator 3	600 hr/yr	3 gal/hr	40 kW	NA		NA	3.27E-06		3.27E-06
					0.00E+00	0.00E+00	0.00E+00	7.34E-05	0.00E+00	7.34E-05
Spill Storage Tanker										
	Main Engine 1	12 hr/yr	89 gal/hr	1674 hp	NA		NA	2.04E-06		2.04E-06
	Main Engine 2	12 hr/yr	89 gal/hr	1674 hp	NA		NA	2.04E-06		2.04E-06
	Generator 1	48 hr/yr	41 gal/hr	576 kW	NA		NA	3.76E-06		3.76E-06
	Boiler 1	48 hr/yr	109 gal/hr	14 MMBtu/hr	NA		NA	3.12E-06		3.12E-06
					0.00E+00	0.00E+00	0.00E+00	1.10E-05	0.00E+00	1.10E-05
All Vessels Fuel Tanks										
	Fuel Tank	2400 hr/yr	2193682 gal/yr*	N A	NA		NA	N		N
			*max throughput		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Annual PTE

Emission Unit		Allowable	Maximum	Maximum	Potential H2SO4 Emissions		
	Description	Operation	Fuel Usage	Output Capacity	Propulsion	Non-Prop.	Total
Ware Vessel (WV) w/ OSV backup							
	Main Engine 1	300 hr/yr	87 gal/hr	3200 hp	NA		NA
	Main Engine 2	300 hr/yr	87 gal/hr	3200 hp	NA		NA
	Main Engine 3	400 hr/yr	81 gal/hr	3200 hp	NA		NA
	Main Engine 4	400 hr/yr	81 gal/hr	3200 hp	NA		NA
	Generator 1	700 hr/yr	32 gal/hr	500 kW	NA		NA
	Generator 2	100 hr/yr	32 gal/hr	500 kW	NA		NA
	Generator 3	0 hr/yr	32 gal/hr	500 kW	NA		NA
	Emergency Generator	30 hr/yr	12 gal/hr	170 kW	NA		NA
					0.00E+00	0.00E+00	0.00E+00
34' boom work boats - 4							
	WB-1 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	NA		NA
	WB-1 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	NA		NA
	WB-2 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	NA		NA
	WB-2 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	NA		NA
	WB-3 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	NA		NA
	WB-3 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	NA		NA
	WB-4 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	NA		NA
	WB-4 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	NA		NA
					0.00E+00	0.00E+00	0.00E+00
Marine Research Vessel							
	Main Engine	600 hr/yr	45 gal/hr	850 hp	NA		NA
	Generator 1	600 hr/yr	10 gal/hr	135 kW	NA		NA
	Generator 2	600 hr/yr	6 gal/hr	90 kW	NA		NA
	Generator 3	600 hr/yr	3 gal/hr	40 kW	NA		NA
					0.00E+00	0.00E+00	0.00E+00
Spill Storage Tanker							
	Main Engine 1	12 hr/yr	89 gal/hr	1674 hp	NA		NA
	Main Engine 2	12 hr/yr	89 gal/hr	1674 hp	NA		NA
	Generator 1	48 hr/yr	41 gal/hr	576 kW	NA		NA
	Boiler 1	48 hr/yr	109 gal/hr	14 MMBtu/hr	NA		NA
					0.00E+00	0.00E+00	0.00E+00
All Vessels Fuel Tanks							
	Fuel Tank	2400 hr/yr	2193682 gal/yr*	N A	NA		NA
			*max throughput		0.00E+00	0.00E+00	0.00E+00

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Nitrogen Oxides

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential NOx Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly Emission Rate	Annual Emission Rate
Drill Rig Equipment										
	Main Drill Rig Engine 1	1200 hr/yr	206 g fuel/kWh	2480 kW	1.83	g/kW-h	Wartsila SCR spec	18	10.0 lb/hr	6.0 tpy
	Main Drill Rig Engine 2	1200 hr/yr	206 g fuel/kWh	2480 kW	1.83	g/kW-h	Wartsila SCR spec	18	10.0 lb/hr	6.0 tpy
	Main Drill Rig Engine 3	1200 hr/yr	206 g fuel/kWh	2480 kW	1.83	g/kW-h	Wartsila SCR spec	18	10.0 lb/hr	6.0 tpy
	Main Drill Rig Engine 4	1200 hr/yr	206 g fuel/kWh	2480 kW	1.83	g/kW-h	Wartsila SCR spec	18	10.0 lb/hr	6.0 tpy
	Emergency Back-up Engine	75 hr/yr	205 g fuel/kWh	968 kW	3.2	lb/MMBtu	AP-42, Table 3.4-1	20	29.1 lb/hr	1.09 tpy
	Cement Engine 1	131 hr/yr	29 gal/hr	403 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	18	12.3 lb/hr	0.81 tpy
	Cement Engine 2	131 hr/yr	29 gal/hr	403 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	18	12.3 lb/hr	0.81 tpy
	Logging Winch	273 hr/yr	13 gal/hr	187 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	18	5.7 lb/hr	0.78 tpy
	Heater 1	2400 hr/yr	26 gal/hr	3.5 MMBtu/hr a	20	lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	24	0.53 lb/hr	0.64 tpy
	Heater 2	2400 hr/yr	26 gal/hr	3.5 MMBtu/hr a	20	lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	24	0.53 lb/hr	0.64 tpy
	Incinerator	65 tons/yr	276 lbs/hr	N A	3	lbs/ton	AP-42, Table 2.1-12	15	0.41 lb/hr	0.1 tpy
	Fuel Tank 1	2400 hrs/yr	471941 gal/yr*	N A	N A		NA		N A	N A
	Fuel Tank 2	2400 hrs/yr	471941 gal/yr*	N A	N A		NA		N A	N A
	Mud Degassing	100 days/yr	N A	20000 scf/day	N A		NA		N A	N A
				a Heat input rate						
Ice Breaker 1										
	Main Engine 1	515 hr/yr	426 gal/hr	8046 bhp	2.9	g/kW-h	Design Spec	19	38.3 lb/hr	9.87 tpy
	Main Engine 2	515 hr/yr	426 gal/hr	8046 bhp	2.9	g/kW-h	Design Spec	19	38.3 lb/hr	9.87 tpy
	Main Engine 3	515 hr/yr	320 gal/hr	6035 bhp	2.9	g/kW-h	Design Spec	19	28.8 lb/hr	7.41 tpy
	Main Engine 4	515 hr/yr	320 gal/hr	6035 bhp	2.9	g/kW-h	Design Spec	19	28.8 lb/hr	7.41 tpy
	Harbor Generator	35 hr/yr	50 gal/hr	952 bhp	13.9	g/kW-h	EPA Ocean Vessel Guidance	19	21.7 lb/hr	0.38 tpy
	Emergency Generator	35 hr/yr	21 gal/hr	402 bhp	13.9	g/kW-h	EPA Ocean Vessel Guidance	19	9.2 lb/hr	0.16 tpy
	Boiler 1	515 hr/yr	28 gal/hr	3.7 MMBtu/hr a	20	lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	16	0.6 lb/hr	0.14 tpy
	Boiler 2	515 hr/yr	28 gal/hr	3.7 MMBtu/hr a	20	lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	16	0.6 lb/hr	0.14 tpy
	Incinerator	515 hr/yr	175 lb/hr	N A	3	lbs/ton	AP-42, Table 2.1-12	15	0.3 lb/hr	0.07 tpy
				a Heat input rate						
Ice Breaker 2										
	Main Engine 1	515 hr/yr	426 gal/hr	8046 bhp	2.9	g/kW-h	Design Spec	19	38.3 lb/hr	9.87 tpy
	Main Engine 2	515 hr/yr	426 gal/hr	8046 bhp	2.9	g/kW-h	Design Spec	19	38.3 lb/hr	9.87 tpy
	Main Engine 3	515 hr/yr	320 gal/hr	6035 bhp	2.9	g/kW-h	Design Spec	19	28.8 lb/hr	7.41 tpy
	Main Engine 4	515 hr/yr	320 gal/hr	6035 bhp	2.9	g/kW-h	Design Spec	19	28.8 lb/hr	7.41 tpy
	Harbor Generator	35 hr/yr	50 gal/hr	952 bhp	13.9	g/kW-h	EPA Ocean Vessel Guidance	19	21.7 lb/hr	0.38 tpy
	Emergency Generator	35 hr/yr	21 gal/hr	402 bhp	13.9	g/kW-h	EPA Ocean Vessel Guidance	19	9.2 lb/hr	0.16 tpy
	Boiler 1	515 hr/yr	28 gal/hr	3.7 MMBtu/hr a	20	lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	16	0.6 lb/hr	0.14 tpy
	Boiler 2	515 hr/yr	28 gal/hr	3.7 MMBtu/hr a	20	lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	16	0.6 lb/hr	0.14 tpy
	Incinerator	515 hr/yr	175 lb/hr	N A	3	lbs/ton	AP-42, Table 2.1-12	15	0.3 lb/hr	0.07 tpy
				a Heat input rate						
Oil Spill Response Vessel 1 (Dedicated OSRV)										
	Main Engine 1	800 hr/yr	75 gal/hr	3000 bhp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	31.7 lb/hr	12.68 tpy
	Main Engine 2	800 hr/yr	75 gal/hr	3000 bhp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	31.7 lb/hr	12.68 tpy
	Thruster Engine 1	12 hr/yr	58 gal/hr	950 hp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	24.5 lb/hr	0.15 tpy
	Thruster Engine 2	12 hr/yr	58 gal/hr	950 hp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	24.5 lb/hr	0.15 tpy
	Thruster Engine 3	12 hr/yr	58 gal/hr	950 hp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	24.5 lb/hr	0.15 tpy
	Generator 1	2400 hr/yr	27 gal/hr	400 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	11.6 lb/hr	13.96 tpy
	Generator 2	300 hr/yr	27 gal/hr	400 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	11.6 lb/hr	1.75 tpy
	Generator 3	0 hr/yr	27 gal/hr	400 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	11.6 lb/hr	0.00 tpy
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	3.4 lb/hr	0.05 tpy

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Nitrogen Oxides

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential NOx Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly Emission Rate	Annual Emission Rate
Oil Spill Response Vessel 2										
	Main Engine 1	60 hr/yr	75 gal/hr	3000 bhp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	31.7 lb/hr	0.95 tpy
	Main Engine 2	60 hr/yr	75 gal/hr	3000 bhp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	31.7 lb/hr	0.95 tpy
	Thruster Engine 1	48 hr/yr	58 gal/hr	950 hp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	24.5 lb/hr	0.59 tpy
	Thruster Engine 2	48 hr/yr	58 gal/hr	950 hp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	24.5 lb/hr	0.59 tpy
	Thruster Engine 3	48 hr/yr	58 gal/hr	950 hp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	24.5 lb/hr	0.59 tpy
	Generator 1	60 hr/yr	27 gal/hr	400 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	11.6 lb/hr	0.35 tpy
	Generator 2	30 hr/yr	27 gal/hr	400 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	11.6 lb/hr	0.17 tpy
	Generator 3	0 hr/yr	27 gal/hr	400 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	11.6 lb/hr	0.00 tpy
	Emergency Generator	2 hr/yr	8 gal/hr	99 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	3.4 lb/hr	3.45E-03 tpy
Anchor Handling Supply Tug (AHST)										
0	Main Engine 1	60 hr/yr	160 gal/hr	2529 kW	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	67.6 lb/hr	2.03 tpy
0	Main Engine 2	60 hr/yr	160 gal/hr	2529 kW	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	67.6 lb/hr	2.03 tpy
0	Generator 1	60 hr/yr	25 gal/hr	380 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	10.8 lb/hr	0.32 tpy
0	Generator 2	12 hr/yr	25 gal/hr	380 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	10.8 lb/hr	0.06 tpy
0	Generator 3	0 hr/yr	25 gal/hr	380 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	10.8 lb/hr	0.00 tpy
0	Emergency Generator	6 hr/yr	6 gal/hr	170 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	2.4 lb/hr	0.01 tpy
Offshore Supply Vessels (OSV1 & OSV2)										
	Main Engine 1	360 hr/yr	75 gal/hr	3000 bhp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	31.7 lb/hr	5.71 tpy
	Main Engine 1	100 hr/yr	67 gal/hr	3000 bhp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	28.3 lb/hr	1.42 tpy
	Main Engine 2	360 hr/yr	75 gal/hr	3000 bhp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	31.7 lb/hr	5.71 tpy
	Main Engine 2	100 hr/yr	67 gal/hr	3000 bhp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	28.3 lb/hr	1.42 tpy
	Thruster Engine 1	360 hr/yr	58 gal/hr	950 bhp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	24.5 lb/hr	4.41 tpy
	Thruster Engine 2	360 hr/yr	58 gal/hr	950 bhp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	24.5 lb/hr	4.41 tpy
	Thruster Engine 3	360 hr/yr	58 gal/hr	950 bhp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	24.5 lb/hr	4.41 tpy
	Generator	820 hr/yr	27 gal/hr	400 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	11.6 lb/hr	4.77 tpy
	Generator	120 hr/yr	27 gal/hr	400 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	11.6 lb/hr	0.70 tpy
	Generator	0 hr/yr	27 gal/hr	400 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	11.6 lb/hr	0.00 tpy
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	3.4 lb/hr	0.05 tpy
Ware Vessel (WV) w/ OSV backup										
	Main Engine 1	300 hr/yr	87 gal/hr	3200 hp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	36.8 lb/hr	5.52 tpy
	Main Engine 2	300 hr/yr	87 gal/hr	3200 hp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	36.8 lb/hr	5.52 tpy
	Main Engine 3	400 hr/yr	81 gal/hr	3200 hp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	34.2 lb/hr	6.85 tpy
	Main Engine 4	400 hr/yr	81 gal/hr	3200 hp	3.2	lb/MMBtu	AP-42, Table 3.4-1	14	34.2 lb/hr	6.85 tpy
	Generator 1	700 hr/yr	32 gal/hr	500 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	13.8 lb/hr	4.83 tpy
	Generator 2	100 hr/yr	32 gal/hr	500 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	13.8 lb/hr	0.69 tpy
	Generator 3	0 hr/yr	32 gal/hr	500 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	13.8 lb/hr	0.00 tpy
	Emergency Generator	30 hr/yr	12 gal/hr	170 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	5.2 lb/hr	0.08 tpy
34' boom work boats - 4										
	WB-1 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	12.9 lb/hr	0.31 tpy
	WB-1 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	12.9 lb/hr	0.31 tpy
	WB-2 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	12.9 lb/hr	0.31 tpy
	WB-2 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	12.9 lb/hr	0.31 tpy
	WB-3 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	12.9 lb/hr	0.31 tpy
	WB-3 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	12.9 lb/hr	0.31 tpy
	WB-4 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	12.9 lb/hr	0.31 tpy
	WB-4 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	13.9	g/kW-h	EPA Ocean Vessel Guidance	17	12.9 lb/hr	0.31 tpy

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Nitrogen Oxides

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential NOx Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly Emission Rate	Annual Emission Rate
Marine Research Vessel										
	Main Engine	600 hr/yr	45 gal/hr	850 hp	3.2	lb/MMBtu	AP-42, Table 3.4-1	21	19.0 lb/hr	5.7 tpy
	Generator 1	600 hr/yr	10 gal/hr	135 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	18	4.1 lb/hr	1.2 tpy
	Generator 2	600 hr/yr	6 gal/hr	90 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	18	2.8 lb/hr	0.8 tpy
	Generator 3	600 hr/yr	3 gal/hr	40 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	18	1.2 lb/hr	0.4 tpy
Spill Storage Tanker										
	Main Engine 1	12 hr/yr	89 gal/hr	1673.963038 hp	3.2	lb/MMBtu	AP-42, Table 3.4-1	21	37.5 lb/hr	0.2 tpy
	Main Engine 2	12 hr/yr	89 gal/hr	1674 hp	3.2	lb/MMBtu	AP-42, Table 3.4-1	21	37.5 lb/hr	0.2 tpy
	Generator 1	48 hr/yr	41 gal/hr	576 kW	13.9	g/kW-h	EPA Ocean Vessel Guidance	19	17.6 lb/hr	0.42 tpy
	Boiler 1	48 hr/yr	109 gal/hr	14 MMBtu/hr	20	lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	24	2.2 lb/hr	0.05 tpy
All Vessels Fuel Tanks										
	Fuel Tank	2400 hr/yr	2193682 gal/yr*	N A	N A		NA		N A	N A

Notes:

1 I kW = 1.3405 hp; 1 lb = 454 g; assumed break specific fuel consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1) and fuel heat content of 132,096 Btu/gal ULSD #1 (Tesoro/Kenai Refinery).

2 Assumed well gas heat content of 1,085 Btu/scf for test flare (email from Dan Lowe 1/7/09) and propane heat content of 2,516 Btu/scf for flare pilot & purge (National Propane Gas Association http://www.npga.org/i4a/pages/index.cfm?pageid=633).

3 ULSD #1 has a density of 0.8094 kg/L (Tesoro/Kenai Refinery); so assume 6.74 lbs/ gal diesel

4 Incinerator waste fuel heat content is assumed 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17).

5 Incinerators will burn ULSD for ignition purposes only.

6 An equivalent of 2 main drilling engines at 100% load will operate continuously for up to 100 days per season (4800 hrs).

7 Mud degassing emission rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977)

8 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 6 times per year).

9 The Ware Vessel will make up to 50 trips per season.

10 EPA Ocean Vessel Guidance is "Emission Inventories for Ocean-Going Vessels Using Category 3 Propulsion Engines In or Near the United States" (EPA420-D-07-007, December, 2007) - Table 3-55 Marine Distillate fuel

11 All drill rig main engines and all ice breaker engines use SCR emission controls.

12 Engines < 600 hp (< 448 kW) and all generators EF from EPA Ocean Vessel Guidance.

13 Engines > 600 hp EF are from AP-42.

NOx Calculations and Conversions:

14 PTE (lb/hr) = EF (lb/MMBtu)*Max Fuel Usage (gal/hour)*(132,096 Btu/gal)*(1MMBtu/1,000,000 Btu)

15 PTE (lb/hr) = EF (lb/ton)*Max Fuel Usage (lb/hr)/(2000 lbs/ton)

16 PTE (lb/hr) = EF (lb/1,000 gal)*Max Fuel Usage (gal/hr)/1,000 gallons

17 PTE (lb/hr) = EF (g/kW-h)*Max Fuel Usage (gal/hour)/(1.3405 hp/kW)/(7,000 Btu/hp-h)*(132,096 Btu/gal)/(454 g/lb)

18 PTE (lb/hr) = EF (g/kW-h)*Max Output Capacity (kW)*(1 lb/454 g)

19 PTE (lb/hr) = EF (g/kW-h)*Max Output Capacity (hp)/(454 g/lb)/(1.3405 hp/kW)

20 PTE (lb/hr) = EF (lb/MMBtu)*Max Output Capacity (kW)*(7,000 Btu/hp-h)*(1.3405 hp/kW)(1MMBtu/1,000,000 Btu)

21 PTE (lb/hr) = EF (lb/MMBtu)*Max Output Capacity (hp)*(7,000 Btu/hp-h)*(MMBtu/1,000,000 Btu)

22 PTE (lb/hr) = EF (lb/MMBtu)* Max Output Capacity (MMscf/day)*(1,085 Btu/scf)/(12 hr/day)

23 PTE (tpy) = Hourly Emission Rate (lb/hr)*Allowable Operation (hr/yr)/(2000 lb/ton)

24 PTE (tpy) = Hourly Emission Rate with Allowable Operation already incorporated (lb/hr)*(8765 hr/yr)/(2000 lb/ton)

brake horse power (bhp) ≈ horse power (hp)

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Carbon Monoxide

Emission Unit	Allowable	Maximum	Maximum	Emission Factor		Reference		Potential CO Emissions	
Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly Emission Rate	Annual Emission Rate
Drill Rig Equipment									
Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 kW	5.50E-03	lb/hp-h	AP-42, Table 3.4-1	14	18.3 lb/hr	11.0 tpy
Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 kW	5.50E-03	lb/hp-h	AP-42, Table 3.4-1	14	18.3 lb/hr	11.0 tpy
Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 kW	5.50E-03	lb/hp-h	AP-42, Table 3.4-1	14	18.3 lb/hr	11.0 tpy
Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 kW	5.50E-03	lb/hp-h	AP-42, Table 3.4-1	14	18.3 lb/hr	11.0 tpy
Emergency Back-up Engine	75 hr/yr	205 g fuel/kWh	968 kW	5.50E-03	lb/hp-h	AP-42, Table 3.4-1	14	7.1 lb/hr	0.3 tpy
Cement Engine 1	131 hr/yr	29 gal/hr	403 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	15	1.0 lb/hr	0.06 tpy
Cement Engine 2	131 hr/yr	29 gal/hr	403 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	15	1.0 lb/hr	0.06 tpy
Logging Winch	273 hr/yr	13 gal/hr	187 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	15	0.5 lb/hr	0.06 tpy
Heater 1	2400 hr/yr	26 gal/hr	4 MMBtu/hr a	5	lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	27	0.13 lb/hr	0.16 tpy
Heater 2	2400 hr/yr	26 gal/hr	4 MMBtu/hr a	5	lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	27	0.13 lb/hr	0.16 tpy
Incinerator	65 tons/yr	276 lbs/hr	N A	10	lbs/ton	AP-42, Table 2.1-12	16	1.38 lb/hr	0.33 tpy
Fuel Tank 1	2400 hrs/yr	471941 gal/yr*	N A	N A		NA		N A	N A
Fuel Tank 2	2400 hrs/yr	471941 gal/yr*	N A	N A		NA		N A	N A
Mud Degassing	100 days/yr	N A	20000 scf/day	N A		NA		N A	N A
			a Heat input rate						
Ice Breaker 1									
Main Engine 1	515 hr/yr	426 gal/hr	8046 bhp	5.50E-03	lb/hp-h	AP-42, Table 3.4-1	17	44.3 lb/hr	11.40 tpy
Main Engine 2	515 hr/yr	426 gal/hr	8046 bhp	5.50E-03	lb/hp-h	AP-42, Table 3.4-1	17	44.3 lb/hr	11.40 tpy
Main Engine 3	515 hr/yr	320 gal/hr	6035 bhp	5.50E-03	lb/hp-h	AP-42, Table 3.4-1	17	33.2 lb/hr	8.55 tpy
Main Engine 4	515 hr/yr	320 gal/hr	6035 bhp	5.50E-03	lb/hp-h	AP-42, Table 3.4-1	17	33.2 lb/hr	8.55 tpy
Harbor Generator	35 hr/yr	50 gal/hr	952 bhp	1.1	g/kW-h	EPA Ocean Vessel Guidance	18	1.7 lb/hr	0.03 tpy
Emergency Generator	35 hr/yr	21 gal/hr	402 bhp	1.1	g/kW-h	EPA Ocean Vessel Guidance	18	0.7 lb/hr	0.01 tpy
Boiler 1	515 hr/yr	28 gal/hr	4 MMBtu/hr a	5	lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	19	0.1 lb/hr	0.04 tpy
Boiler 2	515 hr/yr	28 gal/hr	4 MMBtu/hr a	5	lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	19	0.1 lb/hr	0.04 tpy
Incinerator	515 hr/yr	175 lb/hr	N A	10	lbs/ton	AP-42, Table 2.1-12	16	0.9 lb/hr	0.23 tpy
			a Heat input rate						
Ice Breaker 2									
Main Engine 1	515 hr/yr	426 gal/hr	8046 bhp	5.50E-03	lb/hp-h	AP-42, Table 3.4-1	17	44.3 lb/hr	11.40 tpy
Main Engine 2	515 hr/yr	426 gal/hr	8046 bhp	5.50E-03	lb/hp-h	AP-42, Table 3.4-1	17	44.3 lb/hr	11.40 tpy
Main Engine 3	515 hr/yr	320 gal/hr	6035 bhp	5.50E-03	lb/hp-h	AP-42, Table 3.4-1	17	33.2 lb/hr	8.55 tpy
Main Engine 4	515 hr/yr	320 gal/hr	6035 bhp	5.50E-03	lb/hp-h	AP-42, Table 3.4-1	17	33.2 lb/hr	8.55 tpy
Harbor Generator	35 hr/yr	50 gal/hr	952 bhp	1.1	g/kW-h	EPA Ocean Vessel Guidance	18	1.7 lb/hr	0.03 tpy
Emergency Generator	35 hr/yr	21 gal/hr	402 bhp	1.1	g/kW-h	EPA Ocean Vessel Guidance	18	0.7 lb/hr	0.01 tpy
Boiler 1	515 hr/yr	28 gal/hr	4 MMBtu/hr a	5	lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	19	0.1 lb/hr	0.04 tpy
Boiler 2	515 hr/yr	28 gal/hr	4 MMBtu/hr a	5	lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	19	0.1 lb/hr	0.04 tpy
Incinerator	515 hr/yr	175 lb/hr	N A	10	lbs/ton	AP-42, Table 2.1-12	16	0.9 lb/hr	0.23 tpy
			a Heat input rate						
Oil Spill Response Vessel 1 (Dedicated OSRV)									
Main Engine 1	800 hr/yr	75 gal/hr	3000 bhp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	8.4 lb/hr	3.4 tpy
Main Engine 2	800 hr/yr	75 gal/hr	3000 bhp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	8.4 lb/hr	3.4 tpy
Thruster Engine 1	12 hr/yr	58 gal/hr	950 hp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	6.5 lb/hr	0.0 tpy
Thruster Engine 2	12 hr/yr	58 gal/hr	950 hp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	6.5 lb/hr	0.0 tpy
Thruster Engine 3	12 hr/yr	58 gal/hr	950 hp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	6.5 lb/hr	0.0 tpy
Generator 1	2400 hr/yr	27 gal/hr	400 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	26	0.92 lb/hr	1.1 tpy
Generator 2	300 hr/yr	27 gal/hr	400 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	26	0.92 lb/hr	0.1 tpy
Generator 3	0 hr/yr	27 gal/hr	400 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	26	0.92 lb/hr	0.0 tpy
Emergency Generator	30 hr/yr	8 gal/hr	99 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	26	0.27 lb/hr	4.09E-03 tpy

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Carbon Monoxide

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential CO Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly Emission Rate	Annual Emission Rate
Oil Spill Response Vessel 2										
	Main Engine 1	60 hr/yr	75 gal/hr	3000 bhp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	8.4 lb/hr	0.3 tpy
	Main Engine 2	60 hr/yr	75 gal/hr	3000 bhp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	8.4 lb/hr	0.3 tpy
	Thruster Engine 1	48 hr/yr	58 gal/hr	950 hp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	6.5 lb/hr	0.2 tpy
	Thruster Engine 2	48 hr/yr	58 gal/hr	950 hp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	6.5 lb/hr	0.2 tpy
	Thruster Engine 3	48 hr/yr	58 gal/hr	950 hp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	6.5 lb/hr	0.2 tpy
	Generator 1	60 hr/yr	27 gal/hr	400 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	26	0.92 lb/hr	0.03 tpy
	Generator 2	30 hr/yr	27 gal/hr	400 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	26	0.92 lb/hr	0.01 tpy
	Generator 3	0 hr/yr	27 gal/hr	400 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	26	0.92 lb/hr	0.0 tpy
	Emergency Generator	2 hr/yr	8 gal/hr	99 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	26	0.27 lb/hr	2.73E-04 tpy
Anchor Handling Supply Tug (AHST)										
0	Main Engine 1	60 hr/yr	160 gal/hr	2529 kW	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	18.0 lb/hr	0.5 tpy
0	Main Engine 2	60 hr/yr	160 gal/hr	2529 kW	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	18.0 lb/hr	0.5 tpy
0	Generator 1	60 hr/yr	25 gal/hr	380 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	26	0.85 lb/hr	0.03 tpy
0	Generator 2	12 hr/yr	25 gal/hr	380 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	26	0.85 lb/hr	0.01 tpy
0	Generator 3	0 hr/yr	25 gal/hr	380 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	26	0.85 lb/hr	0.0 tpy
0	Emergency Generator	6 hr/yr	6 gal/hr	170 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	26	0.19 lb/hr	5.7E-04 tpy
Offshore Supply Vessels (OSV1 & OSV2)										
	Main Engine 1	360 hr/yr	75 gal/hr	3000 bhp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	8.4 lb/hr	1.5 tpy
	Main Engine 1	100 hr/yr	67 gal/hr	3000 bhp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	7.5 lb/hr	0.4 tpy
	Main Engine 2	360 hr/yr	75 gal/hr	3000 bhp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	8.4 lb/hr	1.5 tpy
	Main Engine 2	100 hr/yr	67 gal/hr	3000 bhp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	7.5 lb/hr	0.4 tpy
	Thruster Engine 1	360 hr/yr	58 gal/hr	950 bhp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	6.51 lb/hr	1.2 tpy
	Thruster Engine 2	360 hr/yr	58 gal/hr	950 bhp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	6.5 lb/hr	1.2 tpy
	Thruster Engine 3	360 hr/yr	58 gal/hr	950 bhp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	6.5 lb/hr	1.2 tpy
	Generator	820 hr/yr	27 gal/hr	400 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	26	0.92 lb/hr	0.4 tpy
	Generator	120 hr/yr	27 gal/hr	400 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	26	0.92 lb/hr	0.1 tpy
	Generator	0 hr/yr	27 gal/hr	400 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	26	0.92 lb/hr	0.0 tpy
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	26	0.273 lb/hr	4.1E-03 tpy
Ware Vessel (WV) w/ OSV backup										
	Main Engine 1	300 hr/yr	87 gal/hr	3200 hp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	9.8 lb/hr	1.5 tpy
	Main Engine 2	300 hr/yr	87 gal/hr	3200 hp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	9.8 lb/hr	1.5 tpy
	Main Engine 3	400 hr/yr	81 gal/hr	3200 hp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	9.1 lb/hr	1.8 tpy
	Main Engine 4	400 hr/yr	81 gal/hr	3200 hp	0.85	lb/MMBtu	AP-42, Table 3.4-1	22	9.1 lb/hr	1.8 tpy
	Generator 1	700 hr/yr	32 gal/hr	500 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	26	1.09 lb/hr	0.4 tpy
	Generator 2	100 hr/yr	32 gal/hr	500 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	26	1.1 lb/hr	0.1 tpy
	Generator 3	0 hr/yr	32 gal/hr	500 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	26	1.1 lb/hr	0.0 tpy
	Emergency Generator	30 hr/yr	12 gal/hr	170 kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	26	0.4 lb/hr	6.1E-03 tpy
34' boom work boats - 4										
	WB-1 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	1.1	g/kW-h	EPA Ocean Vessel Guidance	26	1.02 lb/hr	0.02 tpy
	WB-1 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	1.1	g/kW-h	EPA Ocean Vessel Guidance	26	1.0 lb/hr	0.02 tpy
	WB-2 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	1.1	g/kW-h	EPA Ocean Vessel Guidance	26	1.0 lb/hr	0.02 tpy
	WB-2 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	1.1	g/kW-h	EPA Ocean Vessel Guidance	26	1.0 lb/hr	0.02 tpy
	WB-3 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	1.1	g/kW-h	EPA Ocean Vessel Guidance	26	1.0 lb/hr	0.02 tpy
	WB-3 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	1.1	g/kW-h	EPA Ocean Vessel Guidance	26	1.0 lb/hr	0.02 tpy
	WB-4 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	1.1	g/kW-h	EPA Ocean Vessel Guidance	26	1.0 lb/hr	0.02 tpy
	WB-4 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	1.1	g/kW-h	EPA Ocean Vessel Guidance	26	1.0 lb/hr	0.02 tpy

Devil's Paw Prospect Projected Maximum Emissions

Emissions Unit Inventory - Carbon Monoxide

Emission Unit		Allowable		Maximum		Maximum		Emission Factor		Reference		Potential CO Emissions	
	Description	Operation		Fuel Usage		Output Capacity		Factor	Unit		Note	Hourly Emission Rate	Annual Emission Rate
Marine Research Vessel													
	Main Engine	600	hr/yr	45	gal/hr	850	hp	0.85	lb/MMBtu	AP-42, Table 3.4-1	23	5.1 lb/hr	1.5 tpy
	Generator 1	600	hr/yr	10	gal/hr	135	kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	15	0.3 lb/hr	0.1 tpy
	Generator 2	600	hr/yr	6	gal/hr	90	kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	15	0.2 lb/hr	0.1 tpy
	Generator 3	600	hr/yr	3	gal/hr	40	kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	15	0.1 lb/hr	2.91E-02 tpy
Spill Storage Tanker													
	Main Engine 1	12	hr/yr	89	gal/hr	1673.963	hp	0.85	lb/MMBtu	AP-42, Table 3.4-1	23	10.0 lb/hr	0.1 tpy
	Main Engine 2	12	hr/yr	89	gal/hr	1673.963	hp	0.85	lb/MMBtu	AP-42, Table 3.4-1	23	10.0 lb/hr	0.1 tpy
	Generator 1	48	hr/yr	41	gal/hr	576.3509	kW	1.1	g/kW-h	EPA Ocean Vessel Guidance	18	1.4 lb/hr	0.03 tpy
	Boiler 1	48	hr/yr	109	gal/hr	14.42184	MMBtu/hr	5	lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	27	0.55 lb/hr	0.01 tpy
All Vessels Fuel Tanks													
	Fuel Tank	2400	hr/yr	2193682	gal/yr*	N	A	N	A	NA		N A	N A

Notes:

1 I kW = 1.3405 hp; 1 lb = 454 g; assumed break specific fuel consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1) and fuel heat content of 132,096 Btu/gal ULSD #1 (Tesoro/Kenai Refinery).
2 Assumed well gas heat content of 1,085 Btu/scf for test flare (email from Dan Lowe 1/7/09) and propane heat content of 2,516 Btu/scf for flare pilot & purge (National Propane Gas Association http://www.npga.org/i4a/pages/index.cfm?pageid=633).
3 ULSD #1 has a density of 0.8094 kg/L (Tesoro/Kenai Refinery); so assume 6.74 lbs/ gal diesel
4 Incinerator waste fuel heat content is assumed 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17).
5 Incinerators will burn ULSD for ignition purposes only.
6 An equivalent of 2 main drilling engines at 100% load will operate continuously for up to 100 days per season (4800 hrs).
8 Mud degassing emission rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977)
9 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 6 times per year).
10 The Ware Vessel will make up to 50 trips per season.
11 EPA Ocean Vessel Guidance is "Emission Inventories for Ocean-Going Vessels Using Category 3 Propulsion Engines In or Near the United States" (EPA420-D-07-007, December, 2007) - Table 3-55 Marine Distillate fuel
12 Engines < 600 hp (< 448 kW) and all generators EF from EPA Ocean Vessel Guidance.
13 Engines > 600 hp EF are from AP-42.

CO Calculations and Conversions:

14 PTE (lb/hr) = EF (lb/hp-h)*Max Output Capacity (kW)*(1.3405 hp/kW)
15 PTE (lb/hr) = EF (g/kW-h)*Max Output Capacity (kW)/(454 g/lb)
16 PTE (lb/hr) = EF (lb/ton)*Max Fuel Usage (lb/hr)/(2000lb/ton)
17 PTE (lb/hr) = EF (lb/hp-h)*Max Output Capacity (bhp)
18 PTE (lb/hr) = EF (g/kW-h)*Max Output Capacity (hp)/(1.3405 hp/kW)/(454 g/lb)
19 PTE (lb/hr) = EF (lb/1,000 gal)*Max Fuel Usage (gal/hr)/1,000
20 PTE (lb/hr) = EF (lb/ton)*Allowable Operation (lb/hr)/(2000 lb/hr)
21 PTE (lb/hr) = EF (lb/hp-h)*Max Fuel Usage (gal/hr)/(7000 Btu/hp-h)*(132096 Btu/gal)
22 PTE (lb/hr) = EF (lb/MMBtu)*Max Fuel Usage (gal/hr)*(132096 Btu/gal)/(1,000,000)
23 PTE (lb/hr) = EF (lb/MMBtu)*Max Output Capacity (hp)*(7,000 Btu/hp-h)/(1,000,000)
24 PTE (tpy) = Hourly Emission Rate (lb/hr)*Allowable Operation (hr/yr)/(2000 lb/ton)
25 PTE (tpy) = Hourly Emission Rate with Allowable Operation already incorporated (lb/hr)*(8765 hr/yr)/(2000 lb/ton)
26 PTE (lb/hr) = EF (g/kW-h)*Max Fuel Usage (gal/hr)/(7000 Btu/hp-h)*(132096 Btu/gal)/(1.3405 hp/kW)/(454 g/lb)
27 PTE (lb/hr) = EF (lb/1,000 gal)*Max Output Capacity (MMBtu/hr)/(132096 Btu/gal)*(1,000,000 Btu/1 MMBtu)/(1,000)
brake horse power (bhp) ≈ horse power (hp)

Devil's Paw Prospect Projected Maximum Emissions

Emissions Unit Inventory - PM10/2.6

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential PM10-PM2.5 Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly Emission Rate	Annual Emission Rate
Drill Rig Equipment										
	Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 kW	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	14	1.33 lb/hr	8.00E-01 tpy
	Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 kW	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	14	1.33 lb/hr	8.00E-01 tpy
	Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 kW	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	14	1.33 lb/hr	8.00E-01 tpy
	Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 kW	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	14	1.33 lb/hr	8.00E-01 tpy
	Emergency Back-up Engine	75 hr/yr	205 g fuel/kWh	968 kW	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	14	0.52 lb/hr	1.95E-02 tpy
	Cement Engine 1	131 hr/yr	29 gal/hr	403 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	20	0.27 lb/hr	1.75E-02 tpy
	Cement Engine 2	131 hr/yr	29 gal/hr	403 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	20	0.27 lb/hr	1.75E-02 tpy
	Logging Winch	273 hr/yr	13 gal/hr	187 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	20	0.12 lb/hr	1.69E-02 tpy
	Heater 1	2400 hr/yr	26 gal/hr	4 MMBtu/hr a	1.08	lbs/1000 gal	AP-42, Table 1.3-7 (9/1998)	19	0.03 lb/hr	3.43E-02 tpy
	Heater 2	2400 hr/yr	26 gal/hr	4 MMBtu/hr a	1.08	lbs/1000 gal	AP-42, Table 1.3-7 (9/1998)	19	0.03 lb/hr	3.43E-02 tpy
	Incinerator	65 tons/yr	276 lbs/hr	N A	7	lbs/ton	AP-42, Table 2.1-12	16	0.97 lb/hr	2.29E-01 tpy
	Fuel Tank 1	2400 hrs/yr	471941 gal/yr*	N A	N A		NA		N A	N A
	Fuel Tank 2	2400 hrs/yr	471941 gal/yr*	N A	N A		NA		N A	N A
	Mud Degassing	100 days/yr	N A	20000 scf/day	N A		NA		N A	N A
				a Heat input rate						
Ice Breaker 1										
	Main Engine 1	515 hr/yr	426 gal/hr	8046 bhp	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	17	3.23 lb/hr	8.31E-01 tpy
	Main Engine 2	515 hr/yr	426 gal/hr	8046 bhp	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	17	3.23 lb/hr	8.31E-01 tpy
	Main Engine 3	515 hr/yr	320 gal/hr	6035 bhp	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	17	2.42 lb/hr	6.23E-01 tpy
	Main Engine 4	515 hr/yr	320 gal/hr	6035 bhp	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	17	2.42 lb/hr	6.23E-01 tpy
	Harbor Generator	35 hr/yr	50 gal/hr	952 bhp	0.3	g/kW-h	EPA Ocean Vessel Guidance	18	0.47 lb/hr	8.22E-03 tpy
	Emergency Generator	35 hr/yr	21 gal/hr	402 bhp	0.3	g/kW-h	EPA Ocean Vessel Guidance	18	0.20 lb/hr	3.47E-03 tpy
	Boiler 1	515 hr/yr	28 gal/hr	4 MMBtu/hr a	1.08	lbs/1000 gal	AP-42, Table 1.3-7 (9/1998)	19	0.03 lb/hr	7.79E-03 tpy
	Boiler 2	515 hr/yr	28 gal/hr	4 MMBtu/hr a	1.08	lbs/1000 gal	AP-42, Table 1.3-7 (9/1998)	19	0.03 lb/hr	7.79E-03 tpy
	Incinerator	515 hr/yr	175 lb/hr	N A	7	lbs/ton	AP-42, Table 2.1-12	16	0.61 lb/hr	1.58E-01 tpy
				a Heat input rate						
Ice Breaker 2										
	Main Engine 1	515 hr/yr	426 gal/hr	8046 bhp	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	17	3.23 lb/hr	8.31E-01 tpy
	Main Engine 2	515 hr/yr	426 gal/hr	8046 bhp	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	17	3.23 lb/hr	8.31E-01 tpy
	Main Engine 3	515 hr/yr	320 gal/hr	6035 bhp	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	17	2.42 lb/hr	6.23E-01 tpy
	Main Engine 4	515 hr/yr	320 gal/hr	6035 bhp	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	17	2.42 lb/hr	6.23E-01 tpy
	Harbor Generator	35 hr/yr	50 gal/hr	952 bhp	0.3	g/kW-h	EPA Ocean Vessel Guidance	18	0.47 lb/hr	8.22E-03 tpy
	Emergency Generator	35 hr/yr	21 gal/hr	402 bhp	0.3	g/kW-h	EPA Ocean Vessel Guidance	18	0.20 lb/hr	3.47E-03 tpy
	Boiler 1	515 hr/yr	28 gal/hr	4 MMBtu/hr a	1.08	lbs/1000 gal	AP-42, Table 1.3-7 (9/1998)	19	0.03 lb/hr	7.79E-03 tpy
	Boiler 2	515 hr/yr	28 gal/hr	4 MMBtu/hr a	1.08	lbs/1000 gal	AP-42, Table 1.3-7 (9/1998)	19	0.03 lb/hr	7.79E-03 tpy
	Incinerator	515 hr/yr	175 lb/hr	N A	7	lbs/ton	AP-42, Table 2.1-12	16	0.61 lb/hr	1.58E-01 tpy
				a Heat input rate						
Oil Spill Response Vessel 1 (Dedicated OSRV)										
	Main Engine 1	800 hr/yr	75 gal/hr	3000 bhp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.57 lb/hr	2.27E-01 tpy
	Main Engine 2	800 hr/yr	75 gal/hr	3000 bhp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.57 lb/hr	2.27E-01 tpy
	Thruster Engine 1	12 hr/yr	58 gal/hr	950 hp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.44 lb/hr	2.63E-03 tpy
	Thruster Engine 2	12 hr/yr	58 gal/hr	950 hp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.44 lb/hr	2.63E-03 tpy
	Thruster Engine 3	12 hr/yr	58 gal/hr	950 hp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.44 lb/hr	2.63E-03 tpy
	Generator 1	2400 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.25 lb/hr	3.01E-01 tpy
	Generator 2	300 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.25 lb/hr	3.77E-02 tpy
	Generator 3	0 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.25 lb/hr	0.00E+00 tpy
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.07 lb/hr	1.12E-03 tpy

Devil's Paw Prospect Projected Maximum Emissions

Emissions Unit Inventory - PM10/2.6

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential PM10-PM2.5 Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly Emission Rate	Annual Emission Rate
Oil Spill Response Vessel 2										
	Main Engine 1	60 hr/yr	75 gal/hr	3000 bhp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.57 lb/hr	1.70E-02 tpy
	Main Engine 2	60 hr/yr	75 gal/hr	3000 bhp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.57 lb/hr	1.70E-02 tpy
	Thruster Engine 1	48 hr/yr	58 gal/hr	950 hp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.44 lb/hr	1.05E-02 tpy
	Thruster Engine 2	48 hr/yr	58 gal/hr	950 hp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.44 lb/hr	1.05E-02 tpy
	Thruster Engine 3	48 hr/yr	58 gal/hr	950 hp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.44 lb/hr	1.05E-02 tpy
	Generator 1	60 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.25 lb/hr	7.53E-03 tpy
	Generator 2	30 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.25 lb/hr	3.77E-03 tpy
	Generator 3	0 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.25 lb/hr	0.00E+00 tpy
	Emergency Generator	2 hr/yr	8 gal/hr	99 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.07 lb/hr	7.44E-05 tpy
Anchor Handling Supply Tug (AHST)										
0	Main Engine 1	60 hr/yr	160 gal/hr	2529 kW	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	1.21 lb/hr	3.63E-02 tpy
0	Main Engine 2	60 hr/yr	160 gal/hr	2529 kW	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	1.21 lb/hr	3.63E-02 tpy
0	Generator 1	60 hr/yr	25 gal/hr	380 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.23 lb/hr	6.98E-03 tpy
0	Generator 2	12 hr/yr	25 gal/hr	380 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.23 lb/hr	1.40E-03 tpy
0	Generator 3	0 hr/yr	25 gal/hr	380 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.23 lb/hr	0.00E+00 tpy
0	Emergency Generator	6 hr/yr	5.6 gal/hr	170 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.05 lb/hr	1.56E-04 tpy
Offshore Supply Vessels (OSV1 & OSV2)										
	Main Engine 1	360 hr/yr	75 gal/hr	3000 bhp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.57 lb/hr	1.02E-01 tpy
	Main Engine 1	100 hr/yr	67 gal/hr	3000 bhp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.51 lb/hr	2.54E-02 tpy
	Main Engine 2	360 hr/yr	75 gal/hr	3000 bhp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.57 lb/hr	1.02E-01 tpy
	Main Engine 2	100 hr/yr	67 gal/hr	3000 bhp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.51 lb/hr	2.54E-02 tpy
	Thruster Engine 1	360 hr/yr	58 gal/hr	950 bhp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.44 lb/hr	7.90E-02 tpy
	Thruster Engine 2	360 hr/yr	58 gal/hr	950 bhp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.44 lb/hr	7.90E-02 tpy
	Thruster Engine 3	360 hr/yr	58 gal/hr	950 bhp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.44 lb/hr	7.90E-02 tpy
	Generator	820 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.25 lb/hr	1.03E-01 tpy
	Generator	120 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.25 lb/hr	1.51E-02 tpy
	Generator	0 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.25 lb/hr	0.00E+00 tpy
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.07 lb/hr	1.12E-03 tpy
Ware Vessel (WV) w/ OSV backup										
	Main Engine 1	300 hr/yr	87 gal/hr	3200 hp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.66 lb/hr	9.88E-02 tpy
	Main Engine 2	300 hr/yr	87 gal/hr	3200 hp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.66 lb/hr	9.88E-02 tpy
	Main Engine 3	400 hr/yr	81 gal/hr	3200 hp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.61 lb/hr	1.23E-01 tpy
	Main Engine 4	400 hr/yr	81 gal/hr	3200 hp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.61 lb/hr	1.23E-01 tpy
	Generator 1	700 hr/yr	32 gal/hr	500 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.30 lb/hr	1.04E-01 tpy
	Generator 2	100 hr/yr	32 gal/hr	500 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.30 lb/hr	1.49E-02 tpy
	Generator 3	0 hr/yr	32 gal/hr	500 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.30 lb/hr	0.00E+00 tpy
	Emergency Generator	30 hr/yr	12 gal/hr	170 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.11 lb/hr	1.67E-03 tpy
34' boom work boats - 4										
	WB-1 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.28 lb/hr	6.70E-03 tpy
	WB-1 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.28 lb/hr	6.70E-03 tpy
	WB-2 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.28 lb/hr	6.70E-03 tpy
	WB-2 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.28 lb/hr	6.70E-03 tpy
	WB-3 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.28 lb/hr	6.70E-03 tpy
	WB-3 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.28 lb/hr	6.70E-03 tpy
	WB-4 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.28 lb/hr	6.70E-03 tpy
	WB-4 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	23	0.28 lb/hr	6.70E-03 tpy

Devil's Paw Prospect Projected Maximum Emissions

Emissions Unit Inventory - PM10/2.6

Emission Unit		Allowable	Maximum	Maximum		Emission Factor		Reference		Potential PM10-PM2.5 Emissions	
	Description	Operation	Fuel Usage	Output Capacity		Factor	Unit		Note	Hourly Emission Rate	Annual Emission Rate
Marine Research Vessel											
	Main Engine	600 hr/yr	45 gal/hr	850	hp	0.0573	lb/MMBtu	AP-42 Tables 3.4-2	17	0.34 lb/hr	1.02E-01 tpy
	Generator 1	600 hr/yr	10 gal/hr	135	kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	20	0.09 lb/hr	2.68E-02 tpy
	Generator 2	600 hr/yr	6 gal/hr	90	kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	20	0.06 lb/hr	1.79E-02 tpy
	Generator 3	600 hr/yr	3 gal/hr	40	kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	20	0.03 lb/hr	7.94E-03 tpy
Spill Storage Tanker											
	Main Engine 1	12 hr/yr	89 gal/hr	1674	hp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.67 lb/hr	4.03E-03 tpy
	Main Engine 2	12 hr/yr	89 gal/hr	1674	hp	0.0573	lb/MMBtu	AP-42, Table 3.4-2	21	0.67 lb/hr	4.03E-03 tpy
	Generator 1	48 hr/yr	41 gal/hr	576	kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	20	0.38 lb/hr	9.15E-03 tpy
	Boiler 1	48 hr/yr	109 gal/hr	14	MMBtu/hr	1.08	lbs/1000 gal	AP-42, Table 1.3-7 (9/1998)	19	0.12 lb/hr	2.83E-03 tpy
All Vessels Fuel Tanks											
	Fuel Tank	2400 hr/yr	2193682 gal/yr*	N	A	N A		NA		N A	N A

Notes:

1 I kW = 1.3405 hp; 1 lb = 454 g; 28.32 L/scf; assumed break specific fuel consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1) and fuel heat content of 132,096 Btu/gal ULSD #1 (Tesoro/Kenai Refinery).
2 Assumed well gas heat content of 1,085 Btu/scf for test flare (email from Dan Lowe 1/7/09) and propane heat content of 2,516 Btu/scf for flare pilot & purge (National Propane Gas Association http://www.npga.org/i4a/pages/index.cfm?pageid=633).

3 A wet F-Factor of 10,610 scf/MMBtu is used for flare PTE calcs.
4 ULSD #1 has a density of 0.8094 kg/L (Tesoro/Kenai Refinery); so assume 6.74 lbs/ gal diesel
5 Incinerator waste fuel heat content is assumed 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17).
6 Incinerators will burn ULSD for ignition purposes only.
7 An equivalent of 2 main drilling engines at 100% load will operate continuously for up to 100 days per season (4800 hrs).
8 Mud degassing emission rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977)

9 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 6 times per year).
10 The Ware Vessel will make up to 50 trips per season.
11 EPA Ocean Vessel Guidance is "Emission Inventories for Ocean-Going Vessels Using Category 3 Propulsion Engines In or Near the United States" (EPA420-D-07-007, December, 2007) - Table 3-55 Marine Distillate fuel
12 Engines < 600 hp (< 448 kW) and all generators EF from EPA Ocean Vessel Guidance.
13 Engines > 600 hp EF are from AP-42.

PM 10-2.5 Calculations and Conversions:

14 PTE (lb/hr) = EF (lb/MMBtu)*Max Output Capacity (kW)*(7,000 Btu/hp-h)*(1.3405 hp/kW)(1MMBtu/1,000,000 Btu)
15 PTE (lb/hr) = EF (lb/hp-h)*Max Output Capacity (kW)*(1.3405 hp/kW)
16 PTE (lb/hr) = EF (lb/ton)*Max Fuel Usage (lb/hr)/(2000 lbs/ton)
17 PTE (lb/hr) = EF (lb/MMBtu)*Max Output Capacity (hp)*7,000 Btu/hp-h)*1MMBtu/1,000,000 Btu)
18 PTE (lb/hr) = EF (g/kW-h)*Max Output Capacity (bhp)*(1 lb/454 g)*(1.3405 hp/kW)
19 PTE (lb/hr) = EF (lb/1,000 gal)*Max Output Capacity (MMBtu/hr)/1,000*(1,000,000 Btu/1MMBtu)/(132096 Btu/gal)
20 PTE (lb/hr) = EF (g/kW-h)*Max Output Capacity (kW)/(454 g/lb)
21 PTE (lb/hr) = EF (lb/MMBtu)*Max Fuel Usage (gal/hr)*(132096 Btu/gal)/(1,000,000)
22 PTE (lb/hr) = EF (lb/1,000 gal)*Max Fuel Usage (gal/hr)/1000
23 PTE (lb/hr) = EF (g/kW-h)*Max Fuel Usage (gal/hr)/(7000 Btu/hp-h)*(132096 Btu/gal)/(1.3405 hp/kW)/(454 g/lb)
24 PTE (tpy) = Hourly Emission Rate (lb/hr)*Allowable Operation (hr/yr)/(2000 lb/ton)
25 PTE (tpy) = Hourly Emission Rate with Allowable Operation already incorporated (lb/hr)*(8765 hr/yr)/(2000 lb/ton)
brake horse power (bhp) ≈ horse power (hp)

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - PM

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential PM Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly Emission	Annual Emission Rate
Drill Rig Equipment										
	Main Drill Rig Engine 1	1200 hr/yr	206 g fuel/kWh	2480 kW	0.0007	lb/hp-hr	AP-42 Table 3.4-1	14	2.33 lb/hr	1.40 tpy
	Main Drill Rig Engine 2	1200 hr/yr	206 g fuel/kWh	2480 kW	0.0007	lb/hp-hr	AP-42 Table 3.4-1	14	2.33 lb/hr	1.40 tpy
	Main Drill Rig Engine 3	1200 hr/yr	206 g fuel/kWh	2480 kW	0.0007	lb/hp-hr	AP-42 Table 3.4-1	14	2.33 lb/hr	1.40 tpy
	Main Drill Rig Engine 4	1200 hr/yr	206 g fuel/kWh	2480 kW	0.0007	lb/hp-hr	AP-42 Table 3.4-1	14	2.33 lb/hr	1.40 tpy
	Emergency Back-up Engine	75 hr/yr	205 g fuel/kWh	968 kW	0.0007	lb/hp-hr	AP-42 Table 3.4-1	14	0.91 lb/hr	0.03 tpy
	Cement Engine 1	131 hr/yr	29 gal/hr	403 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	19	0.27 lb/hr	1.74E-02 tpy
	Cement Engine 2	131 hr/yr	29 gal/hr	403 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	19	0.27 lb/hr	1.74E-02 tpy
	Logging Winch	273 hr/yr	13 gal/hr	187 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	19	0.12 lb/hr	1.69E-02 tpy
	Heater 1	2400 hr/yr	26 gal/hr	4 MMBtu/hr a	2	lb/1,000 gal	AP-42 Table 1.3-1	23	0.05 lb/hr	6.36E-02 tpy
	Heater 2	2400 hr/yr	26 gal/hr	4 MMBtu/hr a	2	lb/1,000 gal	AP-42 Table 1.3-1	23	0.05 lb/hr	6.36E-02 tpy
	Incinerator	65 tons/yr	276 lbs/hr	N A	7	lbs/ton	AP-42, Table 2.1-12	16	0.97 lb/hr	0.03 tpy
	Fuel Tank 1	2400 hrs/yr	471941 gal/yr*	N A	N A		NA		N A	N A
	Fuel Tank 2	2400 hrs/yr	471941 gal/yr*	N A	N A		NA		N A	N A
	Mud Degassing	100 days/yr	N A	20000 scf/day	N A		NA		N A	N A
Ice Breaker 1										
	Main Engine 1	515 hr/yr	426 gal/hr	8046 bhp	0.0007	lb/hp-hr	AP-42 Table 3.4-1	15	5.63 lb/hr	1.45 tpy
	Main Engine 2	515 hr/yr	426 gal/hr	8046 bhp	0.0007	lb/hp-hr	AP-42 Table 3.4-1	15	5.63 lb/hr	1.45 tpy
	Main Engine 3	515 hr/yr	320 gal/hr	6035 bhp	0.0007	lb/hp-hr	AP-42 Table 3.4-1	15	4.22 lb/hr	1.09 tpy
	Main Engine 4	515 hr/yr	320 gal/hr	6035 bhp	0.0007	lb/hp-hr	AP-42 Table 3.4-1	15	4.22 lb/hr	1.09 tpy
	Harbor Generator	35 hr/yr	50 gal/hr	952 bhp	0.3	g/kW-h	EPA Ocean Vessel Guidance	17	0.47 lb/hr	8.21E-03 tpy
	Emergency Generator	35 hr/yr	21 gal/hr	402 bhp	0.3	g/kW-h	EPA Ocean Vessel Guidance	17	0.20 lb/hr	3.47E-03 tpy
	Boiler 1	515 hr/yr	28 gal/hr	4 MMBtu/hr a	2	lb/1,000 gal	AP-42 Table 1.3-1	18	0.06 lb/hr	0.01 tpy
	Boiler 2	515 hr/yr	28 gal/hr	4 MMBtu/hr a	2	lb/1,000 gal	AP-42 Table 1.3-1	18	0.06 lb/hr	0.01 tpy
	Incinerator	515 hr/yr	175 lb/hr	N A	7	lbs/ton	AP-42, Table 2.1-12	16	0.61 lb/hr	0.16 tpy
Ice Breaker 2										
	Main Engine 1	515 hr/yr	426 gal/hr	8046 bhp	0.0007	lb/hp-hr	AP-42 Table 3.4-1	15	5.63 lb/hr	1.45 tpy
	Main Engine 2	515 hr/yr	426 gal/hr	8046 bhp	0.0007	lb/hp-hr	AP-42 Table 3.4-1	15	5.63 lb/hr	1.45 tpy
	Main Engine 3	515 hr/yr	320 gal/hr	6035 bhp	0.0007	lb/hp-hr	AP-42 Table 3.4-1	15	4.22 lb/hr	1.09 tpy
	Main Engine 4	515 hr/yr	320 gal/hr	6035 bhp	0.0007	lb/hp-hr	AP-42 Table 3.4-1	15	4.22 lb/hr	1.09 tpy
	Harbor Generator	35 hr/yr	50 gal/hr	952 bhp	0.3	g/kW-h	EPA Ocean Vessel Guidance	17	0.84 lb/hr	1.48E-02 tpy
	Emergency Generator	35 hr/yr	21 gal/hr	402 bhp	0.3	g/kW-h	EPA Ocean Vessel Guidance	17	0.36 lb/hr	6.23E-03 tpy
	Boiler 1	515 hr/yr	28 gal/hr	4 MMBtu/hr a	2	lb/1,000 gal	AP-42 Table 1.3-1	18	0.06 lb/hr	0.01 tpy
	Boiler 2	515 hr/yr	28 gal/hr	4 MMBtu/hr a	2	lb/1,000 gal	AP-42 Table 1.3-1	18	0.06 lb/hr	0.01 tpy
	Incinerator	515 hr/yr	175 lb/hr	N A	7	lbs/ton	AP-42, Table 2.1-12	16	0.61 lb/hr	0.16 tpy
Oil Spill Response Vessel 1 (Dedicated OSRV)										
	Main Engine 1	800 hr/yr	75 gal/hr	3000 bhp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	1.0 lb/hr	0.40 tpy
	Main Engine 2	800 hr/yr	75 gal/hr	3000 bhp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	0.99 lb/hr	0.40 tpy
	Thruster Engine 1	12 hr/yr	58 gal/hr	950 hp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	0.77 lb/hr	0.005 tpy
	Thruster Engine 2	12 hr/yr	58 gal/hr	950 hp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	0.77 lb/hr	0.005 tpy
	Thruster Engine 3	12 hr/yr	58 gal/hr	950 hp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	0.77 lb/hr	0.005 tpy
	Generator 1	2400 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.25 lb/hr	0.30 tpy
	Generator 2	300 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.25 lb/hr	0.04 tpy
	Generator 3	0 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.25 lb/hr	0.0 tpy
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.07 lb/hr	1.12E-03 tpy

a Heat input rate

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - PM

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential PM Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly Emission	Annual Emission Rate
Oil Spill Response Vessel 2										
	Main Engine 1	60 hr/yr	75 gal/hr	3000 bhp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	1.0 lb/hr	0.03 tpy
	Main Engine 2	60 hr/yr	75 gal/hr	3000 bhp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	0.99 lb/hr	0.03 tpy
	Thruster Engine 1	48 hr/yr	58 gal/hr	950 hp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	0.77 lb/hr	0.02 tpy
	Thruster Engine 2	48 hr/yr	58 gal/hr	950 hp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	0.77 lb/hr	0.02 tpy
	Thruster Engine 3	48 hr/yr	58 gal/hr	950 hp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	0.77 lb/hr	0.02 tpy
	Generator 1	60 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.25 lb/hr	0.01 tpy
	Generator 2	30 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.25 lb/hr	0.004 tpy
	Generator 3	0 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.25 lb/hr	0.0 tpy
	Emergency Generator	2 hr/yr	8 gal/hr	99 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.07 lb/hr	7.44E-05 tpy
Anchor Handling Supply Tug (AHST)										
0	Main Engine 1	60 hr/yr	160 gal/hr	2529 kW	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	2.1 lb/hr	0.06 tpy
0	Main Engine 2	60 hr/yr	160 gal/hr	2529 kW	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	2.11 lb/hr	0.06 tpy
0	Generator 1	60 hr/yr	25 gal/hr	380 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	20	0.25 lb/hr	0.01 tpy
0	Generator 2	12 hr/yr	25 gal/hr	380 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	20	0.25 lb/hr	1.51E-03 tpy
0	Generator 3	0 hr/yr	25 gal/hr	380 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	20	0.25 lb/hr	0.00 tpy
0	Emergency Generator	6 hr/yr	6 gal/hr	170 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.05 lb/hr	1.56E-04 tpy
Offshore Supply Vessels (OSV1 & OSV2)										
	Main Engine 1	360 hr/yr	75 gal/hr	3000 bhp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	1.0 lb/hr	0.18 tpy
	Main Engine 1	100 hr/yr	67 gal/hr	3000 bhp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	0.89 lb/hr	0.04 tpy
	Main Engine 2	360 hr/yr	75 gal/hr	3000 bhp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	0.99 lb/hr	0.18 tpy
	Main Engine 2	100 hr/yr	67 gal/hr	3000 bhp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	0.89 lb/hr	0.04 tpy
	Thruster Engine 1	360 hr/yr	58 gal/hr	950 bhp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	0.77 lb/hr	0.14 tpy
	Thruster Engine 2	360 hr/yr	58 gal/hr	950 bhp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	0.77 lb/hr	0.14 tpy
	Thruster Engine 3	360 hr/yr	58 gal/hr	950 bhp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	0.77 lb/hr	0.14 tpy
	Generator	820 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	20	0.26 lb/hr	0.11 tpy
	Generator	120 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	20	0.26 lb/hr	0.02 tpy
	Generator	0 hr/yr	27 gal/hr	400 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	20	0.26 lb/hr	0.00 tpy
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	20	0.07 lb/hr	9.81E-04 tpy
Ware Vessel (WV) w/ OSV backup										
	Main Engine 1	300 hr/yr	87 gal/hr	3200 hp	0.1	lb/MMBtu	AP-42, Table 3.4-1	17	1.15 lb/hr	0.17 tpy
	Main Engine 2	300 hr/yr	87 gal/hr	3200 hp	0.1	lb/MMBtu	AP-42, Table 3.4-1	17	1.15 lb/hr	0.17 tpy
	Main Engine 3	400 hr/yr	81 gal/hr	3200 hp	0.1	lb/MMBtu	AP-42, Table 3.4-1	17	1.07 lb/hr	0.21 tpy
	Main Engine 4	400 hr/yr	81 gal/hr	3200 hp	0.1	lb/MMBtu	AP-42, Table 3.4-1	17	1.07 lb/hr	0.21 tpy
	Generator 1	700 hr/yr	32 gal/hr	500 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.30 lb/hr	0.10 tpy
	Generator 2	100 hr/yr	32 gal/hr	500 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.30 lb/hr	0.01 tpy
	Generator 3	0 hr/yr	32 gal/hr	500 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.30 lb/hr	0.00 tpy
	Emergency Generator	30 hr/yr	12 gal/hr	170 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.11 lb/hr	1.67E-03 tpy
34' boom work boats - 4										
	WB-1 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.28 lb/hr	6.70E-03 tpy
	WB-1 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.28 lb/hr	6.70E-03 tpy
	WB-2 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.28 lb/hr	6.70E-03 tpy
	WB-2 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.28 lb/hr	6.70E-03 tpy
	WB-3 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.28 lb/hr	6.70E-03 tpy
	WB-3 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.28 lb/hr	6.70E-03 tpy
	WB-4 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.28 lb/hr	6.70E-03 tpy
	WB-4 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	0.3	g/kW-h	EPA Ocean Vessel Guidance	21	0.28 lb/hr	6.70E-03 tpy

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - PM

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential PM Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly Emission	Annual Emission Rate
Marine Research Vessel										
	Main Engine	600 hr/yr	45 gal/hr	850 hp	0.0007	lb/hp-hr	AP-42 Table 3.4-1	15	0.60 lb/hr	0.18 tpy
	Generator 1	600 hr/yr	10 gal/hr	135 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	19	0.09 lb/hr	0.03 tpy
	Generator 2	600 hr/yr	6 gal/hr	90 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	19	0.06 lb/hr	0.02 tpy
	Generator 3	600 hr/yr	3 gal/hr	40 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	19	0.03 lb/hr	0.01 tpy
Spill Storage Tanker										
	Main Engine 1	12 hr/yr	89 gal/hr	1673.963 hp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	1.17 lb/hr	0.01 tpy
	Main Engine 2	12 hr/yr	89 gal/hr	1673.963 hp	0.1	lb/MMBtu	AP-42, Table 3.4-1	22	1.17 lb/hr	0.01 tpy
	Generator 1	48 hr/yr	41 gal/hr	576.3509 kW	0.3	g/kW-h	EPA Ocean Vessel Guidance	19	0.38 lb/hr	9.14E-03 tpy
	Boiler 1	48 hr/yr	109 gal/hr	14.42184 MMBtu/hr	2	lb/1,000 gal	AP-42 Table 1.3-1	23	0.22 lb/hr	5.24E-03 tpy
All Vessels Fuel Tanks										
	Fuel Tank	2400 hr/yr	2193682 gal/yr*	N A	N A		NA		N A	N A

Notes:

1 I kW = 1.3405 hp; 1 lb = 454 g; 28.32 L/scf; assumed break specific fuel consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1) and fuel heat content of 132,096 Btu/gal ULSD #1 (Tesoro/Kenai Refinery).
2 Assumed well gas heat content of 1,085 Btu/scf for test flare (email from Dan Lowe 1/7/09) and propane heat content of 2,516 Btu/scf for flare pilot & purge (National Propane Gas Association http://www.npga.org/i4a/pages/index.cfm?pageid=633).
3 A wet F-Factor of 10,610 scf/MMBtu is used for flare PTE calcs.
4 ULSD #1 has a density of 0.8094 kg/L (Tesoro/Kenai Refinery); so assume 6.74 lbs/ gal diesel
5 Incinerator waste fuel heat content is assumed 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17).
6 Incinerators will burn ULSD for ignition purposes only.
7 An equivalent of 2 main drilling engines at 100% load will operate continuously for up to 100 days per season (4800 hrs).
8 Mud degassing emission rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977)
9 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 6 times per year).
10 The Ware Vessel will make up to 50 trips per season.
11 EPA Ocean Vessel Guidance is "Emission Inventories for Ocean-Going Vessels Using Category 3 Propulsion Engines In or Near the United States" (EPA420-D-07-007, December, 2007) - Table 3-55 Marine Distillate fuel
12 Engines < 600 hp (< 448 kW) and all generators EF from EPA Ocean Vessel Guidance.
13 Engines > 600 hp EF are from AP-42.

PM Calculations and Conversions:

14 PTE (lb/hr) = EF (lb/hp-h)*Max Output Capacity (kW)*(1.3405 hp/kW)
15 PTE (lb/hr) = EF (lb/hp-h)*Max Output Capacity (hp)
16 PTE (lb/hr) = EF (lb/ton)*Max Fuel Usage (lb/hr)/(2000 lbs/ton)
17 PTE (lb/hr) = EF (g/kW-h)*Max Output Capacity (bhp)*(1 lb/454 g)*(1.3405 hp/kW)
18 PTE (lb/hr) = EF (lb/1,000 gal)*Max Fuel Usage (gal/hr)/1,000
19 PTE (lb/hr) = EF (g/kW-h)*Max Output Capacity (kW)/(454 g/lb)
20 PTE (lb/hr) = EF (lb/hp-h)*Max Fuel Usage (gal/hr)*(132096 Btu/gal)/(7000 Btu/hp-h)
21 PTE (lb/hr) = EF (g/kW-h)*Max Fuel Usage (gal/hr)/(7000 Btu/hp-h)*(132096 Btu/gal)/(1.3405 hp/kW)/(454 g/lb)
22 PTE (lb/hr) = EF (lb/MMBtu)*Max Fuel Usage (gal/hr)*(132096 Btu/gal)*(1 MMBtu/1,000,000 Btu)
23 PTE (lb/hr) = EF (lb/1,000 gal)*Max Output Capacity (MMBtu/hr)/(132096 Btu/gal)*(1,000,000 Btu/1 MMBtu)/(1,000)
24 PTE (tpy) = Hourly Emission Rate (lb/hr)*Allowable Operation (hr/yr)/(2000 lb/ton)
25 PTE (tpy) = Hourly Emission Rate with Allowable Operation already incorporated (lb/hr)*(8765 hr/yr)/(2000 lb/ton)
brake horse power (bhp) ≈ horse power (hp)

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Volatile Organic Compounds

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential VOC Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly	Annual Rate
Drill Rig Equipment										
	Main Drill Rig Engine 1	1200 hr/yr	206 g fuel/kWh	2480 kW	6.42E-04	lb/hp-hr	AP-42, Table 3.4-1	16	2.13 lb/hr	1.28 tpy
	Main Drill Rig Engine 2	1200 hr/yr	206 g fuel/kWh	2480 kW	6.42E-04	lb/hp-hr	AP-42, Table 3.4-1	16	2.13 lb/hr	1.28 tpy
	Main Drill Rig Engine 3	1200 hr/yr	206 g fuel/kWh	2480 kW	6.42E-04	lb/hp-hr	AP-42, Table 3.4-1	16	2.13 lb/hr	1.28 tpy
	Main Drill Rig Engine 4	1200 hr/yr	206 g fuel/kWh	2480 kW	6.42E-04	lb/hp-hr	AP-42, Table 3.4-1	16	2.13 lb/hr	1.28 tpy
	Emergency Back-up Engine	75 hr/yr	205 g fuel/kWh	968 kW	6.42E-04	lb/hp-hr	AP-42, Table 3.4-1	16	0.83 lb/hr	0.03 tpy
	Cement Engine 1	131 hr/yr	29 gal/hr	403 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	17	0.35 lb/hr	2.32E-02 tpy
	Cement Engine 2	131 hr/yr	29 gal/hr	403 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	17	0.35 lb/hr	2.32E-02 tpy
	Logging Winch	273 hr/yr	13 gal/hr	187 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	17	0.16 lb/hr	2.25E-02 tpy
	Heater 1	2400 hr/yr	26 gal/hr	4 MMBtu/hr a	0.2	lb/10^3 gal	AP-42 Table 1.3-3	23	5.30E-03 lb/hr	6.36E-03 tpy
	Heater 2	2400 hr/yr	26 gal/hr	4 MMBtu/hr a	0.2	lb/10^3 gal	AP-42 Table 1.3-3	23	5.30E-03 lb/hr	6.36E-03 tpy
	Incinerator	65 tons/yr	276 lbs/hr	N A	7	lbs/ton	AP-42, Table 2.1-12	18	0.97 lb/hr	0.03 tpy
	Fuel Tank 1	2400 hrs/yr	471941 gal/yr*	N A	N	A	EPA TANKS	15	2.78E-03 lb/hr	3.34E-03 tpy
	Fuel Tank 2	2400 hrs/yr	471941 gal/yr*	N A	N	A	EPA TANKS	15	2.78E-03 lb/hr	3.34E-03 tpy
	Mud Degassing	100 days/yr	N A	20000 scf/day	97	lb/day	EPA-450/3-77-026	19,20	1.11 lb/hr	4.85 tpy
Ice Breaker 1										
	Main Engine 1	515 hr/yr	426 gal/hr	8046 bhp	6.42E-04	lb/hp-hr	AP-42, Table 3.4-1	21	5.16 lb/hr	1.33 tpy
	Main Engine 2	515 hr/yr	426 gal/hr	8046 bhp	6.42E-04	lb/hp-hr	AP-42, Table 3.4-1	21	5.16 lb/hr	1.33 tpy
	Main Engine 3	515 hr/yr	320 gal/hr	6035 bhp	6.42E-04	lb/hp-hr	AP-42, Table 3.4-1	21	3.87 lb/hr	1.00 tpy
	Main Engine 4	515 hr/yr	320 gal/hr	6035 bhp	6.42E-04	lb/hp-hr	AP-42, Table 3.4-1	21	3.87 lb/hr	1.00 tpy
	Harbor Generator	35 hr/yr	50 gal/hr	952 bhp	0.4	g/kW-h	EPA Ocean Vessel Guidance	22	0.63 lb/hr	1.09E-02 tpy
	Emergency Generator	35 hr/yr	21 gal/hr	402 bhp	0.4	g/kW-h	EPA Ocean Vessel Guidance	22	0.26 lb/hr	4.63E-03 tpy
	Boiler 1	515 hr/yr	28 gal/hr	4 MMBtu/hr a	0.2	lb/10^3 gal	AP-42 Table 1.3-3	23	5.60E-03 lb/hr	1.44E-03 tpy
	Boiler 2	515 hr/yr	28 gal/hr	4 MMBtu/hr a	0.2	lb/10^3 gal	AP-42 Table 1.3-3	23	5.60E-03 lb/hr	1.44E-03 tpy
	Incinerator	515 hr/yr	175 lb/hr	N A	7	lbs/ton	AP-42, Table 2.1-12	18	0.61 lb/hr	0.16 tpy
Ice Breaker 2										
	Main Engine 1	515 hr/yr	426 gal/hr	8046 bhp	6.42E-04	lb/hp-hr	AP-42, Table 3.4-1	21	5.16 lb/hr	1.33 tpy
	Main Engine 2	515 hr/yr	426 gal/hr	8046 bhp	6.42E-04	lb/hp-hr	AP-42, Table 3.4-1	21	5.16 lb/hr	1.33 tpy
	Main Engine 3	515 hr/yr	320 gal/hr	6035 bhp	6.42E-04	lb/hp-hr	AP-42, Table 3.4-1	21	3.87 lb/hr	1.00 tpy
	Main Engine 4	515 hr/yr	320 gal/hr	6035 bhp	6.42E-04	lb/hp-hr	AP-42, Table 3.4-1	21	3.87 lb/hr	1.00 tpy
	Harbor Generator	35 hr/yr	50 gal/hr	952 bhp	0.4	g/kW-h	EPA Ocean Vessel Guidance	22	0.63 lb/hr	1.09E-02 tpy
	Emergency Generator	35 hr/yr	21 gal/hr	402 bhp	0.4	g/kW-h	EPA Ocean Vessel Guidance	22	0.26 lb/hr	4.63E-03 tpy
	Boiler 1	515 hr/yr	28 gal/hr	4 MMBtu/hr a	0.2	lb/10^3 gal	AP-42 Table 1.3-3	23	5.60E-03 lb/hr	1.44E-03 tpy
	Boiler 2	515 hr/yr	28 gal/hr	4 MMBtu/hr a	0.2	lb/10^3 gal	AP-42 Table 1.3-3	23	5.60E-03 lb/hr	1.44E-03 tpy
	Incinerator	515 hr/yr	175 lb/hr	N A	7	lbs/ton	AP-42, Table 2.1-12	18	0.61 lb/hr	0.16 tpy
Oil Spill Response Vessel 1 (Dedicated OSRV)										
	Main Engine 1	800 hr/yr	75 gal/hr	3000 bhp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.81 lb/hr	0.32 tpy
	Main Engine 2	800 hr/yr	75 gal/hr	3000 bhp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.81 lb/hr	0.32 tpy
	Thruster Engine 1	12 hr/yr	58 gal/hr	950 hp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.63 lb/hr	3.76E-03 tpy
	Thruster Engine 2	12 hr/yr	58 gal/hr	950 hp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.63 lb/hr	3.76E-03 tpy
	Thruster Engine 3	12 hr/yr	58 gal/hr	950 hp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.63 lb/hr	3.76E-03 tpy
	Generator 1	2400 hr/yr	27 gal/hr	400 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.33 lb/hr	0.40 tpy
	Generator 2	300 hr/yr	27 gal/hr	400 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.33 lb/hr	0.05 tpy
	Generator 3	0 hr/yr	27 gal/hr	400 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.33 lb/hr	0.00 tpy
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.10 lb/hr	1.49E-03 tpy

a Heat input rate

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Volatile Organic Compounds

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential VOC Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly	Annual Rate
Oil Spill Response Vessel 2										
	Main Engine 1	60 hr/yr	75 gal/hr	3000 bhp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.81 lb/hr	0.02 tpy
	Main Engine 2	60 hr/yr	75 gal/hr	3000 bhp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.81 lb/hr	0.02 tpy
	Thruster Engine 1	48 hr/yr	58 gal/hr	950 hp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.63 lb/hr	1.51E-02 tpy
	Thruster Engine 2	48 hr/yr	58 gal/hr	950 hp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.63 lb/hr	1.51E-02 tpy
	Thruster Engine 3	48 hr/yr	58 gal/hr	950 hp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.63 lb/hr	1.51E-02 tpy
	Generator 1	60 hr/yr	27 gal/hr	400 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.33 lb/hr	0.01 tpy
	Generator 2	30 hr/yr	27 gal/hr	400 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.33 lb/hr	0.01 tpy
	Generator 3	0 hr/yr	27 gal/hr	400 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.33 lb/hr	0.00 tpy
	Emergency Generator	2 hr/yr	8 gal/hr	99 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.10 lb/hr	9.92E-05 tpy
Anchor Handling Supply Tug (AHST)										
0	Main Engine 1	60 hr/yr	160 gal/hr	2529 kW	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	1.73 lb/hr	0.05 tpy
0	Main Engine 2	60 hr/yr	160 gal/hr	2529 kW	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	1.73 lb/hr	0.05 tpy
0	Generator 1	60 hr/yr	25 gal/hr	380 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.31 lb/hr	0.01 tpy
0	Generator 2	12 hr/yr	25 gal/hr	380 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.31 lb/hr	1.86E-03 tpy
0	Generator 3	0 hr/yr	25 gal/hr	380 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.31 lb/hr	0.00 tpy
0	Emergency Generator	6 hr/yr	6 gal/hr	170 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.07 lb/hr	2.08E-04 tpy
Offshore Supply Vessels (OSV1 & OSV2)										
	Main Engine 1	360 hr/yr	75 gal/hr	3000 bhp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.81 lb/hr	0.15 tpy
	Main Engine 1	100 hr/yr	67 gal/hr	3000 bhp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.72 lb/hr	0.04 tpy
	Main Engine 2	360 hr/yr	75 gal/hr	3000 bhp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.81 lb/hr	0.15 tpy
	Main Engine 2	100 hr/yr	67 gal/hr	3000 bhp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.72 lb/hr	0.04 tpy
	Thruster Engine 1	360 hr/yr	58 gal/hr	950 bhp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.63 lb/hr	0.11 tpy
	Thruster Engine 2	360 hr/yr	58 gal/hr	950 bhp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.63 lb/hr	0.11 tpy
	Thruster Engine 3	360 hr/yr	58 gal/hr	950 bhp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.63 lb/hr	0.11 tpy
	Generator	820 hr/yr	27 gal/hr	400 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.33 lb/hr	0.14 tpy
	Generator	120 hr/yr	27 gal/hr	400 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.33 lb/hr	0.02 tpy
	Generator	0 hr/yr	27 gal/hr	400 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.33 lb/hr	0.00 tpy
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.10 lb/hr	1.49E-03 tpy
Ware Vessel (WV) w/ OSV backup										
	Main Engine 1	300 hr/yr	87 gal/hr	3200 hp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.94 lb/hr	0.14 tpy
	Main Engine 2	300 hr/yr	87 gal/hr	3200 hp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.94 lb/hr	0.14 tpy
	Main Engine 3	400 hr/yr	81 gal/hr	3200 hp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.88 lb/hr	0.18 tpy
	Main Engine 4	400 hr/yr	81 gal/hr	3200 hp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.88 lb/hr	0.18 tpy
	Generator 1	700 hr/yr	32 gal/hr	500 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.40 lb/hr	0.14 tpy
	Generator 2	100 hr/yr	32 gal/hr	500 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.40 lb/hr	0.02 tpy
	Generator 3	0 hr/yr	32 gal/hr	500 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.40 lb/hr	0.00 tpy
	Emergency Generator	30 hr/yr	12 gal/hr	170 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.15 lb/hr	2.23E-03 tpy
34' boom work boats - 4										
	WB-1 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.37 lb/hr	8.93E-03 tpy
	WB-1 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.37 lb/hr	8.93E-03 tpy
	WB-2 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.37 lb/hr	8.93E-03 tpy
	WB-2 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.37 lb/hr	8.93E-03 tpy
	WB-3 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.37 lb/hr	8.93E-03 tpy
	WB-3 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.37 lb/hr	8.93E-03 tpy
	WB-4 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.37 lb/hr	8.93E-03 tpy
	WB-4 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	0.4	g/kW-h	EPA Ocean Vessel Guidance	25	0.37 lb/hr	8.93E-03 tpy

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Volatile Organic Compounds

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential VOC Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly	Annual Rate
Marine Research Vessel										
	Main Engine	600 hr/yr	45.043 gal/hr	850 hp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	27	0.49 lb/hr	0.15 tpy
	Generator 1	600 hr/yr	9.589787 gal/hr	135 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	17	0.12 lb/hr	0.04 tpy
	Generator 2	600 hr/yr	6.393191 gal/hr	90 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	17	0.08 lb/hr	0.02 tpy
	Generator 3	600 hr/yr	2.841418 gal/hr	40 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	17	0.04 lb/hr	1.06E-02 tpy
Spill Storage Tanker										
	Main Engine 1	12 hr/yr	88.70625 gal/hr	1674 hp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.96 lb/hr	0.01 tpy
	Main Engine 2	12 hr/yr	88.70625 gal/hr	1674 hp	0.0819	lb/MMBtu	AP-42, Table 3.4-1	26	0.96 lb/hr	0.01 tpy
	Generator 1	48 hr/yr	40.94135 gal/hr	576 kW	0.4	g/kW-h	EPA Ocean Vessel Guidance	17	0.51 lb/hr	1.22E-02 tpy
	Boiler 1	48 hr/yr	109.1769 gal/hr	14 MMBtu/hr	0.2	lb/10^3 gal	AP-42 Table 1.3-3	23	2.18E-02 lb/hr	5.24E-04 tpy
All Vessels Fuel Tanks										
	Fuel Tank	2400 hr/yr	2193682 gal/yr*	N A	N A		EPA TANKS	15	9.66E-03 lb/hr	1.16E-02 tpy

Notes:

1 I kW = 1.3405 hp; 1 lb = 454 g; assumed break specific fuel consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1) and fuel heat content of 132,096 Btu/gal ULSD #1 (Tesoro/Kenai Refinery).
2 Assumed well gas heat content of 1,085 Btu/scf for test flare (email from Dan Lowe 1/7/09) and propane heat content of 2,516 Btu/scf for flare pilot & purge (National Propane Gas Association http://www.npga.org/i4a/pages/index.cfm?pageid=633).
3 ULSD #1 has a density of 0.8094 kg/L (Tesoro/Kenai Refinery); so assume 6.74 lbs/ gal diesel
4 Incinerator waste fuel heat content is assumed 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17).
5 Fuel Usage is back calculated from Max Output capacity when not available from manufacturer specifications.
6 Incinerators will burn ULSD for ignition purposes only.
7 An equivalent of 2 main drilling engines at 100% load will operate continuously for up to 100 days per season (4800 hrs).
8 Mud degassing emission rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977)
9 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 6 times per year).
10 The Ware Vessel will make up to 50 trips per season.
11 EPA Ocean Vessel Guidance is "Emission Inventories for Ocean-Going Vessels Using Category 3 Propulsion Engines In or Near the United States" (EPA420-D-07-007, December, 2007) - Table 3-55 Marine Distillate fuel
12 Engines < 600 hp (< 448 kW) and all generators EF from EPA Ocean Vessel Guidance.
13 Engines > 600 hp EF are from AP-42.
14 AP-42 factors for TOC were used with methane subtracted for engines larger than 600 hp. Manufacturer factor used for HC. Methane data not available for engines smaller than 600 hp or HC.
15 Tank emissions are derived from EPA's TANKS Emissions Estimation Software, Version 4.09D: http://www.epa.gov/ttnchie1/software/tanks/index.html

VOC Calculations and Conversions

16 PTE (lb/hr) = EF (lb/hp-h)*Max Output Capacity (kW)*(1.3405 hp/kW)
17 PTE (lb/hr) = EF (g/kW-h)*Max Output Capacity (kW)/(454 g/lb)
18 PTE (lb/hr) = EF (lb/ton)*Max Fuel Usage (lb/hr)/(2000lb/ton)
19 PTE (tpy) = EF (lb/day)*Allowable Operation (day/yr)/(2,000 lbs/ton)
20 PTE (lb/hr) = PTE (ton/yr)/(8765 hr/yr)*(2000 lb/ton)
21 PTE (lb/hr) = EF (lb/hp-h)*Max Output Capacity (hp)
22 PTE (lb/hr) = EF (g/kW-h)*Max Output Capacity (hp)/(1.3405 hp/kW)/(454 g/lb)
23 PTE (lb/hr) = EF (lb/1,000 gal)*Max Fuel Usage (gal/hr)
24 PTE (lb/hr) = EF (lb/hp-h)*Max Fuel Usage (gal/hr)*(132096 Btu/gal)/(7,000 Btu/hp-h)
25 PTE (lb/hr) = EF (g/kW-h)*Max Fuel Usage (gal/hr)*(7,000 Btu/hp-h)*(132096 Btu/gal)/(1.3405 hp/kW)/(454 g/lb)
26 PTE (lb/hr) = EF (lb/MMBtu)*Max Fuel Usage (gal/hr)*132096 Btu/gal)/(1,000,000)
27 PTE (lb/hr) = EF (lb/MMBtu)*Max Output Capacity (kW)*(7,000 Btu/hp-h)*(1.3405 hp/kW)/(1,000,000)
28 PTE (tpy) = PTE (lb/hr)*Allowable Operation (hr/yr)/(2000 lb/ton)
29 Mud Degassing EF: 881 lb HC/day = (0.4 Mg HC emissions/day)*(1,000,000 g /Mg)/(454 g/lb)
96.9 lb VOC/day = (881 lb HC/day)*(11% VOC/100% HC)

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Sulfur Dioxide

Emission Unit		Fuel	Allowable	Maximum	Maximum	SO2 Emission Factor		Reference		Potential SO2 Emissions	
	Description	Sulfur Content	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly Emission Rate	Annual Emission Rate
Drill Rig Equipment											
	Main Drill Rig Engine 1	0.0015 wt. % S	1200 hr/yr	206 g fuel/kWh	2480 kW	2.02E-04	lb/gal	Mass Balance	12	3.56E-02 lb/hr	2.14E-02 tpy
	Main Drill Rig Engine 2	0.0015 wt. % S	1200 hr/yr	206 g fuel/kWh	2480 kW	2.02E-04	lb/gal	Mass Balance	12	3.56E-02 lb/hr	2.14E-02 tpy
	Main Drill Rig Engine 3	0.0015 wt. % S	1200 hr/yr	206 g fuel/kWh	2480 kW	2.02E-04	lb/gal	Mass Balance	12	3.56E-02 lb/hr	2.14E-02 tpy
	Main Drill Rig Engine 4	0.0015 wt. % S	1200 hr/yr	206 g fuel/kWh	2480 kW	2.02E-04	lb/gal	Mass Balance	12	3.56E-02 lb/hr	2.14E-02 tpy
	Emergency Back-up Engine	0.0015 wt. % S	75 hr/yr	205 g fuel/kWh	968 kW	2.02E-04	lb/gal	Mass Balance	12	1.39E-02 lb/hr	5.21E-04 tpy
	Cement Engine 1	0.0015 wt. % S	131 hr/yr	29 gal/hr	403 kW	2.02E-04	lb/gal	Mass Balance	12	5.79E-03 lb/hr	2.93E-06 tpy
	Cement Engine 2	0.0015 wt. % S	131 hr/yr	29 gal/hr	403 kW	2.02E-04	lb/gal	Mass Balance	12	5.79E-03 lb/hr	2.93E-06 tpy
	Logging Winch	0.0015 wt. % S	273 hr/yr	13 gal/hr	187 kW	2.02E-04	lb/gal	Mass Balance	12	2.69E-03 lb/hr	3.67E-04 tpy
	Heater 1	0.0015 wt. % S	2400 hr/yr	26 gal/hr	3.5 MMBtu/hr a	2.02E-04	lb/gal	Mass Balance	16	5.36E-03 lb/hr	6.43E-03 tpy
	Heater 2	0.0015 wt. % S	2400 hr/yr	26 gal/hr	3.5 MMBtu/hr a	2.02E-04	lb/gal	Mass Balance	16	5.36E-03 lb/hr	6.43E-03 tpy
	Incinerator	0.0015 wt. % S	65 tons/yr	276 lbs/hr	N A	2.5	lbs/ton	AP-42, Table 2.1-12	13	3.45E-01 lb/hr	8.17E-02 tpy
	Fuel Tank 1	0.0015 wt. % S	2400 hrs/yr	471941 gal/yr*	N A	N A		NA		N A	N A
	Fuel Tank 2	0.0015 wt. % S	2400 hrs/yr	471941 gal/yr*	N A	N A		NA		N A	N A
	Mud Degassing	0.0015 wt. % S	100 days/yr	N A	20000 scf/day	N A		NA		N A	N A
					a Heat input rate						
Ice Breaker 1											
	Main Engine 1	0.0015 wt. % S	515 hr/yr	426 gal/hr	8046 bhp	2.02E-04	lb/gal	Mass Balance	14	8.62E-02 lb/hr	2.22E-02 tpy
	Main Engine 2	0.0015 wt. % S	515 hr/yr	426 gal/hr	8046 bhp	2.02E-04	lb/gal	Mass Balance	14	8.62E-02 lb/hr	2.22E-02 tpy
	Main Engine 3	0.0015 wt. % S	515 hr/yr	320 gal/hr	6035 bhp	2.02E-04	lb/gal	Mass Balance	14	6.47E-02 lb/hr	1.67E-02 tpy
	Main Engine 4	0.0015 wt. % S	515 hr/yr	320 gal/hr	6035 bhp	2.02E-04	lb/gal	Mass Balance	14	6.47E-02 lb/hr	1.67E-02 tpy
	Harbor Generator	0.0015 wt. % S	35 hr/yr	50 gal/hr	952 bhp	2.02E-04	lb/gal	Mass Balance	14	1.02E-02 lb/hr	1.78E-04 tpy
	Emergency Generator	0.0015 wt. % S	35 hr/yr	21 gal/hr	402 bhp	2.02E-04	lb/gal	Mass Balance	14	4.31E-03 lb/hr	7.54E-05 tpy
	Boiler 1	0.0015 wt. % S	515 hr/yr	28 gal/hr	4 MMBtu/hr a	2.02E-04	lb/gal	Mass Balance	15	5.66E-03 lb/hr	1.46E-03 tpy
	Boiler 2	0.0015 wt. % S	515 hr/yr	28 gal/hr	4 MMBtu/hr a	2.02E-04	lb/gal	Mass Balance	15	5.66E-03 lb/hr	1.46E-03 tpy
	Incinerator	0.0015 wt. % S	515 hr/yr	175 lb/hr	N A	2.5	lbs/ton	AP-42, Table 2.1-12	13	2.19E-01 lb/hr	5.63E-02 tpy
					a Heat input rate						
Ice Breaker 2											
	Main Engine 1	0.0015 wt. % S	515 hr/yr	426 gal/hr	8046 bhp	2.02E-04	lb/gal	Mass Balance	14	8.62E-02 lb/hr	2.22E-02 tpy
	Main Engine 2	0.0015 wt. % S	515 hr/yr	426 gal/hr	8046 bhp	2.02E-04	lb/gal	Mass Balance	14	8.62E-02 lb/hr	2.22E-02 tpy
	Main Engine 3	0.0015 wt. % S	515 hr/yr	320 gal/hr	6035 bhp	2.02E-04	lb/gal	Mass Balance	14	6.47E-02 lb/hr	1.67E-02 tpy
	Main Engine 4	0.0015 wt. % S	515 hr/yr	320 gal/hr	6035 bhp	2.02E-04	lb/gal	Mass Balance	14	6.47E-02 lb/hr	1.67E-02 tpy
	Harbor Generator	0.0015 wt. % S	35 hr/yr	50 gal/hr	952 bhp	2.02E-04	lb/gal	Mass Balance	14	1.02E-02 lb/hr	1.78E-04 tpy
	Emergency Generator	0.0015 wt. % S	35 hr/yr	21 gal/hr	402 bhp	2.02E-04	lb/gal	Mass Balance	14	4.31E-03 lb/hr	7.54E-05 tpy
	Boiler 1	0.0015 wt. % S	515 hr/yr	28 gal/hr	4 MMBtu/hr a	2.02E-04	lb/gal	Mass Balance	15	5.66E-03 lb/hr	1.46E-03 tpy
	Boiler 2	0.0015 wt. % S	515 hr/yr	28 gal/hr	4 MMBtu/hr a	2.02E-04	lb/gal	Mass Balance	15	5.66E-03 lb/hr	1.46E-03 tpy
	Incinerator	0.0015 wt. % S	515 hr/yr	175 lb/hr	N A	2.5	lbs/ton	AP-42, Table 2.1-12	13	2.19E-01 lb/hr	5.63E-02 tpy
					a Heat input rate						
Oil Spill Response Vessel 1 (Dedicated OSRV)											
	Main Engine 1	0.0015 wt. % S	800 hr/yr	75 gal/hr	3000 bhp	2.0E-04	lb/gal	Mass Balance	15	1.52E-02 lb/hr	6.07E-03 tpy
	Main Engine 2	0.0015 wt. % S	800 hr/yr	75 gal/hr	3000 bhp	2.0E-04	lb/gal	Mass Balance	15	1.52E-02 lb/hr	6.07E-03 tpy
	Thruster Engine 1	0.0015 wt. % S	12 hr/yr	58 gal/hr	950 hp	2.0E-04	lb/gal	Mass Balance	15	1.17E-02 lb/hr	7.04E-05 tpy
	Thruster Engine 2	0.0015 wt. % S	12 hr/yr	58 gal/hr	950 hp	2.0E-04	lb/gal	Mass Balance	15	1.17E-02 lb/hr	7.04E-05 tpy
	Thruster Engine 3	0.0015 wt. % S	12 hr/yr	58 gal/hr	950 hp	2.0E-04	lb/gal	Mass Balance	15	1.17E-02 lb/hr	7.04E-05 tpy
	Generator 1	0.0015 wt. % S	2400 hr/yr	27 gal/hr	400 kW	2.0E-04	lb/gal	Mass Balance	15	5.46E-03 lb/hr	6.55E-03 tpy
	Generator 2	0.0015 wt. % S	300 hr/yr	27 gal/hr	400 kW	2.0E-04	lb/gal	Mass Balance	15	5.46E-03 lb/hr	8.19E-04 tpy
	Generator 3	0.0015 wt. % S	0 hr/yr	27 gal/hr	400 kW	2.0E-04	lb/gal	Mass Balance	15	5.46E-03 lb/hr	0.00E+00 tpy
	Emergency Generator	0.0015 wt. % S	30 hr/yr	8 gal/hr	99 kW	2.0E-04	lb/gal	Mass Balance	15	1.62E-03 lb/hr	2.43E-05 tpy

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Sulfur Dioxide

Emission Unit		Fuel	Allowable	Maximum	Maximum	SO2 Emission Factor		Reference		Potential SO2 Emissions	
	Description	Sulfur Content	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly Emission Rate	Annual Emission Rate
Oil Spill Response Vessel 2											
	Main Engine 1	0.0015 wt. % S	60 hr/yr	75 gal/hr	3000 bhp	2.0E-04	lb/gal	Mass Balance	15	1.52E-02 lb/hr	4.55E-04 tpy
	Main Engine 2	0.0015 wt. % S	60 hr/yr	75 gal/hr	3000 bhp	2.0E-04	lb/gal	Mass Balance	15	1.52E-02 lb/hr	4.55E-04 tpy
	Thruster Engine 1	0.0015 wt. % S	48 hr/yr	58 gal/hr	950 hp	2.0E-04	lb/gal	Mass Balance	15	1.17E-02 lb/hr	2.81E-04 tpy
	Thruster Engine 2	0.0015 wt. % S	48 hr/yr	58 gal/hr	950 hp	2.0E-04	lb/gal	Mass Balance	15	1.17E-02 lb/hr	2.81E-04 tpy
	Thruster Engine 3	0.0015 wt. % S	48 hr/yr	58 gal/hr	950 hp	2.0E-04	lb/gal	Mass Balance	15	1.17E-02 lb/hr	2.81E-04 tpy
	Generator 1	0.0015 wt. % S	60 hr/yr	27 gal/hr	400 kW	2.0E-04	lb/gal	Mass Balance	15	5.46E-03 lb/hr	1.64E-04 tpy
	Generator 2	0.0015 wt. % S	30 hr/yr	27 gal/hr	400 kW	2.0E-04	lb/gal	Mass Balance	15	5.46E-03 lb/hr	8.19E-05 tpy
	Generator 3	0.0015 wt. % S	0 hr/yr	27 gal/hr	400 kW	2.0E-04	lb/gal	Mass Balance	15	5.46E-03 lb/hr	0.00E+00 tpy
	Emergency Generator	0.0015 wt. % S	2 hr/yr	8 gal/hr	99 kW	2.0E-04	lb/gal	Mass Balance	15	1.62E-03 lb/hr	1.62E-06 tpy
Anchor Handling Supply Tug (AHST)											
0	Main Engine 1	0.0015 wt. % S	60 hr/yr	160 gal/hr	2529 kW	2.0E-04	lb/gal	Mass Balance	15	3.24E-02 lb/hr	9.71E-04 tpy
0	Main Engine 2	0.0015 wt. % S	60 hr/yr	160 gal/hr	2529 kW	2.0E-04	lb/gal	Mass Balance	15	3.24E-02 lb/hr	9.71E-04 tpy
0	Generator 1	0.0015 wt. % S	60 hr/yr	25 gal/hr	380 kW	2.0E-04	lb/gal	Mass Balance	15	5.06E-03 lb/hr	1.52E-04 tpy
0	Generator 2	0.0015 wt. % S	12 hr/yr	25 gal/hr	380 kW	2.0E-04	lb/gal	Mass Balance	15	5.06E-03 lb/hr	3.03E-05 tpy
0	Generator 3	0.0015 wt. % S	0 hr/yr	25 gal/hr	380 kW	2.0E-04	lb/gal	Mass Balance	15	5.06E-03 lb/hr	0.00E+00 tpy
0	Emergency Generator	0.0015 wt. % S	6 hr/yr	6 gal/hr	170 kW	2.0E-04	lb/gal	Mass Balance	15	1.13E-03 lb/hr	3.40E-06 tpy
Offshore Supply Vessels (OSV1 & OSV2)											
	Main Engine 1	0.0015 wt. % S	360 hr/yr	75 gal/hr	3000 bhp	2.0E-04	lb/gal	Mass Balance	15	1.52E-02 lb/hr	2.73E-03 tpy
	Main Engine 1	0.0015 wt. % S	100 hr/yr	67 gal/hr	3000 bhp	2.0E-04	lb/gal	Mass Balance	15	1.35E-02 lb/hr	6.77E-04 tpy
	Main Engine 2	0.0015 wt. % S	360 hr/yr	75 gal/hr	3000 bhp	2.0E-04	lb/gal	Mass Balance	15	1.52E-02 lb/hr	2.73E-03 tpy
	Main Engine 2	0.0015 wt. % S	100 hr/yr	67 gal/hr	3000 bhp	2.0E-04	lb/gal	Mass Balance	15	1.35E-02 lb/hr	6.77E-04 tpy
	Thruster Engine 1	0.0015 wt. % S	360 hr/yr	58 gal/hr	950 bhp	2.0E-04	lb/gal	Mass Balance	15	1.17E-02 lb/hr	2.11E-03 tpy
	Thruster Engine 2	0.0015 wt. % S	360 hr/yr	58 gal/hr	950 bhp	2.0E-04	lb/gal	Mass Balance	15	1.17E-02 lb/hr	2.11E-03 tpy
	Thruster Engine 3	0.0015 wt. % S	360 hr/yr	58 gal/hr	950 bhp	2.0E-04	lb/gal	Mass Balance	15	1.17E-02 lb/hr	2.11E-03 tpy
	Generator	0.0015 wt. % S	820 hr/yr	27 gal/hr	400 kW	2.0E-04	lb/gal	Mass Balance	15	5.46E-03 lb/hr	2.24E-03 tpy
	Generator	0.0015 wt. % S	120 hr/yr	27 gal/hr	400 kW	2.0E-04	lb/gal	Mass Balance	15	5.46E-03 lb/hr	3.28E-04 tpy
	Generator	0.0015 wt. % S	0 hr/yr	27 gal/hr	400 kW	2.0E-04	lb/gal	Mass Balance	15	5.46E-03 lb/hr	0.00E+00 tpy
	Emergency Generator	0.0015 wt. % S	30 hr/yr	8 gal/hr	99 kW	2.0E-04	lb/gal	Mass Balance	15	1.62E-03 lb/hr	2.43E-05 tpy
Ware Vessel (WV) w/ OSV backup											
0	Main Engine 1	0.0015 wt. % S	300 hr/yr	87 gal/hr	3200 hp	2.0E-04	lb/gal	Mass Balance	15	1.76E-02 lb/hr	2.64E-03 tpy
	Main Engine 2	0.0015 wt. % S	300 hr/yr	87 gal/hr	3200 hp	2.0E-04	lb/gal	Mass Balance	15	1.76E-02 lb/hr	2.64E-03 tpy
	Main Engine 3	0.0015 wt. % S	400 hr/yr	81 gal/hr	3200 hp	2.0E-04	lb/gal	Mass Balance	15	1.64E-02 lb/hr	3.28E-03 tpy
	Main Engine 4	0.0015 wt. % S	400 hr/yr	81 gal/hr	3200 hp	2.0E-04	lb/gal	Mass Balance	15	1.64E-02 lb/hr	3.28E-03 tpy
	Generator 1	0.0015 wt. % S	700 hr/yr	32 gal/hr	500 kW	2.0E-04	lb/gal	Mass Balance	15	6.47E-03 lb/hr	2.26E-03 tpy
	Generator 2	0.0015 wt. % S	100 hr/yr	32 gal/hr	500 kW	2.0E-04	lb/gal	Mass Balance	15	6.47E-03 lb/hr	3.24E-04 tpy
	Generator 3	0.0015 wt. % S	0 hr/yr	32 gal/hr	500 kW	2.0E-04	lb/gal	Mass Balance	15	6.47E-03 lb/hr	0.00E+00 tpy
	Emergency Generator	0.0015 wt. % S	30 hr/yr	12 gal/hr	170 kW	2.0E-04	lb/gal	Mass Balance	15	2.43E-03 lb/hr	3.64E-05 tpy
34' boom work boats - 4											
	WB-1 Propulsion Engine 1	0.0015 wt. % S	48 hr/yr	30 gal/hr	566.12571 hp	2.02E-04	lb/gal	Mass Balance	15	6.07E-03 lb/hr	1.46E-04 tpy
	WB-1 Propulsion Engine 2	0.0015 wt. % S	48 hr/yr	30 gal/hr	566.12571 hp	2.02E-04	lb/gal	Mass Balance	15	6.07E-03 lb/hr	1.46E-04 tpy
	WB-2 Propulsion Engine 1	0.0015 wt. % S	48 hr/yr	30 gal/hr	566.12571 hp	2.02E-04	lb/gal	Mass Balance	15	6.07E-03 lb/hr	1.46E-04 tpy
	WB-2 Propulsion Engine 2	0.0015 wt. % S	48 hr/yr	30 gal/hr	566.12571 hp	2.02E-04	lb/gal	Mass Balance	15	6.07E-03 lb/hr	1.46E-04 tpy
	WB-3 Propulsion Engine 1	0.0015 wt. % S	48 hr/yr	30 gal/hr	566.12571 hp	2.02E-04	lb/gal	Mass Balance	15	6.07E-03 lb/hr	1.46E-04 tpy
	WB-3 Propulsion Engine 2	0.0015 wt. % S	48 hr/yr	30 gal/hr	566.12571 hp	2.02E-04	lb/gal	Mass Balance	15	6.07E-03 lb/hr	1.46E-04 tpy
	WB-4 Propulsion Engine 1	0.0015 wt. % S	48 hr/yr	30 gal/hr	566.12571 hp	2.02E-04	lb/gal	Mass Balance	15	6.07E-03 lb/hr	1.46E-04 tpy
	WB-4 Propulsion Engine 2	0.0015 wt. % S	48 hr/yr	30 gal/hr	566.12571 hp	2.02E-04	lb/gal	Mass Balance	15	6.07E-03 lb/hr	1.46E-04 tpy

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Sulfur Dioxide

Emission Unit		Fuel	Allowable	Maximum	Maximum	SO2 Emission Factor		Reference		Potential SO2 Emissions	
	Description	Sulfur Content	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly Emission Rate	Annual Emission Rate
Marine Research Vessel											
	Main Engine	0.0015 wt. % S	600 hr/yr	45.043 gal/hr	850 hp	2.02E-04	lb/gal	Mass Balance	14	9.11E-03 lb/hr	2.73E-03 tpy
	Generator 1	0.0015 wt. % S	600 hr/yr	9.58979 gal/hr	135 kW	2.02E-04	lb/gal	Mass Balance	12	1.94E-03 lb/hr	5.82E-04 tpy
	Generator 2	0.0015 wt. % S	600 hr/yr	6.39319 gal/hr	90 kW	2.02E-04	lb/gal	Mass Balance	12	1.29E-03 lb/hr	3.88E-04 tpy
	Generator 3	0.0015 wt. % S	600 hr/yr	2.84142 gal/hr	40 kW	2.02E-04	lb/gal	Mass Balance	12	5.75E-04 lb/hr	1.72E-04 tpy
Spill Storage Tanker											
	Main Engine 1	0.0015 wt. % S	12 hr/yr	88.7063 gal/hr	1673.963 hp	2.02E-04	lb/gal	Mass Balance	15	1.79E-02 lb/hr	1.08E-04 tpy
	Main Engine 2	0.0015 wt. % S	12 hr/yr	88.7063 gal/hr	1673.963 hp	2.02E-04	lb/gal	Mass Balance	15	1.79E-02 lb/hr	1.08E-04 tpy
	Generator 1	0.0015 wt. % S	48 hr/yr	40.9413 gal/hr	576.35086 kW	2.02E-04	lb/gal	Mass Balance	12	8.28E-03 lb/hr	1.99E-04 tpy
	Boiler 1	0.0015 wt. % S	48 hr/yr	109.177 gal/hr	14.421835 MMBtu/hr	2.02E-04	lb/gal	Mass Balance	16	2.21E-02 lb/hr	5.30E-04 tpy
All Vessels Fuel Tanks											
	Fuel Tank	0.0015 wt. % S	2400 hr/yr	2193682 gal/yr*	N A	N A		NA		N A	N A

Notes:

1 I kW = 1.3405 hp; 1 lb = 454 g; assumed break specific fuel consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1) and fuel heat content of 132,096 Btu/gal ULSD #1 (Tesoro/Kenai Refinery).

2 Assumed well gas heat content of 1,085 Btu/scf for test flare (email from Dan Lowe 1/7/09) and propane heat content of 2,516 Btu/scf for flare pilot & purge (National Propane Gas Association http://www.npga.org/i4a/pages/index.cfm?pageid=633).

3 ULSD #1 has a density of 0.8094 kg/L (Tesoro/Kenai Refinery); so assume 6.74 lbs/ gal diesel

4 Incinerator waste fuel heat content is assumed 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17).

5 Fuel Usage is back calculated from Max Output capacity when not available from manufacturer specifications.

6 Incinerators will burn ULSD for ignition purposes only.

7 An equivalent of 2 main drilling engines at 100% load will operate continuously for up to 100 days per season (4800 hrs).

8 Mud degassing emission rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977)

9 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 6 times per year).

10 The Ware Vessel will make up to 50 trips per season.

11 Emissions units with SCR controls (drill rig and ice breaker engines), multiply PTE by .91 to account for the 9% SO2 that is converted to SO3 per email from Wartsila, Matts Andersson on 12/17/2009.

SO2 Calculations and Conversions:

12 PTE (lb/hr) = EF (lb/gal)*Max Output Capacity (kW)*(1.3405 hp/kW)(*7,000 Btu/hp-h)/(132096 Btu/gal)

13 PTE (lb/hr) = EF (lb/ton)*Max Fuel Usage (lb/hr)/(2,000 lb/ton)

14 PTE (lb/hr) = EF (lb/gal)*Max Output Capacity (hp)*(7,000 Btu/hp-h)/(132096 Btu/gal)

15 PTE (lb/hr) = EF (lb/gal)*Max Fuel Usage (lb/hr)

16 PTE (lb/hr) = EF (lb/gal)*Max Output Capacity (MMBtu/hr)/(132096 Btu/gal)*(1,000,000 Btu/MMBtu)

17 PTE (tpy) = PTE (lb/hr)*Allowable Operation (hr/yr)/(2,000 lb/ton)

SO2 EF Mass Balance Calculations:

lbs/gal = (weight% S/100%)*(6.74 lbs/gal)(64 lb/lb mol SO2)/(32 lb/lb mol S)

lbs/MMscf = (1 part H2S/1,000,000 parts fuel)/(379.9 scf/lb mol)/(64 lb/lb mol)*(1,000,000 scf/MMscf)

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Lead

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential Pb Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly	Annual Rate
Drill Rig Equipment										
	Main Drill Rig Engine 1	1200 hr/yr	206 g fuel/kWh	2480 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-006	14	6.75E-04 lb/hr	4.05E-04 tpy
	Main Drill Rig Engine 2	1200 hr/yr	206 g fuel/kWh	2480 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	14	6.75E-04 lb/hr	4.05E-04 tpy
	Main Drill Rig Engine 3	1200 hr/yr	206 g fuel/kWh	2480 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-008	14	6.75E-04 lb/hr	4.05E-04 tpy
	Main Drill Rig Engine 4	1200 hr/yr	206 g fuel/kWh	2480 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-009	14	6.75E-04 lb/hr	4.05E-04 tpy
	Emergency Back-up Engine	75 hr/yr	205 g fuel/kWh	968 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-011	14	2.63E-04 lb/hr	9.88E-06 tpy
	Cement Engine 1	131 hr/yr	29 gal/hr	403 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-012	14	1.10E-04 lb/hr	7.18E-06 tpy
	Cement Engine 2	131 hr/yr	29 gal/hr	403 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-013	14	1.10E-04 lb/hr	7.18E-06 tpy
	Logging Winch	273 hr/yr	13 gal/hr	187 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-013	14	5.09E-05 lb/hr	6.95E-06 tpy
	Heater 1	2400 hr/yr	26 gal/hr	4 MMBtu/hr a	9.00E+00	lb/10^{12} Btu	AP-42, Table 1.3-10	19	3.15E-05 lb/hr	3.78E-05 tpy
	Heater 2	2400 hr/yr	26 gal/hr	4 MMBtu/hr a	9.00E+00	lb/10^{12} Btu	AP-42, Table 1.3-10	19	3.15E-05 lb/hr	3.78E-05 tpy
	Incinerator	65 tons/yr	276 lbs/hr	N A	2.13E-01	lbs/ton	AP-42, Table 2.1-2	15	2.94E-02 lb/hr	6.96E-03 tpy
	Fuel Tank 1	2400 hrs/yr	471941 gal/yr*	N A	N A		NA		N A	N A
	Fuel Tank 2	2400 hrs/yr	471941 gal/yr*	N A	N A		NA		N A	N A
	Mud Degassing	100 days/yr	N A	20000 scf/day	N A		NA		N A	N A
				a Heat input rate						
Ice Breaker 1										
	Main Engine 1	515 hr/yr	426 gal/hr	8046 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-006	16	1.63E-03 lb/hr	4.21E-04 tpy
	Main Engine 2	515 hr/yr	426 gal/hr	8046 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	16	1.63E-03 lb/hr	4.21E-04 tpy
	Main Engine 3	515 hr/yr	320 gal/hr	6035 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	16	1.23E-03 lb/hr	3.15E-04 tpy
	Main Engine 4	515 hr/yr	320 gal/hr	6035 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	16	1.23E-03 lb/hr	3.15E-04 tpy
	Harbor Generator	35 hr/yr	50 gal/hr	952 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	16	1.93E-04 lb/hr	3.38E-06 tpy
	Emergency Generator	35 hr/yr	21 gal/hr	402 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	16	8.16E-05 lb/hr	1.43E-06 tpy
	Boiler 1	515 hr/yr	28 gal/hr	4 MMBtu/hr a	9.00E+00	lb/10^{12} Btu	AP-42, Table 1.3-10	20	3.33E-05 lb/hr	8.57E-06 tpy
	Boiler 2	515 hr/yr	28 gal/hr	4 MMBtu/hr a	9.00E+00	lb/10^{12} Btu	AP-42, Table 1.3-10	20	3.33E-05 lb/hr	8.57E-06 tpy
	Incinerator	515 hr/yr	175 lb/hr	N A	2.13E-01	lbs/ton	AP-42, Table 2.1-2	17	1.86E-02 lb/hr	4.80E-03 tpy
				a Heat input rate						
Ice Breaker 2										
	Main Engine 1	515 hr/yr	426 gal/hr	8046 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-006	16	1.63E-03 lb/hr	4.21E-04 tpy
	Main Engine 2	515 hr/yr	426 gal/hr	8046 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	16	1.63E-03 lb/hr	4.21E-04 tpy
	Main Engine 3	515 hr/yr	320 gal/hr	6035 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	16	1.23E-03 lb/hr	3.15E-04 tpy
	Main Engine 4	515 hr/yr	320 gal/hr	6035 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	16	1.23E-03 lb/hr	3.15E-04 tpy
	Harbor Generator	35 hr/yr	50 gal/hr	952 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	16	1.93E-04 lb/hr	3.38E-06 tpy
	Emergency Generator	35 hr/yr	21 gal/hr	402 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	16	8.16E-05 lb/hr	1.43E-06 tpy
	Boiler 1	515 hr/yr	28 gal/hr	4 MMBtu/hr a	9.00E+00	lb/10^{12} Btu	AP-42, Table 1.3-10	20	3.33E-05 lb/hr	8.57E-06 tpy
	Boiler 2	515 hr/yr	28 gal/hr	4 MMBtu/hr a	9.00E+00	lb/10^{12} Btu	AP-42, Table 1.3-10	20	3.33E-05 lb/hr	8.57E-06 tpy
	Incinerator	515 hr/yr	175 lb/hr	N A	2.13E-01	lbs/ton	AP-42, Table 2.1-2	17	1.86E-02 lb/hr	4.80E-03 tpy
				a Heat input rate						
Oil Spill Response Vessel 1 (Dedicated OSRV)										
	Main Engine 1	800 hr/yr	75 gal/hr	3000 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-006	18	2.87E-04 lb/hr	1.15E-04 tpy
	Main Engine 2	800 hr/yr	75 gal/hr	3000 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	2.87E-04 lb/hr	1.15E-04 tpy
	Thruster Engine 1	12 hr/yr	58 gal/hr	950 hp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	2.22E-04 lb/hr	1.33E-06 tpy
	Thruster Engine 2	12 hr/yr	58 gal/hr	950 hp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	2.22E-04 lb/hr	1.33E-06 tpy
	Thruster Engine 3	12 hr/yr	58 gal/hr	950 hp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	2.22E-04 lb/hr	1.33E-06 tpy
	Generator 1	2400 hr/yr	27 gal/hr	400 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	1.03E-04 lb/hr	1.24E-04 tpy
	Generator 2	300 hr/yr	27 gal/hr	400 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	1.03E-04 lb/hr	1.55E-05 tpy
	Generator 3	0 hr/yr	27 gal/hr	400 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	1.03E-04 lb/hr	0.00E+00 tpy
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	3.06E-05 lb/hr	4.60E-07 tpy

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Lead

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential Pb Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly	Annual Rate
Oil Spill Response Vessel 2										
	Main Engine 1	60 hr/yr	75 gal/hr	3000 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-006	18	2.87E-04 lb/hr	8.62E-06 tpy
	Main Engine 2	60 hr/yr	75 gal/hr	3000 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	2.87E-04 lb/hr	8.62E-06 tpy
	Thruster Engine 1	48 hr/yr	58 gal/hr	950 hp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	2.22E-04 lb/hr	5.33E-06 tpy
	Thruster Engine 2	48 hr/yr	58 gal/hr	950 hp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	2.22E-04 lb/hr	5.33E-06 tpy
	Thruster Engine 3	48 hr/yr	58 gal/hr	950 hp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	2.22E-04 lb/hr	5.33E-06 tpy
	Generator 1	60 hr/yr	27 gal/hr	400 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	1.03E-04 lb/hr	3.10E-06 tpy
	Generator 2	30 hr/yr	27 gal/hr	400 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	1.03E-04 lb/hr	1.55E-06 tpy
	Generator 3	0 hr/yr	27 gal/hr	400 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	1.03E-04 lb/hr	0.00E+00 tpy
	Emergency Generator	2 hr/yr	8 gal/hr	99 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	3.06E-05 lb/hr	3.06E-08 tpy
Anchor Handling Supply Tug (AHST)										
0	Main Engine 1	60 hr/yr	160 gal/hr	2529 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-006	18	6.13E-04 lb/hr	1.84E-05 tpy
0	Main Engine 2	60 hr/yr	160 gal/hr	2529 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	6.13E-04 lb/hr	1.84E-05 tpy
0	Generator 1	60 hr/yr	25 gal/hr	380 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	9.58E-05 lb/hr	2.87E-06 tpy
0	Generator 2	12 hr/yr	25 gal/hr	380 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	9.58E-05 lb/hr	5.75E-07 tpy
0	Generator 3	0 hr/yr	25 gal/hr	380 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	9.58E-05 lb/hr	0.00E+00 tpy
0	Emergency Generator	6 hr/yr	6 gal/hr	170 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	2.15E-05 lb/hr	6.44E-08 tpy
Offshore Supply Vessels (OSV1 & OSV2)										
	Main Engine 1	360 hr/yr	75 gal/hr	3000 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-006	18	2.87E-04 lb/hr	5.17E-05 tpy
	Main Engine 1	100 hr/yr	67 gal/hr	3000 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	2.57E-04 lb/hr	1.28E-05 tpy
	Main Engine 2	360 hr/yr	75 gal/hr	3000 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	2.87E-04 lb/hr	5.17E-05 tpy
	Main Engine 2	100 hr/yr	67 gal/hr	3000 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	2.57E-04 lb/hr	1.28E-05 tpy
	Thruster Engine 1	360 hr/yr	58 gal/hr	950 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	2.22E-04 lb/hr	4.00E-05 tpy
	Thruster Engine 2	360 hr/yr	58 gal/hr	950 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	2.22E-04 lb/hr	4.00E-05 tpy
	Thruster Engine 3	360 hr/yr	58 gal/hr	950 bhp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	2.22E-04 lb/hr	4.00E-05 tpy
	Generator	820 hr/yr	27 gal/hr	400 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	1.03E-04 lb/hr	4.24E-05 tpy
	Generator	120 hr/yr	27 gal/hr	400 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	1.03E-04 lb/hr	6.21E-06 tpy
	Generator	0 hr/yr	27 gal/hr	400 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	1.03E-04 lb/hr	0.00E+00 tpy
	Emergency Generator	30 hr/yr	8 gal/hr	99 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	3.06E-05 lb/hr	4.60E-07 tpy
Ware Vessel (WV) w/ OSV backup										
	Main Engine 1	300 hr/yr	87 gal/hr	3200 hp	2.90E-05	lb/MMBtu	EPA 454/R-98-006	18	3.33E-04 lb/hr	5.00E-05 tpy
	Main Engine 2	300 hr/yr	87 gal/hr	3200 hp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	3.33E-04 lb/hr	5.00E-05 tpy
	Main Engine 3	400 hr/yr	81 gal/hr	3200 hp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	3.10E-04 lb/hr	6.21E-05 tpy
	Main Engine 4	400 hr/yr	81 gal/hr	3200 hp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	3.10E-04 lb/hr	6.21E-05 tpy
	Generator 1	700 hr/yr	32 gal/hr	500 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	1.23E-04 lb/hr	4.29E-05 tpy
	Generator 2	100 hr/yr	32 gal/hr	500 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	1.23E-04 lb/hr	6.13E-06 tpy
	Generator 3	0 hr/yr	32 gal/hr	500 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	1.23E-04 lb/hr	0.00E+00 tpy
	Emergency Generator	30 hr/yr	12 gal/hr	170 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	4.60E-05 lb/hr	6.90E-07 tpy
34' boom work boats - 4										
	WB-1 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	2.90E-05	lb/MMBtu	EPA 454/R-98-006	18	1.15E-04 lb/hr	2.76E-06 tpy
	WB-1 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	1.15E-04 lb/hr	2.76E-06 tpy
	WB-2 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	1.15E-04 lb/hr	2.76E-06 tpy
	WB-2 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	1.15E-04 lb/hr	2.76E-06 tpy
	WB-3 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	1.15E-04 lb/hr	2.76E-06 tpy
	WB-3 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	1.15E-04 lb/hr	2.76E-06 tpy
	WB-4 Propulsion Engine 1	48 hr/yr	30 gal/hr	566 hp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	1.15E-04 lb/hr	2.76E-06 tpy
	WB-4 Propulsion Engine 2	48 hr/yr	30 gal/hr	566 hp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	1.15E-04 lb/hr	2.76E-06 tpy

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Lead

Emission Unit		Allowable	Maximum	Maximum	Emission Factor		Reference		Potential Pb Emissions	
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly	Annual Rate
Marine Research Vessel										
	Main Engine	600 hr/yr	45 gal/hr	850 hp	2.90E-05	lb/MMBtu	EPA 454/R-98-006	16	1.73E-04 lb/hr	5.18E-05 tpy
	Generator 1	600 hr/yr	10 gal/hr	135 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	14	3.67E-05 lb/hr	1.10E-05 tpy
	Generator 2	600 hr/yr	6 gal/hr	90 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	14	2.45E-05 lb/hr	7.35E-06 tpy
	Generator 3	600 hr/yr	3 gal/hr	40 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-007	14	1.09E-05 lb/hr	3.27E-06 tpy
Spill Storage Tanker										
	Main Engine 1	12 hr/yr	89 gal/hr	1673.963 hp	2.90E-05	lb/MMBtu	EPA 454/R-98-006	18	3.40E-04 lb/hr	2.04E-06 tpy
	Main Engine 2	12 hr/yr	89 gal/hr	1673.963 hp	2.90E-05	lb/MMBtu	EPA 454/R-98-007	18	3.40E-04 lb/hr	2.04E-06 tpy
	Generator 1	48 hr/yr	41 gal/hr	576.3509 kW	2.90E-05	lb/MMBtu	EPA 454/R-98-013	14	1.57E-04 lb/hr	3.76E-06 tpy
	Boiler 1	48 hr/yr	109 gal/hr	14.42184 MMBtu/hr	9.00E+00	$lb/10^{12}$ Btu	AP-42, Table 1.3-10	19	1.30E-04 lb/hr	3.12E-06 tpy
All Vessels Fuel Tanks										
	Fuel Tank	2400 hr/yr	2193682 gal/yr*	N A	N A		NA		N A	N A

Notes:

1 I kW = 1.3405 hp; 1 lb = 454 g; assumed break specific fuel consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1) and fuel heat content of 132,096 Btu/gal ULSD #1 (Tesoro/Kenai Refinery).

2 Assumed well gas heat content of 1,085 Btu/scf for test flare (email from Dan Lowe 1/7/09) and propane heat content of 2,516 Btu/scf for flare pilot & purge (National Propane Gas Association http://www.npga.org/i4a/pages/index.cfm?pageid=633).

3 ULSD #1 has a density of 0.8094 kg/L (Tesoro/Kenai Refinery); so assume 6.74 lbs/ gal diesel

4 Incinerator waste fuel heat content is assumed 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17).

5 Incinerator EF are for Modular Excess Air Combustors

6 Fuel Usage is back calculated from Max Output capacity when not available from manufacturer specifications.

7 Incinerators will burn ULSD for ignition purposes only.

8 An equivalent of 2 main drilling engines at 100% load will operate continuously for up to 100 days per season (4800 hrs).

9 Mud degassing emission rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977)

10 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 6 times per year).

11 The Ware Vessel will make up to 50 trips per season.

13 EPA 454/R-98-006 is "L & E Air Emissions from Sources of Lead and Lead Compounds," May 1998. Section 5.2.2, Distillate oil-fired gas turbines (more recent results)

Pb Calculations and Conversions:

14 PTE (lb/hr) = EF (lb/MMBtu)*Max Output Capacity (kW)*(7,000 Btu/hp-h)*(1.3405 hp/kW)(1MMBtu/1,000,000 Btu)

15 PTE (lb/hr) = EF (lb/ton)*Max Fuel Usage (lb/hr)/(2,000 lb/ton)

16 PTE (lb/hr) = EF (lb/MMBtu)*Max Output Capacity (hp)*7,000 Btu/hp-h)*(MMBtu/1,000,000 Btu)

17 PTE (lb/hr) = EF (lb/ton)*Max Fuel Usage (lb/hr)/(2,000 lb/ton)

18 PTE (lb/hr) = EF (lb/MMBtu)*Max Fuel Usage (gal/hr)*(132096 Btu/gal)/(1,000,000)

19 PTE (lb/hr) = EF (lb/10^12Btu)*Max Fuel Usage (gal/hr)/(10^12)

20 PTE (lb/hr) = EF (lb/10^12Btu)*Max Output Capacity (MMBtu/hr)/(1,000,000)

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Hydrogen Sulfide

Emission Unit			Fuel	Allowable	Maximum	Maximum	Emission Factor		Reference		Potential H2S Emissions	
	Description	Type	Type	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly	Annual Rate
Drill Rig Equipment												
	Mud Degassing	Water Based Mud & Cuttings	Well Gas	100 days/yr	N A	20000 scf/day	250	ppmv H2S	CP	3,4,5	1.81E-02 lb/hr	2.17E-02 tpy

Notes:

1 Assume: 28.317 L/scf; 454 g/lb; Density of H2S = 1.393 g/L

2 Mud degassing emission rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977)

H2S Calculations and Conversions:

3 250 ppmv H2S = (250 scf H2S)/(1,000,000 scf fuel)

4 PTE (lb/hr) = EF (250 ppmv H2S)*Max Output Capacity (20,000 scf/day)*(25.317 L/scf)/(454 g/L)/(24hr/day)

5 PTE (tpy) = PTE (lb/hr)*Allowable Operation (days/yr)*(24 hr/day)/(2,000 lb/ton)

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - SCR NOx Control Efficiency

Emission Unit		Allowable	Maximum	Maximum	Controlled Emission Factor		Reference		Potential Controlled NOx Emissions		Uncontrolled Emission Factor		Reference		Potential Uncontrolled NOx Emissions			
	Description	Operation	Fuel Usage	Output Capacity	Factor	Unit		Note	Hourly Emission Rate	Emission Rate	Factor	Unit		Note	Hourly Emission Rate	Annual Emission Rate	Note	% Control Efficiency
Drill Rig Equipment																		
	Main Drill Rig Engine 1	1200 hr/yr	206 g fuel/kWh	2480 kW	1.83	g/kW-h	Wartsila SCR spec	9	10.0 lb/hr	6.0 tpy	8.8	g/kW-hr	Manufacturer's spec	9	47.9 lb/hr	28.7 tpy	13	79.1
	Main Drill Rig Engine 2	1200 hr/yr	206 g fuel/kWh	2480 kW	1.83	g/kW-h	Wartsila SCR spec	9	10.0 lb/hr	6.0 tpy	8.8	g/kW-hr	Manufacturer's spec	9	47.9 lb/hr	28.7 tpy	13	79.1
	Main Drill Rig Engine 3	1200 hr/yr	206 g fuel/kWh	2480 kW	1.83	g/kW-h	Wartsila SCR spec	9	10.0 lb/hr	6.0 tpy	8.8	g/kW-hr	Manufacturer's spec	9	47.9 lb/hr	28.7 tpy	13	79.1
	Main Drill Rig Engine 4	1200 hr/yr	206 g fuel/kWh	2480 kW	1.83	g/kW-h	Wartsila SCR spec	9	10.0 lb/hr	6.0 tpy	8.8	g/kW-hr	Manufacturer's spec	9	47.9 lb/hr	28.7 tpy	13	79.1
									Total	24.0 tpy					Total	115.0 tpy		
Ice Breaker 1																		
	Main Engine 1	515 hr/yr	426 gal/hr	8046 bhp	2.9	g/kW-h	Design Spec	10	38.3 lb/hr	9.87 tpy	3.2	lb/MMBtu	AP-42 Table 3.4-1	11	180.2 lb/hr	46.4 tpy	13	78.7
	Main Engine 2	515 hr/yr	426 gal/hr	8046 bhp	2.9	g/kW-h	Design Spec	10	38.3 lb/hr	9.87 tpy	3.2	lb/MMBtu	AP-42 Table 3.4-1	11	180.2 lb/hr	46.4 tpy	13	78.7
	Main Engine 3	515 hr/yr	320 gal/hr	6035 bhp	2.9	g/kW-h	Design Spec	10	28.8 lb/hr	7.41 tpy	3.2	lb/MMBtu	AP-42 Table 3.4-1	11	135.2 lb/hr	34.8 tpy	13	78.7
	Main Engine 4	515 hr/yr	320 gal/hr	6035 bhp	2.9	g/kW-h	Design Spec	10	28.8 lb/hr	7.41 tpy	3.2	lb/MMBtu	AP-42 Table 3.4-1	11	135.2 lb/hr	34.8 tpy	13	78.7
									Total	34.6 tpy					Total	162.4 tpy		
Ice Breaker 2																		
	Main Engine 1	515 hr/yr	426 gal/hr	8046 bhp	2.9	g/kW-h	Design Spec	10	38.3 lb/hr	9.87 tpy	3.2	lb/MMBtu	AP-42 Table 3.4-1	11	180.2 lb/hr	46.4 tpy	13	78.7
	Main Engine 2	515 hr/yr	426 gal/hr	8046 bhp	2.9	g/kW-h	Design Spec	10	38.3 lb/hr	9.87 tpy	3.2	lb/MMBtu	AP-42 Table 3.4-1	11	180.2 lb/hr	46.4 tpy	13	78.7
	Main Engine 3	515 hr/yr	320 gal/hr	6035 bhp	2.9	g/kW-h	Design Spec	10	28.8 lb/hr	7.41 tpy	3.2	lb/MMBtu	AP-42 Table 3.4-1	11	135.2 lb/hr	34.8 tpy	13	78.7
	Main Engine 4	515 hr/yr	320 gal/hr	6035 bhp	2.9	g/kW-h	Design Spec	10	28.8 lb/hr	7.41 tpy	3.2	lb/MMBtu	AP-42 Table 3.4-1	11	135.2 lb/hr	34.8 tpy	13	78.7
									Total	34.6 tpy					Total	162.4 tpy		

Notes:

1 I kW = 1.3405 hp; 1 lb = 454 g; assumed break specific fuel consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1) and fuel heat content of 132,096 Btu/gal ULSD #1 (Tesoro/Kenai Refinery).
2 Assumed well gas heat content of 1,085 Btu/scf for test flare (email from Dan Lowe 1/7/09) and propane heat content of 2,516 Btu/scf for flare pilot & purge (National Propane Gas Association http://www.npga.org/i4a/pages/index.cfm?pageid=633).
3 ULSD #1 has a density of 0.8094 kg/L (Tesoro/Kenai Refinery); so assume 6.74 lbs/ gal diesel
4 An equivalent of 2 main drilling engines at 100% load will operate continuously for up to 100 days per season (4800 hrs).
5 All drill rig main engines and all ice breaker engines use SCR emission controls.
6 Engines < 600 hp (< 448 kW) and all generators EF from EPA Ocean Vessel Guidance.
7 Engines > 600 hp EF are from AP-42.
8 brake horse power (bhp) ≈ horse power (hp)

NOx Calculations and Conversions:

9 PTE (lb/hr) = EF (g/kW-h)*Max Output Capacity (kW)*(1 lb/454 g)
10 PTE (lb/hr) = EF (g/kW-h)*Max Output Capacity (hp)/(454 g/lb)/(1.3405 hp/kW)
11 PTE (lb/hr) = EF (lb/MMBtu)*Max Output Capacity (hp)*(7,000 Btu/hp-h)*(MMBtu/1,000,000 Btu)
12 PTE (tpy) = PTE (lb/hr)*Allowable Operation (hr/yr)/(2000 lb/ton)
13 % Control Efficiency = (Uncontrolled PTE (tpy) - Controlled PTE (tpy))/(Uncontrolled PTE (tpy)*(100%)

Devil's Paw Prospect Projected Maximum Emissions
Emissions Unit Inventory - Sulfuric Acid Mist (form SCR Controls)

Emission Unit		Fuel	Allowable	Maximum	Maximum	H2SO4			Potential H2SO4 Emissions			
	Description	Sulfur Content	Operation	Fuel Usage	Output Capacity	Factor	Unit	Note	Hourly Emission Rate		Annual Emission Rate	
Drill Rig Equipment												
	Main Drill Rig Engine 1	0.0015 wt. % S	1200 hr/yr	206 g fuel/kWh	2480 kW	2.79E-05	lb/gal	11	4.91E-03	lb/h	2.95E-03	tpy
	Main Drill Rig Engine 2	0.0015 wt. % S	1200 hr/yr	206 g fuel/kWh	2480 kW	2.79E-05	lb/gal	11	4.91E-03	lb/h	2.95E-03	tpy
	Main Drill Rig Engine 3	0.0015 wt. % S	1200 hr/yr	206 g fuel/kWh	2480 kW	2.79E-05	lb/gal	11	4.91E-03	lb/h	2.95E-03	tpy
	Main Drill Rig Engine 4	0.0015 wt. % S	1200 hr/yr	206 g fuel/kWh	2480 kW	2.79E-05	lb/gal	11	4.91E-03	lb/h	2.95E-03	tpy
Ice Breaker 1												
	Main Engine 1	0.0015 wt. % S	515 hr/yr	426 gal/hr	8046 bhp	2.79E-05	lb/gal	12	1.19E-02	lb/h	3.06E-03	tpy
	Main Engine 2	0.0015 wt. % S	515 hr/yr	426 gal/hr	8046 bhp	2.79E-05	lb/gal	12	1.19E-02	lb/h	3.06E-03	tpy
	Main Engine 3	0.0015 wt. % S	515 hr/yr	320 gal/hr	6035 bhp	2.79E-05	lb/gal	12	8.91E-03	lb/h	2.29E-03	tpy
	Main Engine 4	0.0015 wt. % S	515 hr/yr	320 gal/hr	6035 bhp	2.79E-05	lb/gal	12	8.91E-03	lb/h	2.29E-03	tpy
Ice Breaker 2												
	Main Engine 1	0.0015 wt. % S	515 hr/yr	426 gal/hr	8046 bhp	2.79E-05	lb/gal	12	1.19E-02	lb/h	3.06E-03	tpy
	Main Engine 2	0.0015 wt. % S	515 hr/yr	426 gal/hr	8046 bhp	2.79E-05	lb/gal	12	1.19E-02	lb/h	3.06E-03	tpy
	Main Engine 3	0.0015 wt. % S	515 hr/yr	320 gal/hr	6035 bhp	2.79E-05	lb/gal	12	8.91E-03	lb/h	2.29E-03	tpy
	Main Engine 4	0.0015 wt. % S	515 hr/yr	320 gal/hr	6035 bhp	2.79E-05	lb/gal	12	8.91E-03	lb/h	2.29E-03	tpy

Notes:

1 I kW = 1.3405 hp; 1 lb = 454 g; assumed break specific fuel consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1) and fuel heat content of 132,096 Btu/gal ULSD #1 (Tesoro/Kenai Refinery).

2 Assumed well gas heat content of 1,085 Btu/scf for test flare (email from Dan Lowe 1/7/09) and propane heat content of 2,516 Btu/scf for flare pilot & purge (National Propane Gas Association http://www.npga.org/i4a/pages/index.cfm?pageid=633).

3 ULSD #1 has a density of 0.8094 kg/L (Tesoro/Kenai Refinery); so assume 6.74 lbs/ gal diesel

4 Fuel Usage is back calculated from Max Output capacity when not available from manufacturer specifications.

5 An equivalent of 2.4 main drilling engines at 100% load will operate continuously for up to 6000 hours per season.

6 Max. 9% of SO2 is converted to SO3 on all emission units with SCR controls per email from Wartsila, Matts Andersson on 12/17/2009.

H2SO4 Calculations and Conversions:

Molecular Weights:

SO2 = 64

SO3 = 80

H2S04 = 98

80/64 = 1.25, so 1 lb SO2 = 1.25 lb SO3

98/80 = 1.225, so 1 lb SO3 = 1.225 lb H2SO4

Mass Balance used for SO2:

7 SO2 EF (lb/gal) = Sulfur content (% S/100)*(6.74 lbs/gal)(64 lb/lb mol SO2)/(32 lb/lb mol S)

8 SO2 % converted to SO3 = SO2 EF (lb/gal)*(.09)

9 SO3 EF (lb/gal) = % SO2 converted to SO3 (lb SO2/gal)*(1.25 lb SO3/1 lb SO2)

10 H2SO4 EF (lb/gal) = SO3 EF (lb/gal)*(1.225 lb SO3/1 lb H2SO4)

11 PTE (lb/hr) = EF (lb/gal)*Max Output Capacity (kW)/(132096 Btu/gal)*(1.3405 hp/kW)*(7,000 Btu/hp-h)

12 PTE (lb/hr) = EF (lb/gal)*Max Output Capacity (hp)/(132096 Btu/gal)*(7,000 Btu/hp-h)

13 PTE (lb/hr) = EF (lb/gal)*Max Fuel Usage (gal/hr)

14 PTE (tpy) = PTE (lb/hr)*Allowable Operation (hr/yr)/(2000 lb/ton)

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory

Emission Unit				Fuel	Allowable	Maximum	Maximum
	Description	Type	Mode	Type	Operation	Fuel Usage	Output Capacity
Drill Rig Equipment							
	Main Drill Rig Engine 1	Wärtsilä 8L26A2	Non-propulsion	ULSD	1200 hr/yr	205.8 g fuel/kWh	2480 kW
	Main Drill Rig Engine 2	Wärtsilä 8L26A2	Non-propulsion	ULSD	1200 hr/yr	205.8 g fuel/kWh	2480 kW
	Main Drill Rig Engine 3	Wärtsilä 8L26A3	Non-propulsion	ULSD	1200 hr/yr	205.8 g fuel/kWh	2480 kW
	Main Drill Rig Engine 4	Wärtsilä 8L26A4	Non-propulsion	ULSD	1200 hr/yr	205.8 g fuel/kWh	2480 kW
	Emergency Back-up Engine	Caterpillar Diesel 3508 B	Non-propulsion	ULSD	75 hr/yr	205 g fuel/kWh	968 kW
	Cement Engine 1	Caterpillar 15 DITA	Non-propulsion	ULSD	131 hr/yr	29 gal/hr	403 kW
	Cement Engine 2	Caterpillar 15 DITA	Non-propulsion	ULSD	131 hr/yr	29 gal/hr	403 kW
	Logging Winch	Caterpillar C7 Acert Engine	Non-propulsion	ULSD	273 hr/yr	13 gal/hr	187 kW
	Heater 1	To be determined	Non-propulsion	ULSD	2400 hr/yr	26 gal/hr	3.5 MMBtu/hr [a]
	Heater 2	To be determined	Non-propulsion	ULSD	2400 hr/yr	26 gal/hr	3.5 MMBtu/hr [a]
	Incinerator	To be determined	Non-propulsion	Waste	65 tons/yr	276 lbs/hr	N A
	Fuel Tank 1	71,000 gallons	Non-propulsion	ULSD	2400 hrs/yr	471941 gal/yr*	N A
	Fuel Tank 2	71,000 gallons	Non-propulsion	ULSD	2400 hrs/yr	471941 gal/yr*	N A
	Mud Degassing	Water Based Mud & Cuttings	Non-propulsion	Well Gas	100 days/yr	N A	20000 scf/day

*max throughput [a] Heat input rate

Ice Breaker 1

	Main Engine 1	Wärtsilä Vasa 16V32/6000kW	Propulsion	ULSD	515 hr/yr	426 gal/hr	8046 bhp
	Main Engine 2	Wärtsilä Vasa 16V32/6000kW	Propulsion	ULSD	515 hr/yr	426 gal/hr	8046 bhp
	Main Engine 3	Wärtsilä Vasa 12V32/4500 kW	Propulsion	ULSD	515 hr/yr	320 gal/hr	6035 bhp
	Main Engine 4	Wärtsilä Vasa 12V32/4500 kW	Propulsion	ULSD	515 hr/yr	320 gal/hr	6035 bhp
	Harbor Generator	Wärtsilä Vasa 4R22 - 710kW	Propulsion	ULSD	35 hr/yr	50 gal/hr	952 bhp
	Emergency Generator	Caterpillar 3412 - 300kW	Propulsion	ULSD	35 hr/yr	21 gal/hr	402 bhp
	Boiler 1	Aquamaster Rauma Unex BH-2000	Propulsion	ULSD	515 hr/yr	28 gal/hr	3.7 MMBtu/hr [a]
	Boiler 2	Aquamaster Rauma Unex BH-2000	Propulsion	ULSD	515 hr/yr	28 gal/hr	3.7 MMBtu/hr [a]
	Incinerator	Aquamaster Rauma Unex BH-2000	Propulsion	Waste	515 hr/yr	175 lb/hr	N A

[a] Heat input rate

Ice Breaker 2

	Main Engine 1	Wärtsilä Vasa 16V32/6000kW	Propulsion	ULSD	515 hr/yr	426 gal/hr	8046 bhp
	Main Engine 2	Wärtsilä Vasa 16V32/6000kW	Propulsion	ULSD	515 hr/yr	426 gal/hr	8046 bhp
	Main Engine 3	Wärtsilä Vasa 12V32/4500 kW	Propulsion	ULSD	515 hr/yr	320 gal/hr	6035 bhp
	Main Engine 4	Wärtsilä Vasa 12V32/4500 kW	Propulsion	ULSD	515 hr/yr	320 gal/hr	6035 bhp
	Harbor Generator	Wärtsilä Vasa 4R22 - 710kW	Propulsion	ULSD	35 hr/yr	50 gal/hr	952 bhp
	Emergency Generator	Caterpillar 3412 - 300kW	Propulsion	ULSD	35 hr/yr	21 gal/hr	402 bhp
	Boiler 1	Aquamaster Rauma Unex BH-2000	Propulsion	ULSD	515 hr/yr	28 gal/hr	3.7 MMBtu/hr [a]
	Boiler 2	Aquamaster Rauma Unex BH-2000	Propulsion	ULSD	515 hr/yr	28 gal/hr	3.7 MMBtu/hr [a]
	Incinerator	Aquamaster Rauma Unex BH-2000	Propulsion	Waste	515 hr/yr	175 lb/hr	N A

[a] Heat input rate

Oil Spill Response Vessel 1 (Dedicated OSRV) **Operates continuously within 25 Mile Zone = 1600 hours anchored and 800 hours cruising**

	Main Engine 1	Caterpillar 3516C	Propulsion-Cruising	ULSD	800 hr/yr	75 gal/hr	3000 bhp
	Main Engine 2	Caterpillar 3516C	Propulsion-Cruising	ULSD	800 hr/yr	75 gal/hr	3000 bhp
	Thruster Engine 1	Caterpillar C32	Refueling	ULSD	12 hr/yr	58 gal/hr	950 hp
	Thruster Engine 2	Caterpillar C32	Refueling	ULSD	12 hr/yr	58 gal/hr	950 hp
	Thruster Engine 3	Caterpillar C32	Refueling	ULSD	12 hr/yr	58 gal/hr	950 hp
	Generator 1	Caterpillar C18	Propulsion-Anchored	ULSD	2400 hr/yr	27 gal/hr	400 kW
	Generator 2	Caterpillar C18	Propulsion-Anchored	ULSD	300 hr/yr	27 gal/hr	400 kW
	Generator 3	Caterpillar C18	Propulsion-Anchored	ULSD	0 hr/yr	27 gal/hr	400 kW
	Emergency Generator	Caterpillar C4.4	Propulsion-Anchored	ULSD	30 hr/yr	8 gal/hr	99 kW

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory

Emission Unit				Fuel	Allowable	Maximum	Maximum
	Description	Type	Mode	Type	Operation	Fuel Usage	Output Capacity
Oil Spill Response Vessel 2			**Only operates during spill exercises 48 hrs + 12 hrs travel time**				
	Main Engine 1	Caterpillar 3516C	Propulsion-Cruising	ULSD	60 hr/yr	75 gal/hr	3000 bhp
	Main Engine 2	Caterpillar 3516C	Propulsion-Cruising	ULSD	60 hr/yr	75 gal/hr	3000 bhp
	Thruster Engine 1	Caterpillar C32	Propulsion-idling	ULSD	48 hr/yr	58 gal/hr	950 hp
	Thruster Engine 2	Caterpillar C32	Propulsion-idling	ULSD	48 hr/yr	58 gal/hr	950 hp
	Thruster Engine 3	Caterpillar C32	Propulsion-idling	ULSD	48 hr/yr	58 gal/hr	950 hp
	Generator 1	Caterpillar C18	Propulsion-Anchored & Cruising	ULSD	60 hr/yr	27 gal/hr	400 kW
	Generator 2	Caterpillar C18	Propulsion- Anchored	ULSD	30 hr/yr	27 gal/hr	400 kW
	Generator 3	Caterpillar C18	Propulsion-Anchored	ULSD	0 hr/yr	27 gal/hr	400 kW
	Emergency Generator	Caterpillar C4.4	Propulsion- Anchored	ULSD	2 hr/yr	8 gal/hr	99 kW
Anchor Handling Supply Tug (AHST)			**20 hours for 3-movement events**				
	Main Engine 1	Cat 3608	Propulsion	ULSD	60 hr/yr	160 gal/hr	2529 kW
	Main Engine 2	Cat 3608	Propulsion	ULSD	60 hr/yr	160 gal/hr	2529 kW
	Generator 1	Cat 3406	Propulsion	ULSD	60 hr/yr	25 gal/hr	380 kW
	Generator 2	Cat 3406	Propulsion	ULSD	12 hr/yr	25 gal/hr	380 kW
	Generator 3	Cat 3406	Propulsion	ULSD	0 hr/yr	25 gal/hr	380 kW
	Emergency Generator	Cat 3306	Propulsion	ULSD	6 hr/yr	6 gal/hr	170 kW
Offshore Supply Vessels (OSV1 & OSV2)			**Up to 60 trips per year (6 hrs transit and 6 hrs DP for offloading per trip)**				
	Main Engine 1	Caterpillar 3516C	Propulsion -cruising	ULSD	360 hr/yr	75 gal/hr	3000 bhp
	Main Engine 1	Caterpillar 3516C	Propulsion-idling	ULSD	100 hr/yr	67 gal/hr	3000 bhp
	Main Engine 2	Caterpillar 3516C	Propulsion -cruising	ULSD	360 hr/yr	75 gal/hr	3000 bhp
	Main Engine 2	Caterpillar 3516C	Propulsion-idling	ULSD	100 hr/yr	67 gal/hr	3000 bhp
	Thruster Engine 1	Caterpillar C32	dynamic positioning	ULSD	360 hr/yr	58 gal/hr	950 bhp
	Thruster Engine 2	Caterpillar C32	dynamic positioning	ULSD	360 hr/yr	58 gal/hr	950 bhp
	Thruster Engine 3	Caterpillar C32	dynamic positioning	ULSD	360 hr/yr	58 gal/hr	950 hp
	Generator	Caterpillar C18	Propulsion	ULSD	820 hr/yr	27 gal/hr	400 kW
	Generator	Caterpillar C18	Propulsion	ULSD	120 hr/yr	27 gal/hr	400 kW
	Generator	Caterpillar C18	Propulsion	ULSD	0 hr/yr	27 gal/hr	400 kW
	Emergency Generator	Caterpillar C4.4	Propulsion	ULSD	30 hr/yr	8 gal/hr	99 kW
Ware Vessel (WV) w/ OSV backup			**Up to 50 trips per year (6 hrs transit and 6 hrs DP for offloading per trip)**				
	Main Engine 1	Caterpillar 3516C	Propulsion Cruising	ULSD	300 hr/yr	87 gal/hr	3200 hp
	Main Engine 2	Caterpillar 3516C	Propulsion-Cruising	ULSD	300 hr/yr	87 gal/hr	3200 hp
	Main Engine 3	Caterpillar 3516C	DP and Idling	ULSD	400 hr/yr	81 gal/hr	3200 hp
	Main Engine 4	Caterpillar 3516C	DP and Idling	ULSD	400 hr/yr	81 gal/hr	3200 hp
	Generator 1	Caterpillar C18	Propulsion	ULSD	700 hr/yr	32 gal/hr	500 kW
	Generator 2	Caterpillar C18	Propulsion	ULSD	100 hr/yr	32 gal/hr	500 kW
	Generator 3	Caterpillar C18	Propulsion	ULSD	0 hr/yr	32 gal/hr	500 kW
	Emergency Generator	Caterpillar 3306	Propulsion	ULSD	30 hr/yr	12 gal/hr	170 kW
34' boom work boats - 4			**48 hours for spill exercises**				
	WB-1 Propulsion Engine 1	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp
	WB-1 Propulsion Engine 2	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp
	WB-2 Propulsion Engine 1	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp
	WB-2 Propulsion Engine 2	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp
	WB-3 Propulsion Engine 1	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp
	WB-3 Propulsion Engine 2	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp
	WB-4 Propulsion Engine 1	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp
	WB-4 Propulsion Engine 2	Cummins QSB5.9-305CD	Propulsion	ULSD	48 hr/yr	30 gal/hr	566 hp

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory

Emission Unit				Fuel	Allowable	Maximum	Maximum
	Description	Type	Mode	Type	Operation	Fuel Usage	Output Capacity
Marine Research Vessel			**600 hours per year**				
	Main Engine	Caterpillar	Propulsion	ULSD	600 hr/yr	45 gal/hr	850 hp
	Generator 1	Caterpillar	Propulsion	ULSD	600 hr/yr	10 gal/hr	135 kW
	Generator 2	Caterpillar	Propulsion	ULSD	600 hr/yr	6 gal/hr	90 kW
	Generator 3	Caterpillar	Propulsion	ULSD	600 hr/yr	3 gal/hr	40 kW
Spill Storage Tanker			**48 hours for spill exercises**				
	Main Engine 1	Panamax class sized	Propulsion	ULSD	12 hr/yr	89 gal/hr	1674 hp
	Main Engine 2	Panamax class sized	Propulsion	ULSD	12 hr/yr	89 gal/hr	1674 hp
	Generator 1	Panamax class sized	Propulsion	ULSD	48 hr/yr	41 gal/hr	576 kW
	Boiler 1	Panamax class sized	Propulsion	ULSD	48 hr/yr	109.2 gal/hr	14.4 MMBtu/hr
All Vessels Fuel Tanks							
	Fuel Tank	100,000 gallons	Propulsion	ULSD	2400 hr/yr	2193682 gal/yr*	N A

*max throughput

Notes:

Seasonal drilling days= **100**

1 I kW = 1.3405 hp; 1 lb = 454 g; assumed break specific fuel consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1) and fuel heat content of 132,096 Btu/gal ULSD #1 (Tesoro/Kenai Refinery).
2 Assumed well gas heat content of 1,085 Btu/scf for test flare (email from Dan Lowe 1/7/09) and propane heat content of 2,516 Btu/scf for flare pilot & purge (National Propane Gas Association http://www.npga.org/i4a/pages/index.cfm?pageid=633).
3 ULSD #1 has a density of 0.8094 kg/L (Tesoro/Kenai Refinery); so assume 6.74 lbs/ gal diesel
4 Incinerator waste fuel heat content is assumed 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17).
5 Fuel Usage is back calculated from Max Output capacity when not available from manufacturer specifications (see calculations below).
6 Incinerators will burn ULSD for ignition purposes only.
7 An equivalent of 2.4 main drilling engines at 100% load will operate continuously for up to 6000 hours per season.
8 Mud degassing emission rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977)
9 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 6 times per year).
10 Drill Rig incinerator operating hours calculated in the following way: (840 cubic feet of waste/week)/(27 cubic feet/cubic yard)*(14 weeks/season)*(300 lbs/cubic yard (EPA factor))/(2,000 lb/ton) = 65 tons/season

Calculations:

Max Fuel Usage (gal/hr) = Max output Capacity (hp)*(7,000 Btu/hp-h)/(132096 Btu/gal)

Max Fuel Usage (gal/hr) = Max output Capacity (kW)*(1.3405 hp/kW)*(7,000 Btu/hp-h)/(132096 Btu/gal)

Devil's Paw Prospect - Projected Maximum Emissions
Annual PTE Options Summary

Option Description	Potential Emissions (lb/hr)	Potential Emissions (tpy)
	HAPs	HAPs
Option 1 - Ware Barge/Tug and 2 OSV's	5.198	1.263
Option 2 - Ware Vessel (w/ 2 backup OSVs)	5.116	1.258

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Acetaldehyde						Acrolein					
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE Unit
Drill Rig Equipment															
Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	1.79E-02	lb/hr	1.07E-02 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	2.17E-03	lb/hr	1.30E-03 tpy
Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	1.79E-02	lb/hr	1.07E-02 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	2.17E-03	lb/hr	1.30E-03 tpy
Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	1.79E-02	lb/hr	1.07E-02 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	2.17E-03	lb/hr	1.30E-03 tpy
Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	1.79E-02	lb/hr	1.07E-02 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	2.17E-03	lb/hr	1.30E-03 tpy
Emergency Back-up Engine	75 hr/yr	205.0 g fuel/kWh	968 **kW**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	6.95E-03	lb/hr	2.60E-04 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	8.44E-04	lb/hr	3.16E-05 tpy
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.94E-03	lb/hr	1.92E-04 tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.54E-04	lb/hr	2.32E-05 tpy
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.94E-03	lb/hr	1.92E-04 tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.54E-04	lb/hr	2.32E-05 tpy
Logging Winch	273 hr/yr	13.3 gal/hr	187 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.35E-03	lb/hr	1.84E-04 tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.62E-04	lb/hr	2.22E-05 tpy
Heater 1	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	2.65E+03	lb/10^12 Btu	VCAPCD	9.29E-03	lb/hr	1.11E-02 tpy	2.65E+03	lb/10^12 Btu	VCAPCD	9.29E-03	lb/hr	1.11E-02 tpy
Heater 2	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	2.65E+03	lb/10^12 Btu	VCAPCD	9.29E-03	lb/hr	1.11E-02 tpy	2.65E+03	lb/10^12 Btu	VCAPCD	9.29E-03	lb/hr	1.11E-02 tpy
Incinerator	65 tons/yr	276.0 lbs/hr	N **A**	none						none					
Fuel Tank 1	2400 hrs/yr	471940.6 gal/yr*	N **A**	none						none					
Fuel Tank 2	2400 hrs/yr	471940.6 gal/yr*	N **A**	none						none					
Mud Degassing	100 days/yr	N A	20000 **scf/day**	none						none					
			a Heat input rate			**Drill Rig Total**	**1.04E-01**	**lb/hr**	**6.60E-02 tpy**			**Drill Rig Total**	**2.90E-02**	**lb/hr**	**2.76E-02 tpy**
Ice Breaker 1															
Main Engine 1	515 hr/yr	426.4 gal/hr	8046 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	4.56E-02	lb/hr	1.17E-02 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	5.54E-03	lb/hr	1.43E-03 tpy
Main Engine 2	515 hr/yr	426.4 gal/hr	8046 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	4.56E-02	lb/hr	1.17E-02 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	5.54E-03	lb/hr	1.43E-03 tpy
Main Engine 3	515 hr/yr	319.8 gal/hr	6035 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	3.42E-02	lb/hr	8.81E-03 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	4.16E-03	lb/hr	1.07E-03 tpy
Main Engine 4	515 hr/yr	319.8 gal/hr	6035 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	3.42E-02	lb/hr	8.81E-03 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	4.16E-03	lb/hr	1.07E-03 tpy
Harbor Generator	35 hr/yr	50.4 gal/hr	952 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	5.40E-03	lb/hr	9.44E-05 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	6.56E-04	lb/hr	1.15E-05 tpy
Emergency Generator	35 hr/yr	21.3 gal/hr	402 **bhp**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.16E-03	lb/hr	3.78E-05 tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	2.60E-04	lb/hr	4.56E-06 tpy
Boiler 1	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	2.65E+03	lb/10^12 Btu	VCAPCD	9.82E-03	lb/hr	2.53E-03 tpy	2.65E+03	lb/10^12 Btu	VCAPCD	9.82E-03	lb/hr	2.53E-03 tpy
Boiler 2	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	2.65E+03	lb/10^12 Btu	VCAPCD	9.82E-03	lb/hr	2.53E-03 tpy	2.65E+03	lb/10^12 Btu	VCAPCD	9.82E-03	lb/hr	2.53E-03 tpy
Incinerator	515 hr/yr	175.0 lb/hr	N **A**	none						none					
			a Heat input rate			**Vessel Total**	**1.87E-01**	**lb/hr**	**4.63E-02 tpy**			**Vessel Total**	**4.00E-02**	**lb/hr**	**1.01E-02 tpy**
Ice Breaker 2															
Main Engine 1	515 hr/yr	426.4 gal/hr	8046 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	4.56E-02	lb/hr	1.17E-02 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	5.54E-03	lb/hr	1.43E-03 tpy
Main Engine 2	515 hr/yr	426.4 gal/hr	8046 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	4.56E-02	lb/hr	1.17E-02 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	5.54E-03	lb/hr	1.43E-03 tpy
Main Engine 3	515 hr/yr	319.8 gal/hr	6035 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	3.42E-02	lb/hr	8.81E-03 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	4.16E-03	lb/hr	1.07E-03 tpy
Main Engine 4	515 hr/yr	319.8 gal/hr	6035 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	3.42E-02	lb/hr	8.81E-03 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	4.16E-03	lb/hr	1.07E-03 tpy
Harbor Generator	35 hr/yr	50.4 gal/hr	952 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	5.40E-03	lb/hr	9.44E-05 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	6.56E-04	lb/hr	1.15E-05 tpy
Emergency Generator	35 hr/yr	21.3 gal/hr	402 **bhp**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.16E-03	lb/hr	3.78E-05 tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	2.60E-04	lb/hr	4.56E-06 tpy
Boiler 1	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	2.65E+03	lb/10^12 Btu	VCAPCD	9.82E-03	lb/hr	2.53E-03 tpy	2.65E+03	lb/10^12 Btu	VCAPCD	9.82E-03	lb/hr	2.53E-03 tpy
Boiler 2	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	2.65E+03	lb/10^12 Btu	VCAPCD	9.82E-03	lb/hr	2.53E-03 tpy	2.65E+03	lb/10^12 Btu	VCAPCD	9.82E-03	lb/hr	2.53E-03 tpy
Incinerator	515 hr/yr	175.0 lb/hr	N **A**	none						none					
			a Heat input rate			**Vessel Total**	**1.87E-01**	**lb/hr**	**4.63E-02 tpy**			**Vessel Total**	**4.00E-02**	**lb/hr**	**1.01E-02 tpy**
Oil Spill Response Vessel 1 (Dedicated OSRV)															
Main Engine 1	800 hr/yr	75.0 gal/hr	3000 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	8.03E-03	lb/hr	3.21E-03 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	9.75E-04	lb/hr	3.90E-04 tpy
Main Engine 2	800 hr/yr	75.0 gal/hr	3000 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	8.03E-03	lb/hr	3.21E-03 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	9.75E-04	lb/hr	3.90E-04 tpy
Thruster Engine 1	12 hr/yr	58.0 gal/hr	950 **hp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	6.21E-03	lb/hr	3.72E-05 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	7.54E-04	lb/hr	4.52E-06 tpy
Thruster Engine 2	12 hr/yr	58.0 gal/hr	950 **hp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	6.21E-03	lb/hr	3.72E-05 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	7.54E-04	lb/hr	4.52E-06 tpy
Thruster Engine 3	12 hr/yr	58.0 gal/hr	950 **hp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	6.21E-03	lb/hr	3.72E-05 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	7.54E-04	lb/hr	4.52E-06 tpy
Generator 1	2400 hr/yr	27.0 gal/hr	400 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.74E-03	lb/hr	3.28E-03 tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.30E-04	lb/hr	3.96E-04 tpy
Generator 2	300 hr/yr	27.0 gal/hr	400 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.74E-03	lb/hr	4.10E-04 tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.30E-04	lb/hr	4.95E-05 tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.74E-03	lb/hr	0.00E+00 tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.30E-04	lb/hr	0.00E+00 tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	8.11E-04	lb/hr	1.22E-05 tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	9.78E-05	lb/hr	1.47E-06 tpy
						Vessel Total	**4.37E-02**	**lb/hr**	**1.02E-02 tpy**			**Vessel Total**	**5.30E-03**	**lb/hr**	**1.24E-03 tpy**
Oil Spill Response Vessel 2															
Main Engine 1	60 hr/yr	75.0 gal/hr	3000 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	8.03E-03	lb/hr	2.41E-04 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	9.75E-04	lb/hr	2.93E-05 tpy
Main Engine 2	60 hr/yr	75.0 gal/hr	3000 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	8.03E-03	lb/hr	2.41E-04 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	9.75E-04	lb/hr	2.93E-05 tpy
Thruster Engine 1	48 hr/yr	58.0 gal/hr	950 **hp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	6.21E-03	lb/hr	1.49E-04 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	7.54E-04	lb/hr	1.81E-05 tpy
Thruster Engine 2	48 hr/yr	58.0 gal/hr	950 **hp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	6.21E-03	lb/hr	1.49E-04 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	7.54E-04	lb/hr	1.81E-05 tpy
Thruster Engine 3	48 hr/yr	58.0 gal/hr	950 **hp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	6.21E-03	lb/hr	1.49E-04 tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	7.54E-04	lb/hr	1.81E-05 tpy
Generator 1	60 hr/yr	27.0 gal/hr	400 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.74E-03	lb/hr	8.21E-05 tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.30E-04	lb/hr	9.90E-06 tpy
Generator 2	30 hr/yr	27.0 gal/hr	400 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.74E-03	lb/hr	4.10E-05 tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.30E-04	lb/hr	4.95E-06 tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.74E-03	lb/hr	0.00E+00 tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.30E-04	lb/hr	0.00E+00 tpy
Emergency Generator	2 hr/yr	8.0 gal/hr	99 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	8.11E-04	lb/hr	8.11E-07 tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	9.78E-05	lb/hr	9.78E-08 tpy
						Vessel Total	**4.37E-02**	**lb/hr**	**1.05E-03 tpy**			**Vessel Total**	**5.30E-03**	**lb/hr**	**1.28E-04 tpy**

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Benzene							1,3-Butadiene						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Drill Rig Equipment																	
Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.71E-02	lb/hr	1.03E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	9.03E-04	lb/hr	5.42E-04	tpy
Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.71E-02	lb/hr	1.03E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	9.03E-04	lb/hr	5.42E-04	tpy
Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.71E-02	lb/hr	1.03E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	9.03E-04	lb/hr	5.42E-04	tpy
Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.71E-02	lb/hr	1.03E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	9.03E-04	lb/hr	5.42E-04	tpy
Emergency Back-up Engine	75 hr/yr	205.0 g fuel/kWh	968 **kW**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	6.65E-03	lb/hr	2.50E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.51E-04	lb/hr	1.32E-05	tpy
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.57E-03	lb/hr	2.34E-04	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.50E-04	lb/hr	9.81E-06	tpy
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.57E-03	lb/hr	2.34E-04	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.50E-04	lb/hr	9.81E-06	tpy
Logging Winch	273 hr/yr	13.3 gal/hr	187 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.64E-03	lb/hr	2.23E-04	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	6.86E-05	lb/hr	9.37E-06	tpy
Heater 1	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	1.92E+01	lb/10^12 Btu	CARB-CATEF	6.73E-05	lb/hr	8.08E-05	tpy	1.12E+02	lb/10^12 Btu	VCAPCD	3.92E-04	lb/hr	4.71E-04	tpy
Heater 2	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	1.92E+01	lb/10^12 Btu	CARB-CATEF	6.73E-05	lb/hr	8.08E-05	tpy	1.12E+02	lb/10^12 Btu	VCAPCD	3.92E-04	lb/hr	4.71E-04	tpy
Incinerator	65 tons/yr	276.0 lbs/hr	N **A**	none							none						
Fuel Tank 1	2400 hrs/yr	471940.6 gal/yr*	N **A**	N A		EPA TANKS	2.083E-09	lb/hr	0.000005	tpy	none						
Fuel Tank 2	2400 hrs/yr	471940.6 gal/yr*	N **A**	N A		EPA TANKS	2.083E-09	lb/hr	0.000005	tpy	none						
Mud Degassing	100 days/yr	N A	20000 **scf/day**	none							none						
			a Heat input rate			**Drill Rig Total**	**8.40E-02**	**lb/hr**	**4.22E-02**	**tpy**			**Drill Rig Total**	**5.12E-03**	**lb/hr**	**3.15E-03**	**tpy**
Ice Breaker 1																	
Main Engine 1	515 hr/yr	426.4 gal/hr	8046 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.37E-02	lb/hr	1.13E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.31E-03	lb/hr	5.94E-04	tpy
Main Engine 2	515 hr/yr	426.4 gal/hr	8046 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.37E-02	lb/hr	1.13E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.31E-03	lb/hr	5.94E-04	tpy
Main Engine 3	515 hr/yr	319.8 gal/hr	6035 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.28E-02	lb/hr	8.44E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	1.73E-03	lb/hr	4.46E-04	tpy
Main Engine 4	515 hr/yr	319.8 gal/hr	6035 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.28E-02	lb/hr	8.44E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	1.73E-03	lb/hr	4.46E-04	tpy
Harbor Generator	35 hr/yr	50.4 gal/hr	952 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	5.17E-03	lb/hr	9.05E-05	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.73E-04	lb/hr	4.77E-06	tpy
Emergency Generator	35 hr/yr	21.3 gal/hr	402 **bhp**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.63E-03	lb/hr	4.60E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.10E-04	lb/hr	1.93E-06	tpy
Boiler 1	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.92E+01	lb/10^12 Btu	CARB-CATEF	7.11E-05	lb/hr	1.83E-05	tpy	1.12E+02	lb/10^12 Btu	VCAPCD	4.14E-04	lb/hr	1.07E-04	tpy
Boiler 2	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.92E+01	lb/10^12 Btu	CARB-CATEF	7.11E-05	lb/hr	1.83E-05	tpy	1.12E+02	lb/10^12 Btu	VCAPCD	4.14E-04	lb/hr	1.07E-04	tpy
Incinerator	515 hr/yr	175.0 lb/hr	N **A**	none							none						
			a Heat input rate			**Vessel Total**	**1.61E-01**	**lb/hr**	**3.96E-02**	**tpy**			**Vessel Total**	**9.29E-03**	**lb/hr**	**2.30E-03**	**tpy**
Ice Breaker 2																	
Main Engine 1	515 hr/yr	426.4 gal/hr	8046 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.37E-02	lb/hr	1.13E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.31E-03	lb/hr	5.94E-04	tpy
Main Engine 2	515 hr/yr	426.4 gal/hr	8046 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.37E-02	lb/hr	1.13E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.31E-03	lb/hr	5.94E-04	tpy
Main Engine 3	515 hr/yr	319.8 gal/hr	6035 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.28E-02	lb/hr	8.44E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	1.73E-03	lb/hr	4.46E-04	tpy
Main Engine 4	515 hr/yr	319.8 gal/hr	6035 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.28E-02	lb/hr	8.44E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	1.73E-03	lb/hr	4.46E-04	tpy
Harbor Generator	35 hr/yr	50.4 gal/hr	952 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	5.17E-03	lb/hr	9.05E-05	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.73E-04	lb/hr	4.77E-06	tpy
Emergency Generator	35 hr/yr	21.3 gal/hr	402 **bhp**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.63E-03	lb/hr	4.60E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.10E-04	lb/hr	1.93E-06	tpy
Boiler 1	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.92E+01	lb/10^12 Btu	CARB-CATEF	7.11E-05	lb/hr	1.83E-05	tpy	1.12E+02	lb/10^12 Btu	VCAPCD	4.14E-04	lb/hr	1.07E-04	tpy
Boiler 2	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.92E+01	lb/10^12 Btu	CARB-CATEF	7.11E-05	lb/hr	1.83E-05	tpy	1.12E+02	lb/10^12 Btu	VCAPCD	4.14E-04	lb/hr	1.07E-04	tpy
Incinerator	515 hr/yr	175.0 lb/hr	N **A**	none							none						
			a Heat input rate			**Vessel Total**	**1.61E-01**	**lb/hr**	**3.96E-02**	**tpy**			**Vessel Total**	**9.29E-03**	**lb/hr**	**2.30E-03**	**tpy**
Oil Spill Response Vessel 1 (Dedicated OSRV)																	
Main Engine 1	800 hr/yr	75.0 gal/hr	3000 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	7.69E-03	lb/hr	3.08E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.06E-04	lb/hr	1.62E-04	tpy
Main Engine 2	800 hr/yr	75.0 gal/hr	3000 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-4	7.69E-03	lb/hr	3.08E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.06E-04	lb/hr	1.62E-04	tpy
Thruster Engine 1	12 hr/yr	58.0 gal/hr	950 **hp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-4	5.95E-03	lb/hr	3.57E-05	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.14E-04	lb/hr	1.88E-06	tpy
Thruster Engine 2	12 hr/yr	58.0 gal/hr	950 **hp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-4	5.95E-03	lb/hr	3.57E-05	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.14E-04	lb/hr	1.88E-06	tpy
Thruster Engine 3	12 hr/yr	58.0 gal/hr	950 **hp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-4	5.95E-03	lb/hr	3.57E-05	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.14E-04	lb/hr	1.88E-06	tpy
Generator 1	2400 hr/yr	27.0 gal/hr	400 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.33E-03	lb/hr	3.99E-03	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.39E-04	lb/hr	1.67E-04	tpy
Generator 2	300 hr/yr	27.0 gal/hr	400 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.33E-03	lb/hr	4.99E-04	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.39E-04	lb/hr	2.09E-05	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.33E-03	lb/hr	0.00E+00	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.39E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	9.86E-04	lb/hr	1.48E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	4.13E-05	lb/hr	6.20E-07	tpy
						Vessel Total	**4.42E-02**	**lb/hr**	**1.08E-02**	**tpy**			**Vessel Total**	**2.21E-03**	**lb/hr**	**5.19E-04**	**tpy**
Oil Spill Response Vessel 2																	
Main Engine 1	60 hr/yr	75.0 gal/hr	3000 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	7.69E-03	lb/hr	2.31E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.06E-04	lb/hr	1.22E-05	tpy
Main Engine 2	60 hr/yr	75.0 gal/hr	3000 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-4	7.69E-03	lb/hr	2.31E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.06E-04	lb/hr	1.22E-05	tpy
Thruster Engine 1	48 hr/yr	58.0 gal/hr	950 **hp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-5	5.95E-03	lb/hr	1.43E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.14E-04	lb/hr	7.53E-06	tpy
Thruster Engine 2	48 hr/yr	58.0 gal/hr	950 **hp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-6	5.95E-03	lb/hr	1.43E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.14E-04	lb/hr	7.53E-06	tpy
Thruster Engine 3	48 hr/yr	58.0 gal/hr	950 **hp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-6	5.95E-03	lb/hr	1.43E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.14E-04	lb/hr	7.53E-06	tpy
Generator 1	60 hr/yr	27.0 gal/hr	400 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.33E-03	lb/hr	9.98E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.39E-04	lb/hr	4.18E-06	tpy
Generator 2	30 hr/yr	27.0 gal/hr	400 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.33E-03	lb/hr	4.99E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.39E-04	lb/hr	2.09E-06	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.33E-03	lb/hr	0.00E+00	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.39E-04	lb/hr	0.00E+00	tpy
Emergency Generator	2 hr/yr	8.0 gal/hr	99 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	9.86E-04	lb/hr	9.86E-07	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	4.13E-05	lb/hr	4.13E-08	tpy
						Vessel Total	**4.42E-02**	**lb/hr**	**1.04E-03**	**tpy**			**Vessel Total**	**2.21E-03**	**lb/hr**	**5.33E-05**	**tpy**

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Chlorobenzene							Ethylbenzene						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Drill Rig Equipment																	
Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.34E-05	lb/hr	2.00E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.82E-03	lb/hr	1.09E-03	tpy
Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.34E-05	lb/hr	2.00E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.82E-03	lb/hr	1.09E-03	tpy
Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.34E-05	lb/hr	2.00E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.82E-03	lb/hr	1.09E-03	tpy
Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.34E-05	lb/hr	2.00E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.82E-03	lb/hr	1.09E-03	tpy
Emergency Back-up Engine	75 hr/yr	205.0 g fuel/kWh	968 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.30E-05	lb/hr	4.87E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	7.07E-04	lb/hr	2.65E-05	tpy
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.80E-06	lb/hr	3.80E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.16E-04	lb/hr	2.07E-05	tpy
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.80E-06	lb/hr	3.80E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.16E-04	lb/hr	2.07E-05	tpy
Logging Winch	273 hr/yr	13.3 gal/hr	187 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	2.66E-06	lb/hr	3.63E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.45E-04	lb/hr	1.98E-05	tpy
Heater 1	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	1.51E+00	lb/10^12 Btu	VCAPCD	5.30E-06	lb/hr	6.36E-06	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	3.95E-05	lb/hr	4.74E-05	tpy
Heater 2	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	1.51E+00	lb/10^12 Btu	VCAPCD	5.30E-06	lb/hr	6.36E-06	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	3.95E-05	lb/hr	4.74E-05	tpy
Incinerator	65 tons/yr	276.0 lbs/hr	N **A**	none							none						
Fuel Tank 1	2400 hrs/yr	471940.6 gal/yr*	N **A**	none							N A		EPA TANKS	2.083E-09	lb/hr	0.000005	tpy
Fuel Tank 2	2400 hrs/yr	471940.6 gal/yr*	N **A**	none							N A		EPA TANKS	2.083E-09	lb/hr	0.000005	tpy
Mud Degassing	100 days/yr	N A	20000 **scf/day**	none							none						
			a Heat input rate			**Drill Rig Total**	**1.71E-04**	**lb/hr**	**9.45E-05**	**tpy**			**Drill Rig Total**	**8.84E-03**	**lb/hr**	**4.56E-03**	**tpy**
Ice Breaker 1																	
Main Engine 1	515 hr/yr	426.4 gal/hr	8046 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	8.53E-05	lb/hr	2.20E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	4.65E-03	lb/hr	1.20E-03	tpy
Main Engine 2	515 hr/yr	426.4 gal/hr	8046 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	8.53E-05	lb/hr	2.20E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	4.65E-03	lb/hr	1.20E-03	tpy
Main Engine 3	515 hr/yr	319.8 gal/hr	6035 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.40E-05	lb/hr	1.65E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.49E-03	lb/hr	8.98E-04	tpy
Main Engine 4	515 hr/yr	319.8 gal/hr	6035 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.40E-05	lb/hr	1.65E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.49E-03	lb/hr	8.98E-04	tpy
Harbor Generator	35 hr/yr	50.4 gal/hr	952 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.01E-05	lb/hr	1.77E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	5.50E-04	lb/hr	9.62E-06	tpy
Emergency Generator	35 hr/yr	21.3 gal/hr	402 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	4.26E-06	lb/hr	7.46E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.32E-04	lb/hr	4.07E-06	tpy
Boiler 1	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.51E+00	lb/10^12 Btu	VCAPCD	5.60E-06	lb/hr	1.44E-06	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	4.17E-05	lb/hr	1.07E-05	tpy
Boiler 2	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.51E+00	lb/10^12 Btu	VCAPCD	5.60E-06	lb/hr	1.44E-06	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	4.17E-05	lb/hr	1.07E-05	tpy
Incinerator	515 hr/yr	175.0 lb/hr	N **A**	none							none						
			a Heat input rate			**Vessel Total**	**3.24E-04**	**lb/hr**	**8.00E-05**	**tpy**			**Vessel Total**	**1.71E-02**	**lb/hr**	**4.22E-03**	**tpy**
Ice Breaker 2																	
Main Engine 1	515 hr/yr	426.4 gal/hr	8046 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	8.53E-05	lb/hr	2.20E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	4.65E-03	lb/hr	1.20E-03	tpy
Main Engine 2	515 hr/yr	426.4 gal/hr	8046 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	8.53E-05	lb/hr	2.20E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	4.65E-03	lb/hr	1.20E-03	tpy
Main Engine 3	515 hr/yr	319.8 gal/hr	6035 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.40E-05	lb/hr	1.65E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.49E-03	lb/hr	8.98E-04	tpy
Main Engine 4	515 hr/yr	319.8 gal/hr	6035 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.40E-05	lb/hr	1.65E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.49E-03	lb/hr	8.98E-04	tpy
Harbor Generator	35 hr/yr	50.4 gal/hr	952 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.01E-05	lb/hr	1.77E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	5.50E-04	lb/hr	9.62E-06	tpy
Emergency Generator	35 hr/yr	21.3 gal/hr	402 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	4.26E-06	lb/hr	7.46E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.32E-04	lb/hr	4.07E-06	tpy
Boiler 1	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.51E+00	lb/10^12 Btu	VCAPCD	5.60E-06	lb/hr	1.44E-06	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	4.17E-05	lb/hr	1.07E-05	tpy
Boiler 2	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.51E+00	lb/10^12 Btu	VCAPCD	5.60E-06	lb/hr	1.44E-06	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	4.17E-05	lb/hr	1.07E-05	tpy
Incinerator	515 hr/yr	175.0 lb/hr	N **A**	none							none						
			a Heat input rate			**Vessel Total**	**3.24E-04**	**lb/hr**	**8.00E-05**	**tpy**			**Vessel Total**	**1.71E-02**	**lb/hr**	**4.22E-03**	**tpy**
Oil Spill Response Vessel 1 (Dedicated OSRV)																	
Main Engine 1	800 hr/yr	75.0 gal/hr	3000 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.50E-05	lb/hr	6.00E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.18E-04	lb/hr	3.27E-04	tpy
Main Engine 2	800 hr/yr	75.0 gal/hr	3000 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.50E-05	lb/hr	6.00E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.18E-04	lb/hr	3.27E-04	tpy
Thruster Engine 1	12 hr/yr	58.0 gal/hr	950 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.16E-05	lb/hr	6.96E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	6.32E-04	lb/hr	3.79E-06	tpy
Thruster Engine 2	12 hr/yr	58.0 gal/hr	950 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.16E-05	lb/hr	6.96E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	6.32E-04	lb/hr	3.79E-06	tpy
Thruster Engine 3	12 hr/yr	58.0 gal/hr	950 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.16E-05	lb/hr	6.96E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	6.32E-04	lb/hr	3.79E-06	tpy
Generator 1	2400 hr/yr	27.0 gal/hr	400 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.40E-06	lb/hr	6.48E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.94E-04	lb/hr	3.53E-04	tpy
Generator 2	300 hr/yr	27.0 gal/hr	400 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.40E-06	lb/hr	8.10E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.94E-04	lb/hr	4.41E-05	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.40E-06	lb/hr	0.00E+00	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.94E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.60E-06	lb/hr	2.40E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.72E-05	lb/hr	1.31E-06	tpy
						Vessel Total	**8.26E-05**	**lb/hr**	**1.95E-05**	**tpy**			**Vessel Total**	**4.50E-03**	**lb/hr**	**1.06E-03**	**tpy**
Oil Spill Response Vessel 2																	
Main Engine 1	60 hr/yr	75.0 gal/hr	3000 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.50E-05	lb/hr	4.50E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.18E-04	lb/hr	2.45E-05	tpy
Main Engine 2	60 hr/yr	75.0 gal/hr	3000 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.50E-05	lb/hr	4.50E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.18E-04	lb/hr	2.45E-05	tpy
Thruster Engine 1	48 hr/yr	58.0 gal/hr	950 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.16E-05	lb/hr	2.78E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	6.32E-04	lb/hr	1.52E-05	tpy
Thruster Engine 2	48 hr/yr	58.0 gal/hr	950 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.16E-05	lb/hr	2.78E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	6.32E-04	lb/hr	1.52E-05	tpy
Thruster Engine 3	48 hr/yr	58.0 gal/hr	950 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.16E-05	lb/hr	2.78E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	6.32E-04	lb/hr	1.52E-05	tpy
Generator 1	60 hr/yr	27.0 gal/hr	400 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.40E-06	lb/hr	1.62E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.94E-04	lb/hr	8.83E-06	tpy
Generator 2	30 hr/yr	27.0 gal/hr	400 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.40E-06	lb/hr	8.10E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.94E-04	lb/hr	4.41E-06	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.40E-06	lb/hr	0.00E+00	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.94E-04	lb/hr	0.00E+00	tpy
Emergency Generator	2 hr/yr	8.0 gal/hr	99 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.60E-06	lb/hr	1.60E-09	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.72E-05	lb/hr	8.72E-08	tpy
						Vessel Total	**8.26E-05**	**lb/hr**	**1.98E-06**	**tpy**			**Vessel Total**	**4.50E-03**	**lb/hr**	**1.08E-04**	**tpy**

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Formaldehyde							Hexane						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Drill Rig Equipment																	
Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.94E-02	lb/hr	1.16E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.49E-03	lb/hr	2.69E-03	tpy
Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.94E-02	lb/hr	1.16E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.49E-03	lb/hr	2.69E-03	tpy
Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.94E-02	lb/hr	1.16E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.49E-03	lb/hr	2.69E-03	tpy
Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.94E-02	lb/hr	1.16E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.49E-03	lb/hr	2.69E-03	tpy
Emergency Back-up Engine	75 hr/yr	205.0 g fuel/kWh	968 **kW**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	7.53E-03	lb/hr	2.82E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.75E-03	lb/hr	6.55E-05	tpy
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.52E-03	lb/hr	2.96E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.80E-04	lb/hr	5.11E-05	tpy
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.52E-03	lb/hr	2.96E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.80E-04	lb/hr	5.11E-05	tpy
Logging Winch	273 hr/yr	13.3 gal/hr	187 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	2.07E-03	lb/hr	2.83E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	3.57E-04	lb/hr	4.88E-05	tpy
Heater 1	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	3.49E-01	lbs/Mgal	CARB-CATEF	9.25E-03	lb/hr	1.11E-02	tpy	9.16E+00	lb/10^12 Btu	CARB-CATEF	3.21E-05	lb/hr	3.85E-05	tpy
Heater 2	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	3.49E-01	lbs/Mgal	CARB-CATEF	9.25E-03	lb/hr	1.11E-02	tpy	9.16E+00	lb/10^12 Btu	CARB-CATEF	3.21E-05	lb/hr	3.85E-05	tpy
Incinerator	65 tons/yr	276.0 lbs/hr	N **A**	none							none						
Fuel Tank 1	2400 hrs/yr	471940.6 gal/yr*	N **A**	none							N A		EPA TANKS	0	lb/hr	0	tpy
Fuel Tank 2	2400 hrs/yr	471940.6 gal/yr*	N **A**	none							N A		EPA TANKS	0	lb/hr	0	tpy
Mud Degassing	100 days/yr	N A	20000 **scf/day**	none							none						
			a Heat input rate			**Drill Rig Total**	**1.15E-01**	**lb/hr**	**6.98E-02**	**lb/hr**			**Drill Rig Total**	**2.17E-02**	**lb/hr**	**1.11E-02**	**tpy**
Ice Breaker 1																	
Main Engine 1	515 hr/yr	426.4 gal/hr	8046 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	4.95E-02	lb/hr	1.27E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.15E-02	lb/hr	2.95E-03	tpy
Main Engine 2	515 hr/yr	426.4 gal/hr	8046 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	4.95E-02	lb/hr	1.27E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.15E-02	lb/hr	2.95E-03	tpy
Main Engine 3	515 hr/yr	319.8 gal/hr	6035 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	3.71E-02	lb/hr	9.55E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.60E-03	lb/hr	2.22E-03	tpy
Main Engine 4	515 hr/yr	319.8 gal/hr	6035 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	3.71E-02	lb/hr	9.55E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.60E-03	lb/hr	2.22E-03	tpy
Harbor Generator	35 hr/yr	50.4 gal/hr	952 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	5.85E-03	lb/hr	1.02E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.36E-03	lb/hr	2.37E-05	tpy
Emergency Generator	35 hr/yr	21.3 gal/hr	402 **bhp**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	3.32E-03	lb/hr	5.81E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	5.73E-04	lb/hr	1.00E-05	tpy
Boiler 1	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.49E-01	lbs/Mgal	CARB-CATEF	9.77E-03	lb/hr	2.52E-03	tpy	9.16E+00	lb/10^12 Btu	CARB-CATEF	3.39E-05	lb/hr	8.72E-06	tpy
Boiler 2	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.49E-01	lbs/Mgal	CARB-CATEF	9.77E-03	lb/hr	2.52E-03	tpy	9.16E+00	lb/10^12 Btu	CARB-CATEF	3.39E-05	lb/hr	8.72E-06	tpy
Incinerator	515 hr/yr	175.0 lb/hr	N **A**	none							none						
			a Heat input rate			**Vessel Total**	**2.02E-01**	**lb/hr**	**4.98E-02**	**tpy**			**Vessel Total**	**4.21E-02**	**lb/hr**	**1.04E-02**	**tpy**
Ice Breaker 2																	
Main Engine 1	515 hr/yr	426.4 gal/hr	8046 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	4.95E-02	lb/hr	1.27E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.15E-02	lb/hr	2.95E-03	tpy
Main Engine 2	515 hr/yr	426.4 gal/hr	8046 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	4.95E-02	lb/hr	1.27E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.15E-02	lb/hr	2.95E-03	tpy
Main Engine 3	515 hr/yr	319.8 gal/hr	6035 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	3.71E-02	lb/hr	9.55E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.60E-03	lb/hr	2.22E-03	tpy
Main Engine 4	515 hr/yr	319.8 gal/hr	6035 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	3.71E-02	lb/hr	9.55E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.60E-03	lb/hr	2.22E-03	tpy
Harbor Generator	35 hr/yr	50.4 gal/hr	952 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	5.85E-03	lb/hr	1.02E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.36E-03	lb/hr	2.37E-05	tpy
Emergency Generator	35 hr/yr	21.3 gal/hr	402 **bhp**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	3.32E-03	lb/hr	5.81E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	5.73E-04	lb/hr	1.00E-05	tpy
Boiler 1	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.49E-01	lbs/Mgal	CARB-CATEF	9.77E-03	lb/hr	2.52E-03	tpy	9.16E+00	lb/10^12 Btu	CARB-CATEF	3.39E-05	lb/hr	8.72E-06	tpy
Boiler 2	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.49E-01	lbs/Mgal	CARB-CATEF	9.77E-03	lb/hr	2.52E-03	tpy	9.16E+00	lb/10^12 Btu	CARB-CATEF	3.39E-05	lb/hr	8.72E-06	tpy
Incinerator	515 hr/yr	175.0 lb/hr	N **A**	none							none						
			a Heat input rate			**Vessel Total**	**2.02E-01**	**lb/hr**	**4.98E-02**	**tpy**			**Vessel Total**	**4.21E-02**	**lb/hr**	**1.04E-02**	**tpy**
Oil Spill Response Vessel 1 (Dedicated OSRV)																	
Main Engine 1	800 hr/yr	75.0 gal/hr	3000 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	8.70E-03	lb/hr	3.48E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.02E-03	lb/hr	8.07E-04	tpy
Main Engine 2	800 hr/yr	75.0 gal/hr	3000 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	8.70E-03	lb/hr	3.48E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.02E-03	lb/hr	8.07E-04	tpy
Thruster Engine 1	12 hr/yr	58.0 gal/hr	950 **hp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	6.73E-03	lb/hr	4.04E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.56E-03	lb/hr	9.36E-06	tpy
Thruster Engine 2	12 hr/yr	58.0 gal/hr	950 **hp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	6.73E-03	lb/hr	4.04E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.56E-03	lb/hr	9.36E-06	tpy
Thruster Engine 3	12 hr/yr	58.0 gal/hr	950 **hp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	6.73E-03	lb/hr	4.04E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.56E-03	lb/hr	9.36E-06	tpy
Generator 1	2400 hr/yr	27.0 gal/hr	400 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.21E-03	lb/hr	5.05E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.26E-04	lb/hr	8.72E-04	tpy
Generator 2	300 hr/yr	27.0 gal/hr	400 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.21E-03	lb/hr	6.31E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.26E-04	lb/hr	1.09E-04	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.21E-03	lb/hr	0.00E+00	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.26E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	1.25E-03	lb/hr	1.87E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.15E-04	lb/hr	3.23E-06	tpy
						Vessel Total	**5.15E-02**	**lb/hr**	**1.28E-02**	**tpy**			**Vessel Total**	**1.11E-02**	**lb/hr**	**2.63E-03**	**tpy**
Oil Spill Response Vessel 2																	
Main Engine 1	60 hr/yr	75.0 gal/hr	3000 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	8.70E-03	lb/hr	2.61E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.02E-03	lb/hr	6.05E-05	tpy
Main Engine 2	60 hr/yr	75.0 gal/hr	3000 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	8.70E-03	lb/hr	2.61E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.02E-03	lb/hr	6.05E-05	tpy
Thruster Engine 1	48 hr/yr	58.0 gal/hr	950 **hp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	6.73E-03	lb/hr	1.61E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.56E-03	lb/hr	3.74E-05	tpy
Thruster Engine 2	48 hr/yr	58.0 gal/hr	950 **hp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	6.73E-03	lb/hr	1.61E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.56E-03	lb/hr	3.74E-05	tpy
Thruster Engine 3	48 hr/yr	58.0 gal/hr	950 **hp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	6.73E-03	lb/hr	1.61E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.56E-03	lb/hr	3.74E-05	tpy
Generator 1	60 hr/yr	27.0 gal/hr	400 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.21E-03	lb/hr	1.26E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.26E-04	lb/hr	2.18E-05	tpy
Generator 2	30 hr/yr	27.0 gal/hr	400 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.21E-03	lb/hr	6.31E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.26E-04	lb/hr	1.09E-05	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.21E-03	lb/hr	0.00E+00	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.26E-04	lb/hr	0.00E+00	tpy
Emergency Generator	2 hr/yr	8.0 gal/hr	99 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	1.25E-03	lb/hr	1.25E-06	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.15E-04	lb/hr	2.15E-07	tpy
						Vessel Total	**5.15E-02**	**lb/hr**	**1.20E-03**	**tpy**			**Vessel Total**	**1.11E-02**	**lb/hr**	**2.66E-04**	**tpy**

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Hydrochloric acid (Hydrogen Chloride)							Naphthalene						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Drill Rig Equipment																	
Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	3.11E-02	lb/hr	1.87E-02	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.87E-03	lb/hr	1.72E-03	tpy
Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	3.11E-02	lb/hr	1.87E-02	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.87E-03	lb/hr	1.72E-03	tpy
Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	3.11E-02	lb/hr	1.87E-02	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.87E-03	lb/hr	1.72E-03	tpy
Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	3.11E-02	lb/hr	1.87E-02	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.87E-03	lb/hr	1.72E-03	tpy
Emergency Back-up Engine	75 hr/yr	205.0 g fuel/kWh	968 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.21E-02	lb/hr	4.53E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.11E-03	lb/hr	4.18E-05	tpy
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.40E-03	lb/hr	3.54E-04	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.25E-04	lb/hr	2.13E-05	tpy
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.40E-03	lb/hr	3.54E-04	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.25E-04	lb/hr	2.13E-05	tpy
Logging Winch	273 hr/yr	13.3 gal/hr	187 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	2.47E-03	lb/hr	3.38E-04	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.49E-04	lb/hr	2.03E-05	tpy
Heater 1	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	1.41E+03	lb/10^12 Btu	VCAPCD	4.94E-03	lb/hr	5.92E-03	tpy	2.78E+03	lb/10^12 Btu	CARB-CATEF	9.72E-03	lb/hr	1.17E-02	tpy
Heater 2	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	1.41E+03	lb/10^12 Btu	VCAPCD	4.94E-03	lb/hr	5.92E-03	tpy	2.78E+03	lb/10^12 Btu	CARB-CATEF	9.72E-03	lb/hr	1.17E-02	tpy
Incinerator	65 tons/yr	276.0 lbs/hr	N **A**	none							none						
Fuel Tank 1	2400 hrs/yr	471940.6 gal/yr*	N **A**	none							none						
Fuel Tank 2	2400 hrs/yr	471940.6 gal/yr*	N **A**	none							none						
Mud Degassing	100 days/yr	N A	20000 **scf/day**	none							none						
			a Heat input rate			**Drill Rig Total**	**1.60E-01**	**lb/hr**	**8.80E-02**	**tpy**			**Drill Rig Total**	**3.28E-02**	**lb/hr**	**3.03E-02**	**tpy**
Ice Breaker 1																	
Main Engine 1	515 hr/yr	426.4 gal/hr	8046 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	7.94E-02	lb/hr	2.05E-02	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	7.32E-03	lb/hr	1.89E-03	tpy
Main Engine 2	515 hr/yr	426.4 gal/hr	8046 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	7.94E-02	lb/hr	2.05E-02	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	7.32E-03	lb/hr	1.89E-03	tpy
Main Engine 3	515 hr/yr	319.8 gal/hr	6035 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.96E-02	lb/hr	1.53E-02	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	5.49E-03	lb/hr	1.41E-03	tpy
Main Engine 4	515 hr/yr	319.8 gal/hr	6035 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.96E-02	lb/hr	1.53E-02	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	5.49E-03	lb/hr	1.41E-03	tpy
Harbor Generator	35 hr/yr	50.4 gal/hr	952 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	9.40E-03	lb/hr	1.64E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.66E-04	lb/hr	1.52E-05	tpy
Emergency Generator	35 hr/yr	21.3 gal/hr	402 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	3.97E-03	lb/hr	6.95E-05	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	2.39E-04	lb/hr	4.18E-06	tpy
Boiler 1	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.41E+03	lb/10^12 Btu	VCAPCD	5.22E-03	lb/hr	1.34E-03	tpy	2.78E+03	lb/10^12 Btu	CARB-CATEF	1.03E-02	lb/hr	2.65E-03	tpy
Boiler 2	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.41E+03	lb/10^12 Btu	VCAPCD	5.22E-03	lb/hr	1.34E-03	tpy	2.78E+03	lb/10^12 Btu	CARB-CATEF	1.03E-02	lb/hr	2.65E-03	tpy
Incinerator	515 hr/yr	175.0 lb/hr	N **A**	none							none						
			a Heat input rate			**Vessel Total**	**3.02E-01**	**lb/hr**	**7.45E-02**	**tpy**			**Vessel Total**	**4.73E-02**	**lb/hr**	**1.19E-02**	**tpy**
Ice Breaker 2																	
Main Engine 1	515 hr/yr	426.4 gal/hr	8046 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	7.94E-02	lb/hr	2.05E-02	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	7.32E-03	lb/hr	1.89E-03	tpy
Main Engine 2	515 hr/yr	426.4 gal/hr	8046 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	7.94E-02	lb/hr	2.05E-02	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	7.32E-03	lb/hr	1.89E-03	tpy
Main Engine 3	515 hr/yr	319.8 gal/hr	6035 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.96E-02	lb/hr	1.53E-02	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	5.49E-03	lb/hr	1.41E-03	tpy
Main Engine 4	515 hr/yr	319.8 gal/hr	6035 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.96E-02	lb/hr	1.53E-02	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	5.49E-03	lb/hr	1.41E-03	tpy
Harbor Generator	35 hr/yr	50.4 gal/hr	952 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	9.40E-03	lb/hr	1.64E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.66E-04	lb/hr	1.52E-05	tpy
Emergency Generator	35 hr/yr	21.3 gal/hr	402 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	3.97E-03	lb/hr	6.95E-05	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	2.39E-04	lb/hr	4.18E-06	tpy
Boiler 1	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.41E+03	lb/10^12 Btu	VCAPCD	5.22E-03	lb/hr	1.34E-03	tpy	2.78E+03	lb/10^12 Btu	CARB-CATEF	1.03E-02	lb/hr	2.65E-03	tpy
Boiler 2	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.41E+03	lb/10^12 Btu	VCAPCD	5.22E-03	lb/hr	1.34E-03	tpy	2.78E+03	lb/10^12 Btu	CARB-CATEF	1.03E-02	lb/hr	2.65E-03	tpy
Incinerator	515 hr/yr	175.0 lb/hr	N **A**	none							none						
			a Heat input rate			**Vessel Total**	**3.02E-01**	**lb/hr**	**7.45E-02**	**tpy**			**Vessel Total**	**4.73E-02**	**lb/hr**	**1.19E-02**	**tpy**
Oil Spill Response Vessel 1 (Dedicated OSRV)																	
Main Engine 1	800 hr/yr	75.0 gal/hr	3000 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.40E-02	lb/hr	5.59E-03	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.29E-03	lb/hr	5.15E-04	tpy
Main Engine 2	800 hr/yr	75.0 gal/hr	3000 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.40E-02	lb/hr	5.59E-03	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-5	1.29E-03	lb/hr	5.15E-04	tpy
Thruster Engine 1	12 hr/yr	58.0 gal/hr	950 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.08E-02	lb/hr	6.48E-05	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-5	9.96E-04	lb/hr	5.98E-06	tpy
Thruster Engine 2	12 hr/yr	58.0 gal/hr	950 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.08E-02	lb/hr	6.48E-05	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-5	9.96E-04	lb/hr	5.98E-06	tpy
Thruster Engine 3	12 hr/yr	58.0 gal/hr	950 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.08E-02	lb/hr	6.48E-05	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-5	9.96E-04	lb/hr	5.98E-06	tpy
Generator 1	2400 hr/yr	27.0 gal/hr	400 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.03E-03	lb/hr	6.04E-03	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.02E-04	lb/hr	3.63E-04	tpy
Generator 2	300 hr/yr	27.0 gal/hr	400 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.03E-03	lb/hr	7.55E-04	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.02E-04	lb/hr	4.54E-05	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.03E-03	lb/hr	0.00E+00	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.02E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.49E-03	lb/hr	2.24E-05	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	8.96E-05	lb/hr	1.34E-06	tpy
						Vessel Total	**7.69E-02**	**lb/hr**	**1.82E-02**	**tpy**			**Vessel Total**	**6.56E-03**	**lb/hr**	**1.46E-03**	**tpy**
Oil Spill Response Vessel 2																	
Main Engine 1	60 hr/yr	75.0 gal/hr	3000 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.40E-02	lb/hr	4.19E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.29E-03	lb/hr	3.86E-05	tpy
Main Engine 2	60 hr/yr	75.0 gal/hr	3000 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.40E-02	lb/hr	4.19E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-5	1.29E-03	lb/hr	3.86E-05	tpy
Thruster Engine 1	48 hr/yr	58.0 gal/hr	950 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.08E-02	lb/hr	2.59E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-6	9.96E-04	lb/hr	2.39E-05	tpy
Thruster Engine 2	48 hr/yr	58.0 gal/hr	950 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.08E-02	lb/hr	2.59E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-7	9.96E-04	lb/hr	2.39E-05	tpy
Thruster Engine 3	48 hr/yr	58.0 gal/hr	950 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.08E-02	lb/hr	2.59E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-7	9.96E-04	lb/hr	2.39E-05	tpy
Generator 1	60 hr/yr	27.0 gal/hr	400 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.03E-03	lb/hr	1.51E-04	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.02E-04	lb/hr	9.07E-06	tpy
Generator 2	30 hr/yr	27.0 gal/hr	400 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.03E-03	lb/hr	7.55E-05	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.02E-04	lb/hr	4.54E-06	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.03E-03	lb/hr	0.00E+00	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.02E-04	lb/hr	0.00E+00	tpy
Emergency Generator	2 hr/yr	8.0 gal/hr	99 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.49E-03	lb/hr	1.49E-06	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	8.96E-05	lb/hr	8.96E-08	tpy
						Vessel Total	**7.69E-02**	**lb/hr**	**1.84E-03**	**tpy**			**Vessel Total**	**6.56E-03**	**lb/hr**	**1.63E-04**	**tpy**

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Toluene							Xylenes (mixed isomers)						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Drill Rig Equipment																	
Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	6.20E-03	lb/hr	3.72E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.26E-03	lb/hr	2.55E-03	tpy
Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	6.20E-03	lb/hr	3.72E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.26E-03	lb/hr	2.55E-03	tpy
Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	6.20E-03	lb/hr	3.72E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.26E-03	lb/hr	2.55E-03	tpy
Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	6.20E-03	lb/hr	3.72E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.26E-03	lb/hr	2.55E-03	tpy
Emergency Back-up Engine	75 hr/yr	205.0 g fuel/kWh	968 **kW**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.41E-03	lb/hr	9.03E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.65E-03	lb/hr	6.21E-05	tpy
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.57E-03	lb/hr	1.03E-04	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.09E-03	lb/hr	7.15E-05	tpy
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.57E-03	lb/hr	1.03E-04	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.09E-03	lb/hr	7.15E-05	tpy
Logging Winch	273 hr/yr	13.3 gal/hr	187 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	7.18E-04	lb/hr	9.80E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.00E-04	lb/hr	6.83E-05	tpy
Heater 1	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	1.14E+01	lb/10^12 Btu	CARB-CATEF	3.97E-05	lb/hr	4.77E-05	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	3.95E-05	lb/hr	4.74E-05	tpy
Heater 2	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	1.14E+01	lb/10^12 Btu	CARB-CATEF	3.97E-05	lb/hr	4.77E-05	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	3.95E-05	lb/hr	4.74E-05	tpy
Incinerator	65 tons/yr	276.0 lbs/hr	N **A**	none							none						
Fuel Tank 1	2400 hrs/yr	471940.6 gal/yr*	N **A**	N A		EPA TANKS	1.667E-08	lb/hr	0.00004	tpy	none						
Fuel Tank 2	2400 hrs/yr	471940.6 gal/yr*	N **A**	N A		EPA TANKS	1.667E-08	lb/hr	0.00004	tpy	none						
Mud Degassing	100 days/yr	N A	20000 **scf/day**	none							none						
			a Heat input rate			**Drill Rig Total**	**3.11E-02**	**lb/hr**	**1.54E-02**	**tpy**			**Drill Rig Total**	**2.14E-02**	**lb/hr**	**1.06E-02**	**tpy**
Ice Breaker 1																	
Main Engine 1	515 hr/yr	426.4 gal/hr	8046 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.58E-02	lb/hr	4.08E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.09E-02	lb/hr	2.80E-03	tpy
Main Engine 2	515 hr/yr	426.4 gal/hr	8046 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.58E-02	lb/hr	4.08E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.09E-02	lb/hr	2.80E-03	tpy
Main Engine 3	515 hr/yr	319.8 gal/hr	6035 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.19E-02	lb/hr	3.06E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	8.15E-03	lb/hr	2.10E-03	tpy
Main Engine 4	515 hr/yr	319.8 gal/hr	6035 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.19E-02	lb/hr	3.06E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	8.15E-03	lb/hr	2.10E-03	tpy
Harbor Generator	35 hr/yr	50.4 gal/hr	952 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.87E-03	lb/hr	3.28E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.29E-03	lb/hr	2.25E-05	tpy
Emergency Generator	35 hr/yr	21.3 gal/hr	402 **bhp**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.15E-03	lb/hr	2.01E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	8.02E-04	lb/hr	1.40E-05	tpy
Boiler 1	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.14E+01	lb/10^12 Btu	CARB-CATEF	4.20E-05	lb/hr	1.08E-05	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	4.17E-05	lb/hr	1.07E-05	tpy
Boiler 2	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.14E+01	lb/10^12 Btu	CARB-CATEF	4.20E-05	lb/hr	1.08E-05	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	4.17E-05	lb/hr	1.07E-05	tpy
Incinerator	515 hr/yr	175.0 lb/hr	N **A**	none							none						
			a Heat input rate			**Vessel Total**	**5.85E-02**	**lb/hr**	**1.43E-02**	**tpy**			**Vessel Total**	**4.02E-02**	**lb/hr**	**9.86E-03**	**tpy**
Ice Breaker 2																	
Main Engine 1	515 hr/yr	426.4 gal/hr	8046 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.58E-02	lb/hr	4.08E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.09E-02	lb/hr	2.80E-03	tpy
Main Engine 2	515 hr/yr	426.4 gal/hr	8046 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.58E-02	lb/hr	4.08E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.09E-02	lb/hr	2.80E-03	tpy
Main Engine 3	515 hr/yr	319.8 gal/hr	6035 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.19E-02	lb/hr	3.06E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	8.15E-03	lb/hr	2.10E-03	tpy
Main Engine 4	515 hr/yr	319.8 gal/hr	6035 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.19E-02	lb/hr	3.06E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	8.15E-03	lb/hr	2.10E-03	tpy
Harbor Generator	35 hr/yr	50.4 gal/hr	952 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.87E-03	lb/hr	3.28E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.29E-03	lb/hr	2.25E-05	tpy
Emergency Generator	35 hr/yr	21.3 gal/hr	402 **bhp**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.15E-03	lb/hr	2.01E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	8.02E-04	lb/hr	1.40E-05	tpy
Boiler 1	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.14E+01	lb/10^12 Btu	CARB-CATEF	4.20E-05	lb/hr	1.08E-05	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	4.17E-05	lb/hr	1.07E-05	tpy
Boiler 2	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	1.14E+01	lb/10^12 Btu	CARB-CATEF	4.20E-05	lb/hr	1.08E-05	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	4.17E-05	lb/hr	1.07E-05	tpy
Incinerator	515 hr/yr	175.0 lb/hr	N **A**	none							none						
			a Heat input rate			**Vessel Total**	**5.85E-02**	**lb/hr**	**1.43E-02**	**tpy**			**Vessel Total**	**4.02E-02**	**lb/hr**	**9.86E-03**	**tpy**
Oil Spill Response Vessel 1 (Dedicated OSRV)																	
Main Engine 1	800 hr/yr	75.0 gal/hr	3000 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.78E-03	lb/hr	1.11E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.91E-03	lb/hr	7.65E-04	tpy
Main Engine 2	800 hr/yr	75.0 gal/hr	3000 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.78E-03	lb/hr	1.11E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.91E-03	lb/hr	7.65E-04	tpy
Thruster Engine 1	12 hr/yr	58.0 gal/hr	950 **hp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.15E-03	lb/hr	1.29E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.48E-03	lb/hr	8.87E-06	tpy
Thruster Engine 2	12 hr/yr	58.0 gal/hr	950 **hp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.15E-03	lb/hr	1.29E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.48E-03	lb/hr	8.87E-06	tpy
Thruster Engine 3	12 hr/yr	58.0 gal/hr	950 **hp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.15E-03	lb/hr	1.29E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.48E-03	lb/hr	8.87E-06	tpy
Generator 1	2400 hr/yr	27.0 gal/hr	400 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.46E-03	lb/hr	1.75E-03	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.02E-03	lb/hr	1.22E-03	tpy
Generator 2	300 hr/yr	27.0 gal/hr	400 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.46E-03	lb/hr	2.19E-04	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.02E-03	lb/hr	1.52E-04	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.46E-03	lb/hr	0.00E+00	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.02E-03	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	4.32E-04	lb/hr	6.48E-06	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.01E-04	lb/hr	4.52E-06	tpy
						Vessel Total	**1.68E-02**	**lb/hr**	**4.24E-03**	**tpy**			**Vessel Total**	**1.16E-02**	**lb/hr**	**2.93E-03**	**tpy**
Oil Spill Response Vessel 2																	
Main Engine 1	60 hr/yr	75.0 gal/hr	3000 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.78E-03	lb/hr	8.35E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.91E-03	lb/hr	5.74E-05	tpy
Main Engine 2	60 hr/yr	75.0 gal/hr	3000 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.78E-03	lb/hr	8.35E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.91E-03	lb/hr	5.74E-05	tpy
Thruster Engine 1	48 hr/yr	58.0 gal/hr	950 **hp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-5	2.15E-03	lb/hr	5.17E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-5	1.48E-03	lb/hr	3.55E-05	tpy
Thruster Engine 2	48 hr/yr	58.0 gal/hr	950 **hp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-6	2.15E-03	lb/hr	5.17E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-6	1.48E-03	lb/hr	3.55E-05	tpy
Thruster Engine 3	48 hr/yr	58.0 gal/hr	950 **hp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-6	2.15E-03	lb/hr	5.17E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-6	1.48E-03	lb/hr	3.55E-05	tpy
Generator 1	60 hr/yr	27.0 gal/hr	400 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.46E-03	lb/hr	4.38E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.02E-03	lb/hr	3.05E-05	tpy
Generator 2	30 hr/yr	27.0 gal/hr	400 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.46E-03	lb/hr	2.19E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.02E-03	lb/hr	1.52E-05	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.46E-03	lb/hr	0.00E+00	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.02E-03	lb/hr	0.00E+00	tpy
Emergency Generator	2 hr/yr	8.0 gal/hr	99 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	4.32E-04	lb/hr	4.32E-07	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.01E-04	lb/hr	3.01E-07	tpy
						Vessel Total	**1.68E-02**	**lb/hr**	**3.88E-04**	**tpy**			**Vessel Total**	**1.16E-02**	**lb/hr**	**2.67E-04**	**tpy**

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit Description	Allowable Operation	Maximum Fuel Usage	Maximum	o-Xylene Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	m-Xylene Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Drill Rig Equipment																	
Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.49E-03	lb/hr	2.09E-03	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.61E-03	lb/hr	2.16E-03	tpy
Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.49E-03	lb/hr	2.09E-03	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.61E-03	lb/hr	2.16E-03	tpy
Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.49E-03	lb/hr	2.09E-03	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.61E-03	lb/hr	2.16E-03	tpy
Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.49E-03	lb/hr	2.09E-03	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.61E-03	lb/hr	2.16E-03	tpy
Emergency Back-up Engine	75 hr/yr	205.0 g fuel/kWh	968 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.36E-03	lb/hr	5.09E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.40E-03	lb/hr	5.26E-05	tpy
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.06E-04	lb/hr	3.97E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.26E-04	lb/hr	4.10E-05	tpy
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.06E-04	lb/hr	3.97E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.26E-04	lb/hr	4.10E-05	tpy
Logging Winch	273 hr/yr	13.3 gal/hr	187 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	2.78E-04	lb/hr	3.79E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	2.87E-04	lb/hr	3.92E-05	tpy
Heater 1	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	none							none						
Heater 2	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	none							none						
Incinerator	65 tons/yr	276.0 lbs/hr	N **A**	none							none						
Fuel Tank 1	2400 hrs/yr	471940.6 gal/yr*	N **A**	none							N A		EPA TANKS	3.333E-08	lb/hr	0.00008	tpy
Fuel Tank 2	2400 hrs/yr	471940.6 gal/yr*	N **A**	none							N A		EPA TANKS	3.333E-08	lb/hr	0.00008	tpy
Mud Degassing	100 days/yr	N A	20000 **scf/day**	none							none						
			a Heat input rate			**Drill Rig Total**	**1.68E-02**	**lb/hr**	**8.54E-03**	**tpy**			**Drill Rig Total**	**1.74E-02**	**lb/hr**	**8.99E-03**	**tpy**
Ice Breaker 1																	
Main Engine 1	515 hr/yr	426.4 gal/hr	8046 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	8.91E-03	lb/hr	2.29E-03	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	9.21E-03	lb/hr	2.37E-03	tpy
Main Engine 2	515 hr/yr	426.4 gal/hr	8046 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	8.91E-03	lb/hr	2.29E-03	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	9.21E-03	lb/hr	2.37E-03	tpy
Main Engine 3	515 hr/yr	319.8 gal/hr	6035 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.68E-03	lb/hr	1.72E-03	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.91E-03	lb/hr	1.78E-03	tpy
Main Engine 4	515 hr/yr	319.8 gal/hr	6035 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.68E-03	lb/hr	1.72E-03	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.91E-03	lb/hr	1.78E-03	tpy
Harbor Generator	35 hr/yr	50.4 gal/hr	952 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.05E-03	lb/hr	1.84E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.09E-03	lb/hr	1.91E-05	tpy
Emergency Generator	35 hr/yr	21.3 gal/hr	402 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	4.45E-04	lb/hr	7.79E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	4.60E-04	lb/hr	8.06E-06	tpy
Boiler 1	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	none							none						
Boiler 2	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	none							none						
Incinerator	515 hr/yr	175.0 lb/hr	N **A**	none							none						
			a Heat input rate			**Vessel Total**	**3.27E-02**	**lb/hr**	**8.06E-03**	**tpy**			**Vessel Total**	**3.38E-02**	**lb/hr**	**8.33E-03**	**tpy**
Ice Breaker 2																	
Main Engine 1	515 hr/yr	426.4 gal/hr	8046 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	8.91E-03	lb/hr	2.29E-03	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	9.21E-03	lb/hr	2.37E-03	tpy
Main Engine 2	515 hr/yr	426.4 gal/hr	8046 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	8.91E-03	lb/hr	2.29E-03	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	9.21E-03	lb/hr	2.37E-03	tpy
Main Engine 3	515 hr/yr	319.8 gal/hr	6035 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.68E-03	lb/hr	1.72E-03	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.91E-03	lb/hr	1.78E-03	tpy
Main Engine 4	515 hr/yr	319.8 gal/hr	6035 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.68E-03	lb/hr	1.72E-03	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.91E-03	lb/hr	1.78E-03	tpy
Harbor Generator	35 hr/yr	50.4 gal/hr	952 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.05E-03	lb/hr	1.84E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.09E-03	lb/hr	1.91E-05	tpy
Emergency Generator	35 hr/yr	21.3 gal/hr	402 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	4.45E-04	lb/hr	7.79E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	4.60E-04	lb/hr	8.06E-06	tpy
Boiler 1	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	none							none						
Boiler 2	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	none							none						
Incinerator	515 hr/yr	175.0 lb/hr	N **A**	none							none						
			a Heat input rate			**Vessel Total**	**3.27E-02**	**lb/hr**	**8.06E-03**	**tpy**			**Vessel Total**	**3.38E-02**	**lb/hr**	**8.33E-03**	**tpy**
Oil Spill Response Vessel 1 (Dedicated OSRV)																	
Main Engine 1	800 hr/yr	75.0 gal/hr	3000 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.57E-03	lb/hr	6.27E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.62E-03	lb/hr	6.48E-04	tpy
Main Engine 2	800 hr/yr	75.0 gal/hr	3000 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.57E-03	lb/hr	6.27E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.62E-03	lb/hr	6.48E-04	tpy
Thruster Engine 1	12 hr/yr	58.0 gal/hr	950 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.21E-03	lb/hr	7.27E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.25E-03	lb/hr	7.52E-06	tpy
Thruster Engine 2	12 hr/yr	58.0 gal/hr	950 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.21E-03	lb/hr	7.27E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.25E-03	lb/hr	7.52E-06	tpy
Thruster Engine 3	12 hr/yr	58.0 gal/hr	950 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.21E-03	lb/hr	7.27E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.25E-03	lb/hr	7.52E-06	tpy
Generator 1	2400 hr/yr	27.0 gal/hr	400 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.64E-04	lb/hr	6.77E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	5.83E-04	lb/hr	7.00E-04	tpy
Generator 2	300 hr/yr	27.0 gal/hr	400 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.64E-04	lb/hr	8.46E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	5.83E-04	lb/hr	8.75E-05	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.64E-04	lb/hr	0.00E+00	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	5.83E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.67E-04	lb/hr	2.51E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.73E-04	lb/hr	2.59E-06	tpy
						Vessel Total	**8.63E-03**	**lb/hr**	**2.04E-03**	**tpy**			**Vessel Total**	**8.92E-03**	**lb/hr**	**2.11E-03**	**tpy**
Oil Spill Response Vessel 2																	
Main Engine 1	60 hr/yr	75.0 gal/hr	3000 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.57E-03	lb/hr	4.70E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.62E-03	lb/hr	4.86E-05	tpy
Main Engine 2	60 hr/yr	75.0 gal/hr	3000 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.57E-03	lb/hr	4.70E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.62E-03	lb/hr	4.86E-05	tpy
Thruster Engine 1	48 hr/yr	58.0 gal/hr	950 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.21E-03	lb/hr	2.91E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.25E-03	lb/hr	3.01E-05	tpy
Thruster Engine 2	48 hr/yr	58.0 gal/hr	950 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.21E-03	lb/hr	2.91E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.25E-03	lb/hr	3.01E-05	tpy
Thruster Engine 3	48 hr/yr	58.0 gal/hr	950 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.21E-03	lb/hr	2.91E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.25E-03	lb/hr	3.01E-05	tpy
Generator 1	60 hr/yr	27.0 gal/hr	400 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.64E-04	lb/hr	1.69E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	5.83E-04	lb/hr	1.75E-05	tpy
Generator 2	30 hr/yr	27.0 gal/hr	400 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.64E-04	lb/hr	8.46E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	5.83E-04	lb/hr	8.75E-06	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.64E-04	lb/hr	0.00E+00	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	5.83E-04	lb/hr	0.00E+00	tpy
Emergency Generator	2 hr/yr	8.0 gal/hr	99 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.67E-04	lb/hr	1.67E-07	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.73E-04	lb/hr	1.73E-07	tpy
						Vessel Total	**8.63E-03**	**lb/hr**	**2.07E-04**	**tpy**			**Vessel Total**	**8.92E-03**	**lb/hr**	**2.14E-04**	**tpy**

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Arsenic Compounds (inorganic including arsine)							Beryllium Compounds						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Drill Rig Equipment																	
Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.67E-04	lb/hr	1.60E-04	tpy	none						
Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.67E-04	lb/hr	1.60E-04	tpy	none						
Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.67E-04	lb/hr	1.60E-04	tpy	none						
Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.67E-04	lb/hr	1.60E-04	tpy	none						
Emergency Back-up Engine	75 hr/yr	205.0 g fuel/kWh	968 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.04E-04	lb/hr	3.89E-06	tpy	none						
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.64E-05	lb/hr	3.04E-06	tpy	none						
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.64E-05	lb/hr	3.04E-06	tpy	none						
Logging Winch	273 hr/yr	13.3 gal/hr	187 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.13E-05	lb/hr	2.90E-06	tpy	none						
Heater 1	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	4.00E+00	lb/10^12 Btu	AP-42 1.3-9	1.40E-05	lb/hr	1.68E-05	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-9	1.05E-05	lb/hr	1.26E-05	tpy
Heater 2	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	4.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.40E-05	lb/hr	1.68E-05	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.05E-05	lb/hr	1.26E-05	tpy
Incinerator	65 tons/yr	276.0 lbs/hr	N **A**	4.37E-03	lb/ton	AP-42 2.1-2	6.03E-04	lb/hr	7.24E-04	tpy	none						
Fuel Tank 1	2400 hrs/yr	471940.6 gal/yr*	N **A**	none							none						
Fuel Tank 2	2400 hrs/yr	471940.6 gal/yr*	N **A**	none							none						
Mud Degassing	100 days/yr	N A	20000 **scf/day**	none							none						
			a Heat input rate			**Drill Rig Total**	**1.92E-03**	**lb/hr**	**1.41E-03**	**tpy**			**Drill Rig Total**	**2.10E-05**	**lb/hr**	**2.52E-05**	**tpy**
Ice Breaker 1																	
Main Engine 1	515 hr/yr	426.4 gal/hr	8046 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	6.82E-04	lb/hr	1.76E-04	tpy	none						
Main Engine 2	515 hr/yr	426.4 gal/hr	8046 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	6.82E-04	lb/hr	1.76E-04	tpy	none						
Main Engine 3	515 hr/yr	319.8 gal/hr	6035 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	5.12E-04	lb/hr	1.32E-04	tpy	none						
Main Engine 4	515 hr/yr	319.8 gal/hr	6035 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	5.12E-04	lb/hr	1.32E-04	tpy	none						
Harbor Generator	35 hr/yr	50.4 gal/hr	952 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	8.07E-05	lb/hr	1.41E-06	tpy	none						
Emergency Generator	35 hr/yr	21.3 gal/hr	402 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	3.41E-05	lb/hr	5.97E-07	tpy	none						
Boiler 1	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	4.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.48E-05	lb/hr	3.81E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	2.86E-06	tpy
Boiler 2	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	4.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.48E-05	lb/hr	3.81E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	2.86E-06	tpy
Incinerator	515 hr/yr	175.0 lb/hr	N **A**	4.37E-03	lb/ton	AP-42 2.1-2	3.82E-04	lb/hr	9.85E-05	tpy	none						
			a Heat input rate			**Vessel Total**	**2.91E-03**	**lb/hr**	**7.23E-04**	**tpy**			**Vessel Total**	**2.22E-05**	**lb/hr**	**5.71E-06**	**tpy**
Ice Breaker 2																	
Main Engine 1	515 hr/yr	426.4 gal/hr	8046 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	6.82E-04	lb/hr	1.76E-04	tpy	none						
Main Engine 2	515 hr/yr	426.4 gal/hr	8046 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	6.82E-04	lb/hr	1.76E-04	tpy	none						
Main Engine 3	515 hr/yr	319.8 gal/hr	6035 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	5.12E-04	lb/hr	1.32E-04	tpy	none						
Main Engine 4	515 hr/yr	319.8 gal/hr	6035 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	5.12E-04	lb/hr	1.32E-04	tpy	none						
Harbor Generator	35 hr/yr	50.4 gal/hr	952 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	8.07E-05	lb/hr	1.41E-06	tpy	none						
Emergency Generator	35 hr/yr	21.3 gal/hr	402 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	3.41E-05	lb/hr	5.97E-07	tpy	none						
Boiler 1	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	4.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.48E-05	lb/hr	3.81E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	2.86E-06	tpy
Boiler 2	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	4.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.48E-05	lb/hr	3.81E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	2.86E-06	tpy
Incinerator	515 hr/yr	175.0 lb/hr	N **A**	4.37E-03	lb/ton	AP-42 2.1-2	3.82E-04	lb/hr	9.85E-05	tpy	none						
			a Heat input rate			**Vessel Total**	**2.91E-03**	**lb/hr**	**7.23E-04**	**tpy**			**Vessel Total**	**2.22E-05**	**lb/hr**	**5.71E-06**	**tpy**
Oil Spill Response Vessel 1 (Dedicated OSRV)																	
Main Engine 1	800 hr/yr	75.0 gal/hr	3000 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.20E-04	lb/hr	4.80E-05	tpy	none						
Main Engine 2	800 hr/yr	75.0 gal/hr	3000 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.20E-04	lb/hr	4.80E-05	tpy	none						
Thruster Engine 1	12 hr/yr	58.0 gal/hr	950 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	9.28E-05	lb/hr	5.57E-07	tpy	none						
Thruster Engine 2	12 hr/yr	58.0 gal/hr	950 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	9.28E-05	lb/hr	5.57E-07	tpy	none						
Thruster Engine 3	12 hr/yr	58.0 gal/hr	950 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	9.28E-05	lb/hr	5.57E-07	tpy	none						
Generator 1	2400 hr/yr	27.0 gal/hr	400 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.32E-05	lb/hr	5.18E-05	tpy	none						
Generator 2	300 hr/yr	27.0 gal/hr	400 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.32E-05	lb/hr	6.48E-06	tpy	none						
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.32E-05	lb/hr	0.00E+00	tpy	none						
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.28E-05	lb/hr	1.92E-07	tpy	none						
						Vessel Total	**6.61E-04**	**lb/hr**	**1.56E-04**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**
Oil Spill Response Vessel 2																	
Main Engine 1	60 hr/yr	75.0 gal/hr	3000 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.20E-04	lb/hr	3.60E-06	tpy	none						
Main Engine 2	60 hr/yr	75.0 gal/hr	3000 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.20E-04	lb/hr	3.60E-06	tpy	none						
Thruster Engine 1	48 hr/yr	58.0 gal/hr	950 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	9.28E-05	lb/hr	2.23E-06	tpy	none						
Thruster Engine 2	48 hr/yr	58.0 gal/hr	950 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	9.28E-05	lb/hr	2.23E-06	tpy	none						
Thruster Engine 3	48 hr/yr	58.0 gal/hr	950 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	9.28E-05	lb/hr	2.23E-06	tpy	none						
Generator 1	60 hr/yr	27.0 gal/hr	400 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.32E-05	lb/hr	1.30E-06	tpy	none						
Generator 2	30 hr/yr	27.0 gal/hr	400 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.32E-05	lb/hr	6.48E-07	tpy	none						
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.32E-05	lb/hr	0.00E+00	tpy	none						
Emergency Generator	2 hr/yr	8.0 gal/hr	99 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.28E-05	lb/hr	1.28E-08	tpy	none						
						Vessel Total	**6.61E-04**	**lb/hr**	**1.58E-05**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Cadmium Compounds							Chromium Compounds						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Drill Rig Equipment																	
Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	2.50E-04	lb/hr	1.50E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	7.01E-05	tpy
Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	2.50E-04	lb/hr	1.50E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	7.01E-05	tpy
Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	2.50E-04	lb/hr	1.50E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	7.01E-05	tpy
Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	2.50E-04	lb/hr	1.50E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	7.01E-05	tpy
Emergency Back-up Engine	75 hr/yr	205.0 g fuel/kWh	968 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	9.74E-05	lb/hr	3.65E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.54E-05	lb/hr	1.70E-06	tpy
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.35E-05	lb/hr	2.85E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.03E-05	lb/hr	1.33E-06	tpy
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.35E-05	lb/hr	2.85E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.03E-05	lb/hr	1.33E-06	tpy
Logging Winch	273 hr/yr	13.3 gal/hr	187 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.99E-05	lb/hr	2.72E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	9.30E-06	lb/hr	1.27E-06	tpy
Heater 1	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	3.00E+00	lb/10^12 Btu	AP-42 1.3-9	1.05E-05	lb/hr	1.26E-05	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-9	1.05E-05	lb/hr	1.26E-05	tpy
Heater 2	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.05E-05	lb/hr	1.26E-05	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.05E-05	lb/hr	1.26E-05	tpy
Incinerator	65 tons/yr	276.0 lbs/hr	N **A**	1.09E-02	lb/ton	AP-42 2.1-2	1.50E-03	lb/hr	1.81E-03	tpy	8.97E-03	lb/ton	AP-42 2.1-2	1.24E-03	lb/hr	1.49E-03	tpy
Fuel Tank 1	2400 hrs/yr	471940.6 gal/yr*	N **A**	none							none						
Fuel Tank 2	2400 hrs/yr	471940.6 gal/yr*	N **A**	none							none						
Mud Degassing	100 days/yr	N A	20000 **scf/day**	none							none						
			a Heat input rate			**Drill Rig Total**	**2.73E-03**	**lb/hr**	**2.44E-03**	**tpy**			**Drill Rig Total**	**1.82E-03**	**lb/hr**	**1.80E-03**	**tpy**
Ice Breaker 1																	
Main Engine 1	515 hr/yr	426.4 gal/hr	8046 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	6.40E-04	lb/hr	1.65E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.98E-04	lb/hr	7.69E-05	tpy
Main Engine 2	515 hr/yr	426.4 gal/hr	8046 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	6.40E-04	lb/hr	1.65E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.98E-04	lb/hr	7.69E-05	tpy
Main Engine 3	515 hr/yr	319.8 gal/hr	6035 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.80E-04	lb/hr	1.24E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	5.76E-05	tpy
Main Engine 4	515 hr/yr	319.8 gal/hr	6035 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.80E-04	lb/hr	1.24E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	5.76E-05	tpy
Harbor Generator	35 hr/yr	50.4 gal/hr	952 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	7.57E-05	lb/hr	1.32E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	3.53E-05	lb/hr	6.18E-07	tpy
Emergency Generator	35 hr/yr	21.3 gal/hr	402 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	3.20E-05	lb/hr	5.59E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.49E-05	lb/hr	2.61E-07	tpy
Boiler 1	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	2.86E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	2.86E-06	tpy
Boiler 2	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	2.86E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	2.86E-06	tpy
Incinerator	515 hr/yr	175.0 lb/hr	N **A**	1.09E-02	lb/ton	AP-42 2.1-2	9.54E-04	lb/hr	2.46E-04	tpy	8.97E-03	lb/ton	AP-42 2.1-2	7.85E-04	lb/hr	2.02E-04	tpy
			a Heat input rate			**Vessel Total**	**3.32E-03**	**lb/hr**	**8.30E-04**	**tpy**			**Vessel Total**	**1.90E-03**	**lb/hr**	**4.78E-04**	**tpy**
Ice Breaker 2																	
Main Engine 1	515 hr/yr	426.4 gal/hr	8046 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	6.40E-04	lb/hr	1.65E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.98E-04	lb/hr	7.69E-05	tpy
Main Engine 2	515 hr/yr	426.4 gal/hr	8046 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	6.40E-04	lb/hr	1.65E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.98E-04	lb/hr	7.69E-05	tpy
Main Engine 3	515 hr/yr	319.8 gal/hr	6035 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.80E-04	lb/hr	1.24E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	5.76E-05	tpy
Main Engine 4	515 hr/yr	319.8 gal/hr	6035 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.80E-04	lb/hr	1.24E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	5.76E-05	tpy
Harbor Generator	35 hr/yr	50.4 gal/hr	952 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	7.57E-05	lb/hr	1.32E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	3.53E-05	lb/hr	6.18E-07	tpy
Emergency Generator	35 hr/yr	21.3 gal/hr	402 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	3.20E-05	lb/hr	5.59E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.49E-05	lb/hr	2.61E-07	tpy
Boiler 1	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	2.86E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	2.86E-06	tpy
Boiler 2	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	2.86E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	2.86E-06	tpy
Incinerator	515 hr/yr	175.0 lb/hr	N **A**	1.09E-02	lb/ton	AP-42 2.1-2	9.54E-04	lb/hr	2.46E-04	tpy	8.97E-03	lb/ton	AP-42 2.1-2	7.85E-04	lb/hr	2.02E-04	tpy
			a Heat input rate			**Vessel Total**	**3.32E-03**	**lb/hr**	**8.30E-04**	**tpy**			**Vessel Total**	**1.90E-03**	**lb/hr**	**4.78E-04**	**tpy**
Oil Spill Response Vessel 1 (Dedicated OSRV)																	
Main Engine 1	800 hr/yr	75.0 gal/hr	3000 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.13E-04	lb/hr	4.50E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.25E-05	lb/hr	2.10E-05	tpy
Main Engine 2	800 hr/yr	75.0 gal/hr	3000 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.13E-04	lb/hr	4.50E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.25E-05	lb/hr	2.10E-05	tpy
Thruster Engine 1	12 hr/yr	58.0 gal/hr	950 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	8.70E-05	lb/hr	5.22E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.06E-05	lb/hr	2.44E-07	tpy
Thruster Engine 2	12 hr/yr	58.0 gal/hr	950 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	8.70E-05	lb/hr	5.22E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.06E-05	lb/hr	2.44E-07	tpy
Thruster Engine 3	12 hr/yr	58.0 gal/hr	950 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	8.70E-05	lb/hr	5.22E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.06E-05	lb/hr	2.44E-07	tpy
Generator 1	2400 hr/yr	27.0 gal/hr	400 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.05E-05	lb/hr	4.86E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.89E-05	lb/hr	2.27E-05	tpy
Generator 2	300 hr/yr	27.0 gal/hr	400 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.05E-05	lb/hr	6.08E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.89E-05	lb/hr	2.84E-06	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.05E-05	lb/hr	0.00E+00	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.89E-05	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.20E-05	lb/hr	1.80E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.60E-06	lb/hr	8.40E-08	tpy
						Vessel Total	**6.20E-04**	**lb/hr**	**1.46E-04**	**tpy**			**Vessel Total**	**2.89E-04**	**lb/hr**	**6.83E-05**	**tpy**
Oil Spill Response Vessel 2																	
Main Engine 1	60 hr/yr	75.0 gal/hr	3000 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.13E-04	lb/hr	3.38E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.25E-05	lb/hr	1.58E-06	tpy
Main Engine 2	60 hr/yr	75.0 gal/hr	3000 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.13E-04	lb/hr	3.38E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.25E-05	lb/hr	1.58E-06	tpy
Thruster Engine 1	48 hr/yr	58.0 gal/hr	950 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	8.70E-05	lb/hr	2.09E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.06E-05	lb/hr	9.74E-07	tpy
Thruster Engine 2	48 hr/yr	58.0 gal/hr	950 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	8.70E-05	lb/hr	2.09E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.06E-05	lb/hr	9.74E-07	tpy
Thruster Engine 3	48 hr/yr	58.0 gal/hr	950 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	8.70E-05	lb/hr	2.09E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.06E-05	lb/hr	9.74E-07	tpy
Generator 1	60 hr/yr	27.0 gal/hr	400 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.05E-05	lb/hr	1.22E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.89E-05	lb/hr	5.67E-07	tpy
Generator 2	30 hr/yr	27.0 gal/hr	400 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.05E-05	lb/hr	6.08E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.89E-05	lb/hr	2.84E-07	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.05E-05	lb/hr	0.00E+00	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.89E-05	lb/hr	0.00E+00	tpy
Emergency Generator	2 hr/yr	8.0 gal/hr	99 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.20E-05	lb/hr	1.20E-08	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.60E-06	lb/hr	5.60E-09	tpy
						Vessel Total	**6.20E-04**	**lb/hr**	**1.48E-05**	**tpy**			**Vessel Total**	**2.89E-04**	**lb/hr**	**6.93E-06**	**tpy**

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit Description	Allowable Operation	Maximum Fuel Usage	Maximum	Lead Compounds Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Manganese Compounds Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Drill Rig Equipment																	
Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.39E-03	lb/hr	8.31E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	5.18E-04	lb/hr	3.11E-04	tpy
Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.39E-03	lb/hr	8.31E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	5.18E-04	lb/hr	3.11E-04	tpy
Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.39E-03	lb/hr	8.31E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	5.18E-04	lb/hr	3.11E-04	tpy
Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.39E-03	lb/hr	8.31E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	5.18E-04	lb/hr	3.11E-04	tpy
Emergency Back-up Engine	75 hr/yr	205.0 g fuel/kWh	968 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	5.39E-04	lb/hr	2.02E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.01E-04	lb/hr	7.55E-06	tpy
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.41E-04	lb/hr	1.58E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.99E-05	lb/hr	5.89E-06	tpy
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.41E-04	lb/hr	1.58E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.99E-05	lb/hr	5.89E-06	tpy
Logging Winch	273 hr/yr	13.3 gal/hr	187 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.10E-04	lb/hr	1.50E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	4.12E-05	lb/hr	5.62E-06	tpy
Heater 1	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	9.00E+00	lb/10^12 Btu	AP-42 1.3-9	3.15E-05	lb/hr	3.78E-05	tpy	9.00E+00	lb/10^12 Btu	AP-42 1.3-9	3.15E-05	lb/hr	3.78E-05	tpy
Heater 2	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	9.00E+00	lb/10^12 Btu	AP-42 1.3-10	3.15E-05	lb/hr	3.78E-05	tpy	6.00E+00	lb/10^12 Btu	AP-42 1.3-10	2.10E-05	lb/hr	2.52E-05	tpy
Incinerator	65 tons/yr	276.0 lbs/hr	N **A**	2.13E-01	lb/ton	AP-42 2.1-2	2.94E-02	lb/hr	3.53E-02	tpy	none						
Fuel Tank 1	2400 hrs/yr	471940.6 gal/yr*	N **A**	none							none						
Fuel Tank 2	2400 hrs/yr	471940.6 gal/yr*	N **A**	none							none						
Mud Degassing	100 days/yr	N A	20000 **scf/day**	none							none						
			a Heat input rate			**Drill Rig Total**	**3.61E-02**	**lb/hr**	**3.87E-02**	**tpy**			**Drill Rig Total**	**2.54E-03**	**lb/hr**	**1.33E-03**	**tpy**
Ice Breaker 1																	
Main Engine 1	515 hr/yr	426.4 gal/hr	8046 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	3.54E-03	lb/hr	9.11E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.32E-03	lb/hr	3.40E-04	tpy
Main Engine 2	515 hr/yr	426.4 gal/hr	8046 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	3.54E-03	lb/hr	9.11E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.32E-03	lb/hr	3.40E-04	tpy
Main Engine 3	515 hr/yr	319.8 gal/hr	6035 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.65E-03	lb/hr	6.84E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.91E-04	lb/hr	2.55E-04	tpy
Main Engine 4	515 hr/yr	319.8 gal/hr	6035 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.65E-03	lb/hr	6.84E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.91E-04	lb/hr	2.55E-04	tpy
Harbor Generator	35 hr/yr	50.4 gal/hr	952 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.19E-04	lb/hr	7.33E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.56E-04	lb/hr	2.74E-06	tpy
Emergency Generator	35 hr/yr	21.3 gal/hr	402 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.77E-04	lb/hr	3.10E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	6.61E-05	lb/hr	1.16E-06	tpy
Boiler 1	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	9.00E+00	lb/10^12 Btu	AP-42 1.3-10	3.33E-05	lb/hr	8.57E-06	tpy	0.00E+00	0.00E+00	AP-42 1.3-10	0.00E+00	lb/hr	0.00E+00	tpy
Boiler 2	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	9.00E+00	lb/10^12 Btu	AP-42 1.3-10	3.33E-05	lb/hr	8.57E-06	tpy	0.00E+00	0.00E+00	AP-42 1.3-10	0.00E+00	lb/hr	0.00E+00	tpy
Incinerator	515 hr/yr	175.0 lb/hr	N **A**	2.13E-01	lb/ton	AP-42 2.1-2	1.86E-02	lb/hr	4.80E-03	tpy	none						
			a Heat input rate			**Vessel Total**	**3.17E-02**	**lb/hr**	**8.02E-03**	**tpy**			**Vessel Total**	**4.85E-03**	**lb/hr**	**1.20E-03**	**tpy**
Ice Breaker 2																	
Main Engine 1	515 hr/yr	426.4 gal/hr	8046 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	3.54E-03	lb/hr	9.11E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.32E-03	lb/hr	3.40E-04	tpy
Main Engine 2	515 hr/yr	426.4 gal/hr	8046 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	3.54E-03	lb/hr	9.11E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.32E-03	lb/hr	3.40E-04	tpy
Main Engine 3	515 hr/yr	319.8 gal/hr	6035 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.65E-03	lb/hr	6.84E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.91E-04	lb/hr	2.55E-04	tpy
Main Engine 4	515 hr/yr	319.8 gal/hr	6035 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.65E-03	lb/hr	6.84E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.91E-04	lb/hr	2.55E-04	tpy
Harbor Generator	35 hr/yr	50.4 gal/hr	952 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.19E-04	lb/hr	7.33E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.56E-04	lb/hr	2.74E-06	tpy
Emergency Generator	35 hr/yr	21.3 gal/hr	402 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.77E-04	lb/hr	3.10E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	6.61E-05	lb/hr	1.16E-06	tpy
Boiler 1	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	9.00E+00	lb/10^12 Btu	AP-42 1.3-10	3.33E-05	lb/hr	8.57E-06	tpy	0.00E+00	0.00E+00	AP-42 1.3-10	0.00E+00	lb/hr	0.00E+00	tpy
Boiler 2	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	9.00E+00	lb/10^12 Btu	AP-42 1.3-10	3.33E-05	lb/hr	8.57E-06	tpy	0.00E+00	0.00E+00	AP-42 1.3-10	0.00E+00	lb/hr	0.00E+00	tpy
Incinerator	515 hr/yr	175.0 lb/hr	N **A**	2.13E-01	lb/ton	AP-42 2.1-2	1.86E-02	lb/hr	4.80E-03	tpy	none						
			a Heat input rate			**Vessel Total**	**3.17E-02**	**lb/hr**	**8.02E-03**	**tpy**			**Vessel Total**	**4.85E-03**	**lb/hr**	**1.20E-03**	**tpy**
Oil Spill Response Vessel 1 (Dedicated OSRV)																	
Main Engine 1	800 hr/yr	75.0 gal/hr	3000 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	6.23E-04	lb/hr	2.49E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.33E-04	lb/hr	9.30E-05	tpy
Main Engine 2	800 hr/yr	75.0 gal/hr	3000 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	6.23E-04	lb/hr	2.49E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.33E-04	lb/hr	9.30E-05	tpy
Thruster Engine 1	12 hr/yr	58.0 gal/hr	950 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.81E-04	lb/hr	2.89E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.80E-04	lb/hr	1.08E-06	tpy
Thruster Engine 2	12 hr/yr	58.0 gal/hr	950 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.81E-04	lb/hr	2.89E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.80E-04	lb/hr	1.08E-06	tpy
Thruster Engine 3	12 hr/yr	58.0 gal/hr	950 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.81E-04	lb/hr	2.89E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.80E-04	lb/hr	1.08E-06	tpy
Generator 1	2400 hr/yr	27.0 gal/hr	400 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	2.69E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.37E-05	lb/hr	1.00E-04	tpy
Generator 2	300 hr/yr	27.0 gal/hr	400 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	3.36E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.37E-05	lb/hr	1.26E-05	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	0.00E+00	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.37E-05	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	6.64E-05	lb/hr	9.96E-07	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.48E-05	lb/hr	3.72E-07	tpy
						Vessel Total	**3.43E-03**	**lb/hr**	**8.10E-04**	**tpy**			**Vessel Total**	**1.28E-03**	**lb/hr**	**3.03E-04**	**tpy**
Oil Spill Response Vessel 2																	
Main Engine 1	60 hr/yr	75.0 gal/hr	3000 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	6.23E-04	lb/hr	1.87E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.33E-04	lb/hr	6.98E-06	tpy
Main Engine 2	60 hr/yr	75.0 gal/hr	3000 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	6.23E-04	lb/hr	1.87E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.33E-04	lb/hr	6.98E-06	tpy
Thruster Engine 1	48 hr/yr	58.0 gal/hr	950 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.81E-04	lb/hr	1.16E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.80E-04	lb/hr	4.32E-06	tpy
Thruster Engine 2	48 hr/yr	58.0 gal/hr	950 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.81E-04	lb/hr	1.16E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.80E-04	lb/hr	4.32E-06	tpy
Thruster Engine 3	48 hr/yr	58.0 gal/hr	950 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.81E-04	lb/hr	1.16E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.80E-04	lb/hr	4.32E-06	tpy
Generator 1	60 hr/yr	27.0 gal/hr	400 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	6.72E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.37E-05	lb/hr	2.51E-06	tpy
Generator 2	30 hr/yr	27.0 gal/hr	400 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	3.36E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.37E-05	lb/hr	1.26E-06	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	0.00E+00	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.37E-05	lb/hr	0.00E+00	tpy
Emergency Generator	2 hr/yr	8.0 gal/hr	99 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	6.64E-05	lb/hr	6.64E-08	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.48E-05	lb/hr	2.48E-08	tpy
						Vessel Total	**3.43E-03**	**lb/hr**	**8.22E-05**	**tpy**			**Vessel Total**	**1.28E-03**	**lb/hr**	**3.07E-05**	**tpy**

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Mercury Compounds							Nickel Compounds						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Drill Rig Equipment																	
Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	3.34E-04	lb/hr	2.00E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	6.51E-04	lb/hr	3.91E-04	tpy
Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	3.34E-04	lb/hr	2.00E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	6.51E-04	lb/hr	3.91E-04	tpy
Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	3.34E-04	lb/hr	2.00E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	6.51E-04	lb/hr	3.91E-04	tpy
Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	3.34E-04	lb/hr	2.00E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	6.51E-04	lb/hr	3.91E-04	tpy
Emergency Back-up Engine	75 hr/yr	205.0 g fuel/kWh	968 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.30E-04	lb/hr	4.87E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.53E-04	lb/hr	9.49E-06	tpy
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.80E-05	lb/hr	3.80E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.13E-04	lb/hr	7.41E-06	tpy
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.80E-05	lb/hr	3.80E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.13E-04	lb/hr	7.41E-06	tpy
Logging Winch	273 hr/yr	13.3 gal/hr	187 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	2.66E-05	lb/hr	3.63E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	5.18E-05	lb/hr	7.07E-06	tpy
Heater 1	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	3.00E+00	lb/10^12 Btu	AP-42 1.3-9	1.05E-05	lb/hr	1.26E-05	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-9	1.05E-05	lb/hr	1.26E-05	tpy
Heater 2	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.05E-05	lb/hr	1.26E-05	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.05E-05	lb/hr	1.26E-05	tpy
Incinerator	65 tons/yr	276.0 lbs/hr	N **A**	5.60E-03	lb/ton	AP-42 2.1-2	7.73E-04	lb/hr	6.72E-03	tpy	7.85E-03	lb/ton	AP-42 2.1-2	1.08E-03	lb/hr	1.30E-03	tpy
Fuel Tank 1	2400 hrs/yr	471940.6 gal/yr*	N **A**	none							none						
Fuel Tank 2	2400 hrs/yr	471940.6 gal/yr*	N **A**	none							none						
Mud Degassing	100 days/yr	N A	20000 **scf/day**	none							none						
			a Heat input rate			**Drill Rig Total**	**2.40E-03**	**lb/hr**	**7.56E-03**	**tpy**			**Drill Rig Total**	**4.24E-03**	**lb/hr**	**2.92E-03**	**tpy**
Ice Breaker 1																	
Main Engine 1	515 hr/yr	426.4 gal/hr	8046 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	8.53E-04	lb/hr	2.20E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.66E-03	lb/hr	4.28E-04	tpy
Main Engine 2	515 hr/yr	426.4 gal/hr	8046 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	8.53E-04	lb/hr	2.20E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.66E-03	lb/hr	4.28E-04	tpy
Main Engine 3	515 hr/yr	319.8 gal/hr	6035 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.40E-04	lb/hr	1.65E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.25E-03	lb/hr	3.21E-04	tpy
Main Engine 4	515 hr/yr	319.8 gal/hr	6035 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.40E-04	lb/hr	1.65E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.25E-03	lb/hr	3.21E-04	tpy
Harbor Generator	35 hr/yr	50.4 gal/hr	952 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.01E-04	lb/hr	1.77E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.97E-04	lb/hr	3.44E-06	tpy
Emergency Generator	35 hr/yr	21.3 gal/hr	402 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	4.26E-05	lb/hr	7.46E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	8.31E-05	lb/hr	1.45E-06	tpy
Boiler 1	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	2.86E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	2.86E-06	tpy
Boiler 2	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	2.86E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	2.86E-06	tpy
Incinerator	515 hr/yr	175.0 lb/hr	N **A**	5.60E-03	lb/ton	AP-42 2.1-2	4.90E-04	lb/hr	1.44E-03	tpy	7.85E-03	lb/ton	AP-42 2.1-2	6.87E-04	lb/hr	1.77E-04	tpy
			a Heat input rate			**Vessel Total**	**3.64E-03**	**lb/hr**	**2.22E-03**	**tpy**			**Vessel Total**	**6.81E-03**	**lb/hr**	**1.69E-03**	**tpy**
Ice Breaker 2																	
Main Engine 1	515 hr/yr	426.4 gal/hr	8046 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	8.53E-04	lb/hr	2.20E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.66E-03	lb/hr	4.28E-04	tpy
Main Engine 2	515 hr/yr	426.4 gal/hr	8046 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	8.53E-04	lb/hr	2.20E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.66E-03	lb/hr	4.28E-04	tpy
Main Engine 3	515 hr/yr	319.8 gal/hr	6035 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.40E-04	lb/hr	1.65E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.25E-03	lb/hr	3.21E-04	tpy
Main Engine 4	515 hr/yr	319.8 gal/hr	6035 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.40E-04	lb/hr	1.65E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.25E-03	lb/hr	3.21E-04	tpy
Harbor Generator	35 hr/yr	50.4 gal/hr	952 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.01E-04	lb/hr	1.77E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.97E-04	lb/hr	3.44E-06	tpy
Emergency Generator	35 hr/yr	21.3 gal/hr	402 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	4.26E-05	lb/hr	7.46E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	8.31E-05	lb/hr	1.45E-06	tpy
Boiler 1	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	2.86E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	2.86E-06	tpy
Boiler 2	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	2.86E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	2.86E-06	tpy
Incinerator	515 hr/yr	175.0 lb/hr	N **A**	5.60E-03	lb/ton	AP-42 2.1-2	4.90E-04	lb/hr	1.44E-03	tpy	7.85E-03	lb/ton	AP-42 2.1-2	6.87E-04	lb/hr	1.77E-04	tpy
			a Heat input rate			**Vessel Total**	**3.64E-03**	**lb/hr**	**2.22E-03**	**tpy**			**Vessel Total**	**6.81E-03**	**lb/hr**	**1.69E-03**	**tpy**
Oil Spill Response Vessel 1 (Dedicated OSRV)																	
Main Engine 1	800 hr/yr	75.0 gal/hr	3000 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.50E-04	lb/hr	6.00E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.93E-04	lb/hr	1.17E-04	tpy
Main Engine 2	800 hr/yr	75.0 gal/hr	3000 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.50E-04	lb/hr	6.00E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.93E-04	lb/hr	1.17E-04	tpy
Thruster Engine 1	12 hr/yr	58.0 gal/hr	950 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.16E-04	lb/hr	6.96E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.26E-04	lb/hr	1.36E-06	tpy
Thruster Engine 2	12 hr/yr	58.0 gal/hr	950 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.16E-04	lb/hr	6.96E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.26E-04	lb/hr	1.36E-06	tpy
Thruster Engine 3	12 hr/yr	58.0 gal/hr	950 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.16E-04	lb/hr	6.96E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.26E-04	lb/hr	1.36E-06	tpy
Generator 1	2400 hr/yr	27.0 gal/hr	400 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.40E-05	lb/hr	6.48E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.05E-04	lb/hr	1.26E-04	tpy
Generator 2	300 hr/yr	27.0 gal/hr	400 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.40E-05	lb/hr	8.10E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.05E-04	lb/hr	1.58E-05	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.40E-05	lb/hr	0.00E+00	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.05E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.60E-05	lb/hr	2.40E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.12E-05	lb/hr	4.68E-07	tpy
						Vessel Total	**8.26E-04**	**lb/hr**	**1.95E-04**	**tpy**			**Vessel Total**	**1.61E-03**	**lb/hr**	**3.81E-04**	**tpy**
Oil Spill Response Vessel 2																	
Main Engine 1	60 hr/yr	75.0 gal/hr	3000 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.50E-04	lb/hr	4.50E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.93E-04	lb/hr	8.78E-06	tpy
Main Engine 2	60 hr/yr	75.0 gal/hr	3000 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.50E-04	lb/hr	4.50E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.93E-04	lb/hr	8.78E-06	tpy
Thruster Engine 1	48 hr/yr	58.0 gal/hr	950 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.16E-04	lb/hr	2.78E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.26E-04	lb/hr	5.43E-06	tpy
Thruster Engine 2	48 hr/yr	58.0 gal/hr	950 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.16E-04	lb/hr	2.78E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.26E-04	lb/hr	5.43E-06	tpy
Thruster Engine 3	48 hr/yr	58.0 gal/hr	950 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.16E-04	lb/hr	2.78E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.26E-04	lb/hr	5.43E-06	tpy
Generator 1	60 hr/yr	27.0 gal/hr	400 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.40E-05	lb/hr	1.62E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.05E-04	lb/hr	3.16E-06	tpy
Generator 2	30 hr/yr	27.0 gal/hr	400 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.40E-05	lb/hr	8.10E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.05E-04	lb/hr	1.58E-06	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.40E-05	lb/hr	0.00E+00	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.05E-04	lb/hr	0.00E+00	tpy
Emergency Generator	2 hr/yr	8.0 gal/hr	99 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.60E-05	lb/hr	1.60E-08	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.12E-05	lb/hr	3.12E-08	tpy
						Vessel Total	**8.26E-04**	**lb/hr**	**1.98E-05**	**tpy**			**Vessel Total**	**1.61E-03**	**lb/hr**	**3.86E-05**	**tpy**

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Polycyclic Organic Matter (See notes 13 & 14)							Selenium Compounds						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Drill Rig Equipment																	
Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	4.68E-03	lb/hr	2.81E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.67E-04	lb/hr	2.20E-04	tpy
Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	4.68E-03	lb/hr	2.81E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.67E-04	lb/hr	2.20E-04	tpy
Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	4.68E-03	lb/hr	2.81E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.67E-04	lb/hr	2.20E-04	tpy
Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	4.68E-03	lb/hr	2.81E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.67E-04	lb/hr	2.20E-04	tpy
Emergency Back-up Engine	75 hr/yr	205.0 g fuel/kWh	968 **kW**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.82E-03	lb/hr	6.82E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.43E-04	lb/hr	5.35E-06	tpy
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.44E-04	lb/hr	4.22E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	6.38E-05	lb/hr	4.18E-06	tpy
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.44E-04	lb/hr	4.22E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	6.38E-05	lb/hr	4.18E-06	tpy
Logging Winch	273 hr/yr	13.3 gal/hr	187 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.95E-04	lb/hr	4.02E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	2.92E-05	lb/hr	3.99E-06	tpy
Heater 1	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	3.30E-03	lbs/Mgal	AP-42 1.3-7	8.74E-05	lb/hr	1.05E-04	tpy	1.50E+01	lb/10^12 Btu	AP-42 1.3-9	5.25E-05	lb/hr	6.30E-05	tpy
Heater 2	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**	3.30E-03	lbs/Mgal	AP-42 1.3-8	8.74E-05	lb/hr	1.05E-04	tpy	1.50E+01	lb/10^12 Btu	AP-42 1.3-10	5.25E-05	lb/hr	6.30E-05	tpy
Incinerator	65 tons/yr	276.0 lbs/hr	N **A**	none							none						
Fuel Tank 1	2400 hrs/yr	471940.6 gal/yr*	N **A**	N A		EPA TANKS	2.083E-08	lb/hr	0.00005	tpy	none						
Fuel Tank 2	2400 hrs/yr	471940.6 gal/yr*	N **A**	N A		EPA TANKS	2.083E-08	lb/hr	0.00005	tpy	none						
Mud Degassing	100 days/yr	N A	20000 **scf/day**	none							none						
			a Heat input rate			**Drill Rig Total**	**2.23E-02**	**lb/hr**	**1.17E-02**	**tpy**			**Drill Rig Total**	**1.87E-03**	**lb/hr**	**1.03E-03**	**tpy**
Ice Breaker 1																	
Main Engine 1	515 hr/yr	426.4 gal/hr	8046 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.19E-02	lb/hr	3.07E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	9.38E-04	lb/hr	2.42E-04	tpy
Main Engine 2	515 hr/yr	426.4 gal/hr	8046 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.19E-02	lb/hr	3.07E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	9.38E-04	lb/hr	2.42E-04	tpy
Main Engine 3	515 hr/yr	319.8 gal/hr	6035 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.96E-03	lb/hr	2.31E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	7.04E-04	lb/hr	1.81E-04	tpy
Main Engine 4	515 hr/yr	319.8 gal/hr	6035 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.96E-03	lb/hr	2.31E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	7.04E-04	lb/hr	1.81E-04	tpy
Harbor Generator	35 hr/yr	50.4 gal/hr	952 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.41E-03	lb/hr	2.47E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.11E-04	lb/hr	1.94E-06	tpy
Emergency Generator	35 hr/yr	21.3 gal/hr	402 **bhp**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	4.73E-04	lb/hr	8.28E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	4.69E-05	lb/hr	8.20E-07	tpy
Boiler 1	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.30E-03	lbs/Mgal	AP-42 1.3-8	9.24E-05	lb/hr	2.38E-05	tpy	1.50E+01	lb/10^12 Btu	AP-42 1.3-10	5.55E-05	lb/hr	1.43E-05	tpy
Boiler 2	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.30E-03	lbs/Mgal	AP-42 1.3-8	9.24E-05	lb/hr	2.38E-05	tpy	1.50E+01	lb/10^12 Btu	AP-42 1.3-10	5.55E-05	lb/hr	1.43E-05	tpy
Incinerator	515 hr/yr	175.0 lb/hr	N **A**	none							none						
			a Heat input rate			**Vessel Total**	**4.39E-02**	**lb/hr**	**1.08E-02**	**tpy**			**Vessel Total**	**3.55E-03**	**lb/hr**	**8.77E-04**	**tpy**
Ice Breaker 2																	
Main Engine 1	515 hr/yr	426.4 gal/hr	8046 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.19E-02	lb/hr	3.07E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	9.38E-04	lb/hr	2.42E-04	tpy
Main Engine 2	515 hr/yr	426.4 gal/hr	8046 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.19E-02	lb/hr	3.07E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	9.38E-04	lb/hr	2.42E-04	tpy
Main Engine 3	515 hr/yr	319.8 gal/hr	6035 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.96E-03	lb/hr	2.31E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	7.04E-04	lb/hr	1.81E-04	tpy
Main Engine 4	515 hr/yr	319.8 gal/hr	6035 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.96E-03	lb/hr	2.31E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	7.04E-04	lb/hr	1.81E-04	tpy
Harbor Generator	35 hr/yr	50.4 gal/hr	952 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.41E-03	lb/hr	2.47E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.11E-04	lb/hr	1.94E-06	tpy
Emergency Generator	35 hr/yr	21.3 gal/hr	402 **bhp**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	4.73E-04	lb/hr	8.28E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	4.69E-05	lb/hr	8.20E-07	tpy
Boiler 1	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.30E-03	lbs/Mgal	AP-42 1.3-8	9.24E-05	lb/hr	2.38E-05	tpy	1.50E+01	lb/10^12 Btu	AP-42 1.3-10	5.55E-05	lb/hr	1.43E-05	tpy
Boiler 2	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**	3.30E-03	lbs/Mgal	AP-42 1.3-8	9.24E-05	lb/hr	2.38E-05	tpy	1.50E+01	lb/10^12 Btu	AP-42 1.3-10	5.55E-05	lb/hr	1.43E-05	tpy
Incinerator	515 hr/yr	175.0 lb/hr	N **A**	none							none						
			a Heat input rate			**Vessel Total**	**4.39E-02**	**lb/hr**	**1.08E-02**	**tpy**			**Vessel Total**	**3.55E-03**	**lb/hr**	**8.77E-04**	**tpy**
Oil Spill Response Vessel 1 (Dedicated OSRV)																	
Main Engine 1	800 hr/yr	75.0 gal/hr	3000 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.10E-03	lb/hr	8.40E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.65E-04	lb/hr	6.60E-05	tpy
Main Engine 2	800 hr/yr	75.0 gal/hr	3000 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-5	2.10E-03	lb/hr	8.40E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.65E-04	lb/hr	6.60E-05	tpy
Thruster Engine 1	12 hr/yr	58.0 gal/hr	950 **hp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-5	1.62E-03	lb/hr	9.75E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.28E-04	lb/hr	7.66E-07	tpy
Thruster Engine 2	12 hr/yr	58.0 gal/hr	950 **hp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-5	1.62E-03	lb/hr	9.75E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.28E-04	lb/hr	7.66E-07	tpy
Thruster Engine 3	12 hr/yr	58.0 gal/hr	950 **hp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-5	1.62E-03	lb/hr	9.75E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.28E-04	lb/hr	7.66E-07	tpy
Generator 1	2400 hr/yr	27.0 gal/hr	400 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.99E-04	lb/hr	7.19E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	5.94E-05	lb/hr	7.13E-05	tpy
Generator 2	300 hr/yr	27.0 gal/hr	400 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.99E-04	lb/hr	8.99E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	5.94E-05	lb/hr	8.91E-06	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.99E-04	lb/hr	0.00E+00	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	5.94E-05	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.78E-04	lb/hr	2.66E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.76E-05	lb/hr	2.64E-07	tpy
						Vessel Total	**1.10E-02**	**lb/hr**	**2.52E-03**	**tpy**			**Vessel Total**	**9.09E-04**	**lb/hr**	**2.15E-04**	**tpy**
Oil Spill Response Vessel 2																	
Main Engine 1	60 hr/yr	75.0 gal/hr	3000 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.10E-03	lb/hr	6.30E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.65E-04	lb/hr	4.95E-06	tpy
Main Engine 2	60 hr/yr	75.0 gal/hr	3000 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-5	2.10E-03	lb/hr	6.30E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.65E-04	lb/hr	4.95E-06	tpy
Thruster Engine 1	48 hr/yr	58.0 gal/hr	950 **hp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-6	1.62E-03	lb/hr	3.90E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.28E-04	lb/hr	3.06E-06	tpy
Thruster Engine 2	48 hr/yr	58.0 gal/hr	950 **hp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-7	1.62E-03	lb/hr	3.90E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.28E-04	lb/hr	3.06E-06	tpy
Thruster Engine 3	48 hr/yr	58.0 gal/hr	950 **hp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-7	1.62E-03	lb/hr	3.90E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.28E-04	lb/hr	3.06E-06	tpy
Generator 1	60 hr/yr	27.0 gal/hr	400 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.99E-04	lb/hr	1.80E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	5.94E-05	lb/hr	1.78E-06	tpy
Generator 2	30 hr/yr	27.0 gal/hr	400 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.99E-04	lb/hr	8.99E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	5.94E-05	lb/hr	8.91E-07	tpy
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.99E-04	lb/hr	0.00E+00	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	5.94E-05	lb/hr	0.00E+00	tpy
Emergency Generator	2 hr/yr	8.0 gal/hr	99 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.78E-04	lb/hr	1.78E-07	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.76E-05	lb/hr	1.76E-08	tpy
						Vessel Total	**1.10E-02**	**lb/hr**	**2.70E-04**	**tpy**			**Vessel Total**	**9.09E-04**	**lb/hr**	**2.18E-05**	**tpy**

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit Description	Allowable Operation	Maximum Fuel Usage	Maximum	Total HAPs	Hourly (lb/hr)	Annual (tons/yr)
Drill Rig Equipment						
Main Drill Rig Engine 1	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**		1.24E-01	7.43E-02
Main Drill Rig Engine 2	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**		1.24E-01	7.43E-02
Main Drill Rig Engine 3	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**		1.24E-01	7.43E-02
Main Drill Rig Engine 4	1200 hr/yr	205.8 g fuel/kWh	2480 **kW**		1.24E-01	7.43E-02
Emergency Back-up Engine	75 hr/yr	205.0 g fuel/kWh	968 **kW**		4.81E-02	1.81E-03
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 **kW**		2.36E-02	1.54E-03
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 **kW**		2.36E-02	1.54E-03
Logging Winch	273 hr/yr	13.3 gal/hr	187 **kW**		1.08E-02	1.47E-03
Heater 1	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**		4.34E-02	5.20E-02
Heater 2	2400 hr/yr	26.5 gal/hr	4 **MMBtu/hr a**		4.34E-02	5.20E-02
Incinerator	65 tons/yr	276.0 lbs/hr	N **A**		3.46E-02	4.73E-02
Fuel Tank 1	2400 hrs/yr	471940.6 gal/yr*	N **A**		7.50E-08	1.80E-04
Fuel Tank 2	2400 hrs/yr	471940.6 gal/yr*	N **A**		7.50E-08	1.80E-04
Mud Degassing	100 days/yr	N A	20000 **scf/day**		0.00E+00	0.00E+00
			a Heat input rate	**Drill Rig Total**	**7.23E-01**	**4.55E-01**
Ice Breaker 1						
Main Engine 1	515 hr/yr	426.4 gal/hr	8046 **bhp**		3.16E-01	8.14E-02
Main Engine 2	515 hr/yr	426.4 gal/hr	8046 **bhp**		3.16E-01	8.14E-02
Main Engine 3	515 hr/yr	319.8 gal/hr	6035 **bhp**		2.37E-01	6.11E-02
Main Engine 4	515 hr/yr	319.8 gal/hr	6035 **bhp**		2.37E-01	6.11E-02
Harbor Generator	35 hr/yr	50.4 gal/hr	952 **bhp**		3.74E-02	6.55E-04
Emergency Generator	35 hr/yr	21.3 gal/hr	402 **bhp**		1.73E-02	3.03E-04
Boiler 1	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**		4.58E-02	1.18E-02
Boiler 2	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**		4.58E-02	1.18E-02
Incinerator	515 hr/yr	175.0 lb/hr	N **A**		2.19E-02	6.96E-03
			a Heat input rate	**Vessel Total**	**1.28E+00**	**3.17E-01**
Ice Breaker 2						
Main Engine 1	515 hr/yr	426.4 gal/hr	8046 **bhp**		3.16E-01	8.14E-02
Main Engine 2	515 hr/yr	426.4 gal/hr	8046 **bhp**		3.16E-01	8.14E-02
Main Engine 3	515 hr/yr	319.8 gal/hr	6035 **bhp**		2.37E-01	6.11E-02
Main Engine 4	515 hr/yr	319.8 gal/hr	6035 **bhp**		2.37E-01	6.11E-02
Harbor Generator	35 hr/yr	50.4 gal/hr	952 **bhp**		3.74E-02	6.55E-04
Emergency Generator	35 hr/yr	21.3 gal/hr	402 **bhp**		1.73E-02	3.03E-04
Boiler 1	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**		4.58E-02	1.18E-02
Boiler 2	515 hr/yr	28.0 gal/hr	4 **MMBtu/hr a**		4.58E-02	1.18E-02
Incinerator	515 hr/yr	175.0 lb/hr	N **A**		2.19E-02	6.96E-03
			a Heat input rate	**Vessel Total**	**1.28E+00**	**3.17E-01**
Oil Spill Response Vessel 1 (Dedicated OSRV)						
Main Engine 1	800 hr/yr	75.0 gal/hr	3000 **bhp**		5.56E-02	2.23E-02
Main Engine 2	800 hr/yr	75.0 gal/hr	3000 **bhp**		5.56E-02	2.23E-02
Thruster Engine 1	12 hr/yr	58.0 gal/hr	950 **hp**		4.30E-02	2.58E-04
Thruster Engine 2	12 hr/yr	58.0 gal/hr	950 **hp**		4.30E-02	2.58E-04
Thruster Engine 3	12 hr/yr	58.0 gal/hr	950 **hp**		4.30E-02	2.58E-04
Generator 1	2400 hr/yr	27.0 gal/hr	400 **kW**		2.20E-02	2.63E-02
Generator 2	300 hr/yr	27.0 gal/hr	400 **kW**		2.20E-02	3.29E-03
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**		2.20E-02	0.00E+00
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**		6.50E-03	9.76E-05
				Vessel Total	**3.13E-01**	**7.50E-02**
Oil Spill Response Vessel 2						
Main Engine 1	60 hr/yr	75.0 gal/hr	3000 **bhp**		5.56E-02	1.67E-03
Main Engine 2	60 hr/yr	75.0 gal/hr	3000 **bhp**		5.56E-02	1.67E-03
Thruster Engine 1	48 hr/yr	58.0 gal/hr	950 **hp**		4.30E-02	1.03E-03
Thruster Engine 2	48 hr/yr	58.0 gal/hr	950 **hp**		4.30E-02	1.03E-03
Thruster Engine 3	48 hr/yr	58.0 gal/hr	950 **hp**		4.30E-02	1.03E-03
Generator 1	60 hr/yr	27.0 gal/hr	400 **kW**		2.20E-02	6.59E-04
Generator 2	30 hr/yr	27.0 gal/hr	400 **kW**		2.20E-02	3.29E-04
Generator 3	0 hr/yr	27.0 gal/hr	400 **kW**		2.20E-02	0.00E+00
Emergency Generator	2 hr/yr	8.0 gal/hr	99 **kW**		6.50E-03	6.50E-06
				Vessel Total	**3.13E-01**	**7.43E-03**

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Acetaldehyde						Acrolein					
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handling Supply Tug (AHST)																	
Main Engine 1	60 hr/yr	160.0 gal/hr	2529 **kW**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	1.71E-02	lb/hr	5.14E-04	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	2.08E-03	lb/hr	6.24E-05	tpy
Main Engine 2	60 hr/yr	160.0 gal/hr	2529 **kW**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	1.71E-02	lb/hr	5.14E-04	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	2.08E-03	lb/hr	6.24E-05	tpy
Generator 1	60 hr/yr	25.0 gal/hr	380 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.53E-03	lb/hr	7.60E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.05E-04	lb/hr	9.16E-06	tpy
Generator 2	12 hr/yr	25.0 gal/hr	380 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-3	2.53E-03	lb/hr	1.52E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-3	3.05E-04	lb/hr	1.83E-06	tpy
Generator 3	0 hr/yr	25.0 gal/hr	380 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-4	2.53E-03	lb/hr	0.00E+00	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-4	3.05E-04	lb/hr	0.00E+00	tpy
Emergency Generator	6 hr/yr	5.6 gal/hr	170 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.67E-04	lb/hr	1.70E-06	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	6.84E-05	lb/hr	2.05E-07	tpy
						Vessel Total	**4.24E-02**	**lb/hr**	**1.12E-03**	**tpy**			**Vessel Total**	**5.14E-03**	**lb/hr**	**1.36E-04**	**tpy**
Offshore Supply Vessels (OSV1 & OSV2)																	
Main Engine 1	360 hr/yr	75.0 gal/hr	3000 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	8.03E-03	lb/hr	1.44E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	9.75E-04	lb/hr	1.76E-04	tpy
Main Engine 1	100 hr/yr	67.0 gal/hr	3000 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	7.17E-03	lb/hr	3.58E-04	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	8.71E-04	lb/hr	4.36E-05	tpy
Main Engine 2	360 hr/yr	75.0 gal/hr	3000 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	8.03E-03	lb/hr	1.44E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	9.75E-04	lb/hr	1.76E-04	tpy
Main Engine 2	100 hr/yr	67.0 gal/hr	3000 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	7.17E-03	lb/hr	3.58E-04	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	8.71E-04	lb/hr	4.36E-05	tpy
Thruster Engine 1	360 hr/yr	58.0 gal/hr	950 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	6.21E-03	lb/hr	1.12E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	7.54E-04	lb/hr	1.36E-04	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	6.21E-03	lb/hr	1.12E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	7.54E-04	lb/hr	1.36E-04	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	6.21E-03	lb/hr	1.12E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	7.54E-04	lb/hr	1.36E-04	tpy
Generator	820 hr/yr	27.0 gal/hr	400 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.74E-03	lb/hr	1.12E-03	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.30E-04	lb/hr	1.35E-04	tpy
Generator	120 hr/yr	27.0 gal/hr	400 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.74E-03	lb/hr	1.64E-04	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.30E-04	lb/hr	1.98E-05	tpy
Generator	0 hr/yr	27.0 gal/hr	400 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.74E-03	lb/hr	0.00E+00	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.30E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	8.11E-04	lb/hr	1.22E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	9.78E-05	lb/hr	1.47E-06	tpy
						Vessel Total	**5.80E-02**	**lb/hr**	**8.26E-03**	**tpy**			**Vessel Total**	**7.04E-03**	**lb/hr**	**1.00E-03**	**tpy**
Ware Vessel (WV) w/ OSV backup																	
Main Engine 1	300 hr/yr	87.0 gal/hr	3200 **hp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	9.31E-03	lb/hr	1.40E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	1.13E-03	lb/hr	1.70E-04	tpy
Main Engine 2	300 hr/yr	87.0 gal/hr	3200 **hp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	9.31E-03	lb/hr	1.40E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	1.13E-03	lb/hr	1.70E-04	tpy
Main Engine 3	400 hr/yr	81.0 gal/hr	3200 **hp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	8.67E-03	lb/hr	1.73E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	1.05E-03	lb/hr	2.11E-04	tpy
Main Engine 4	400 hr/yr	81.0 gal/hr	3200 **hp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	8.67E-03	lb/hr	1.73E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	1.05E-03	lb/hr	2.11E-04	tpy
Generator 1	700 hr/yr	32.0 gal/hr	500 **kW**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	3.42E-03	lb/hr	1.20E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	4.16E-04	lb/hr	1.46E-04	tpy
Generator 2	100 hr/yr	32.0 gal/hr	500 **kW**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	3.42E-03	lb/hr	1.71E-04	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	4.16E-04	lb/hr	2.08E-05	tpy
Generator 3	0 hr/yr	32.0 gal/hr	500 **kW**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	3.42E-03	lb/hr	0.00E+00	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	4.16E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	12.0 gal/hr	170 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.22E-03	lb/hr	1.82E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.47E-04	lb/hr	2.20E-06	tpy
						Vessel Total	**4.74E-02**	**lb/hr**	**7.65E-03**	**tpy**			**Vessel Total**	**5.76E-03**	**lb/hr**	**9.29E-04**	**tpy**
34' boom work boats - 4																	
WB-1 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.04E-03	lb/hr	7.29E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.67E-04	lb/hr	8.80E-06	tpy
WB-1 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.04E-03	lb/hr	7.29E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.67E-04	lb/hr	8.80E-06	tpy
WB-2 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.04E-03	lb/hr	7.29E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.67E-04	lb/hr	8.80E-06	tpy
WB-2 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.04E-03	lb/hr	7.29E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.67E-04	lb/hr	8.80E-06	tpy
WB-3 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.04E-03	lb/hr	7.29E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.67E-04	lb/hr	8.80E-06	tpy
WB-3 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.04E-03	lb/hr	7.29E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.67E-04	lb/hr	8.80E-06	tpy
WB-4 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.04E-03	lb/hr	7.29E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.67E-04	lb/hr	8.80E-06	tpy
WB-4 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.04E-03	lb/hr	7.29E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.67E-04	lb/hr	8.80E-06	tpy
						Vessel Total	**2.43E-02**	**lb/hr**	**5.84E-04**	**tpy**			**Vessel Total**	**2.93E-03**	**lb/hr**	**7.04E-05**	**tpy**
Marine Research Vessel																	
Main Engine	600 hr/yr	45.0 gal/hr	850 **hp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	4.82E-03	lb/hr	1.45E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	5.86E-04	lb/hr	1.76E-04	tpy
Generator 1	600 hr/yr	9.6 gal/hr	135 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	9.72E-04	lb/hr	2.91E-04	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.17E-04	lb/hr	3.52E-05	tpy
Generator 2	600 hr/yr	6.4 gal/hr	90 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.48E-04	lb/hr	1.94E-04	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	7.81E-05	lb/hr	2.34E-05	tpy
Generator 3	600 hr/yr	2.8 gal/hr	40 **kW**	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.88E-04	lb/hr	8.64E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.47E-05	lb/hr	1.04E-05	tpy
						Vessel Total	**6.73E-03**	**lb/hr**	**2.02E-03**	**tpy**			**Vessel Total**	**8.16E-04**	**lb/hr**	**2.45E-04**	**tpy**
Spill Storage Tanker																	
Main Engine 1	12 hr/yr	88.7 gal/hr	1674 **hp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	9.49E-03	lb/hr	5.69E-05	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	1.15E-03	lb/hr	6.92E-06	tpy
Main Engine 2	12 hr/yr	88.7 gal/hr	1674 **hp**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	9.49E-03	lb/hr	5.69E-05	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	1.15E-03	lb/hr	6.92E-06	tpy
Generator 1	48 hr/yr	40.9 gal/hr	576.35 **kW**	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	4.38E-03	lb/hr	1.05E-04	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	5.32E-04	lb/hr	1.28E-05	tpy
Boiler 1	48 hr/yr	109.2 gal/hr	14.422 **MMBtu/hr**	2.65E+03	lb/10^12 Btu	VCAPCD	3.83E-02	lb/hr	9.19E-04	tpy	2.65E+03	lb/10^12 Btu	VCAPCD	3.83E-02	lb/hr	9.19E-04	tpy
						Vessel Total	**6.16E-02**	**lb/hr**	**1.14E-03**	**tpy**			**Vessel Total**	**4.11E-02**	**lb/hr**	**9.45E-04**	**tpy**
All Vessels Fuel Tanks																	
Fuel Tank	2400 hr/yr	2193681.5 gal/yr*	N A	none							none						
						Vessel Total	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**
						HAP Total Option 1			**1.83E-01**	**tpy**			**HAP Total Option 1**			**5.15E-02**	**tpy**
						HAP Total Option 2			**1.82E-01**	**tpy**			**HAP Total Option 2**			**5.14E-02**	**tpy**

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Benzene						1,3-Butadiene					
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handling Supply Tug (AHST)																	
Main Engine 1	60 hr/yr	160.0 gal/hr	2529 **kW**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-1	1.64E-02	lb/hr	4.92E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	8.66E-04	lb/hr	2.60E-05	tpy
Main Engine 2	60 hr/yr	160.0 gal/hr	2529 **kW**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-2	1.64E-02	lb/hr	4.92E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	8.66E-04	lb/hr	2.60E-05	tpy
Generator 1	60 hr/yr	25.0 gal/hr	380 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.08E-03	lb/hr	9.24E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.29E-04	lb/hr	3.87E-06	tpy
Generator 2	12 hr/yr	25.0 gal/hr	380 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-3	3.08E-03	lb/hr	1.85E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-3	1.29E-04	lb/hr	7.75E-07	tpy
Generator 3	0 hr/yr	25.0 gal/hr	380 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-4	3.08E-03	lb/hr	0.00E+00	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-4	1.29E-04	lb/hr	0.00E+00	tpy
Emergency Generator	6 hr/yr	5.6 gal/hr	170 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.90E-04	lb/hr	2.07E-06	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	2.89E-05	lb/hr	8.68E-08	tpy
						Vessel Total	**4.27E-02**	**lb/hr**	**1.10E-03**	**tpy**			**Vessel Total**	**2.15E-03**	**lb/hr**	**5.67E-05**	**tpy**
Offshore Supply Vessels (OSV1 & OSV2)																	
Main Engine 1	360 hr/yr	75.0 gal/hr	3000 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-1	7.69E-03	lb/hr	1.38E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.06E-04	lb/hr	7.30E-05	tpy
Main Engine 1	100 hr/yr	67.0 gal/hr	3000 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-2	6.87E-03	lb/hr	3.43E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.62E-04	lb/hr	1.81E-05	tpy
Main Engine 2	360 hr/yr	75.0 gal/hr	3000 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-2	7.69E-03	lb/hr	1.38E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.06E-04	lb/hr	7.30E-05	tpy
Main Engine 2	100 hr/yr	67.0 gal/hr	3000 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-2	6.87E-03	lb/hr	3.43E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.62E-04	lb/hr	1.81E-05	tpy
Thruster Engine 1	360 hr/yr	58.0 gal/hr	950 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-2	5.95E-03	lb/hr	1.07E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.14E-04	lb/hr	5.65E-05	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-2	5.95E-03	lb/hr	1.07E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.14E-04	lb/hr	5.65E-05	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-6	5.95E-03	lb/hr	1.07E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.14E-04	lb/hr	5.65E-05	tpy
Generator	820 hr/yr	27.0 gal/hr	400 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.33E-03	lb/hr	1.36E-03	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.39E-04	lb/hr	5.72E-05	tpy
Generator	120 hr/yr	27.0 gal/hr	400 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.33E-03	lb/hr	2.00E-04	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.39E-04	lb/hr	8.37E-06	tpy
Generator	0 hr/yr	27.0 gal/hr	400 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.33E-03	lb/hr	0.00E+00	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.39E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	9.86E-04	lb/hr	1.48E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	4.13E-05	lb/hr	6.20E-07	tpy
						Vessel Total	**5.79E-02**	**lb/hr**	**8.24E-03**	**tpy**			**Vessel Total**	**2.94E-03**	**lb/hr**	**4.18E-04**	**tpy**
Ware Vessel (WV) w/ OSV backup																	
Main Engine 1	300 hr/yr	87.0 gal/hr	3200 **hp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-1	8.92E-03	lb/hr	1.34E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.71E-04	lb/hr	7.06E-05	tpy
Main Engine 2	300 hr/yr	87.0 gal/hr	3200 **hp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-2	8.92E-03	lb/hr	1.34E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.71E-04	lb/hr	7.06E-05	tpy
Main Engine 3	400 hr/yr	81.0 gal/hr	3200 **hp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	8.30E-03	lb/hr	1.66E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.38E-04	lb/hr	8.76E-05	tpy
Main Engine 4	400 hr/yr	81.0 gal/hr	3200 **hp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.30E-03	lb/hr	1.66E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.38E-04	lb/hr	8.76E-05	tpy
Generator 1	700 hr/yr	32.0 gal/hr	500 **kW**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-4	3.28E-03	lb/hr	1.15E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	1.73E-04	lb/hr	6.06E-05	tpy
Generator 2	100 hr/yr	32.0 gal/hr	500 **kW**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-4	3.28E-03	lb/hr	1.64E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	1.73E-04	lb/hr	8.66E-06	tpy
Generator 3	0 hr/yr	32.0 gal/hr	500 **kW**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-4	3.28E-03	lb/hr	0.00E+00	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	1.73E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	12.0 gal/hr	170 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.48E-03	lb/hr	2.22E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	6.20E-05	lb/hr	9.30E-07	tpy
						Vessel Total	**4.58E-02**	**lb/hr**	**7.33E-03**	**tpy**			**Vessel Total**	**2.40E-03**	**lb/hr**	**3.87E-04**	**tpy**
34' boom work boats - 4																	
WB-1 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.70E-03	lb/hr	8.87E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.55E-04	lb/hr	3.72E-06	tpy
WB-1 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.70E-03	lb/hr	8.87E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.55E-04	lb/hr	3.72E-06	tpy
WB-2 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.70E-03	lb/hr	8.87E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.55E-04	lb/hr	3.72E-06	tpy
WB-2 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.70E-03	lb/hr	8.87E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.55E-04	lb/hr	3.72E-06	tpy
WB-3 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.70E-03	lb/hr	8.87E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.55E-04	lb/hr	3.72E-06	tpy
WB-3 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.70E-03	lb/hr	8.87E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.55E-04	lb/hr	3.72E-06	tpy
WB-4 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.70E-03	lb/hr	8.87E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.55E-04	lb/hr	3.72E-06	tpy
WB-4 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.70E-03	lb/hr	8.87E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.55E-04	lb/hr	3.72E-06	tpy
						Vessel Total	**2.96E-02**	**lb/hr**	**7.10E-04**	**tpy**			**Vessel Total**	**1.24E-03**	**lb/hr**	**2.98E-05**	**tpy**
Marine Research Vessel																	
Main Engine	600 hr/yr	45.0 gal/hr	850 **hp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-1	4.62E-03	lb/hr	1.39E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.44E-04	lb/hr	7.31E-05	tpy
Generator 1	600 hr/yr	9.6 gal/hr	135 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.18E-03	lb/hr	3.55E-04	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	4.95E-05	lb/hr	1.49E-05	tpy
Generator 2	600 hr/yr	6.4 gal/hr	90 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	7.88E-04	lb/hr	2.36E-04	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.30E-05	lb/hr	9.91E-06	tpy
Generator 3	600 hr/yr	2.8 gal/hr	40 **kW**	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.50E-04	lb/hr	1.05E-04	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.47E-05	lb/hr	4.40E-06	tpy
						Vessel Total	**6.94E-03**	**lb/hr**	**2.08E-03**	**tpy**			**Vessel Total**	**3.41E-04**	**lb/hr**	**1.02E-04**	**tpy**
Spill Storage Tanker																	
Main Engine 1	12 hr/yr	88.7 gal/hr	1674 **hp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-1	9.09E-03	lb/hr	5.46E-05	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.80E-04	lb/hr	2.88E-06	tpy
Main Engine 2	12 hr/yr	88.7 gal/hr	1674 **hp**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-4	9.09E-03	lb/hr	5.46E-05	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.80E-04	lb/hr	2.88E-06	tpy
Generator 1	48 hr/yr	40.9 gal/hr	576.35 **kW**	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-4	4.20E-03	lb/hr	1.01E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.21E-04	lb/hr	5.32E-06	tpy
Boiler 1	48 hr/yr	109.2 gal/hr	14.422 **MMBtu/hr**	1.92E+01	lb/10^12 Btu	CARB-CATEF	2.77E-04	lb/hr	6.66E-06	tpy	1.12E+02	lb/10^12 Btu	VCAPCD	1.62E-03	lb/hr	3.88E-05	tpy
						Vessel Total	**2.27E-02**	**lb/hr**	**2.16E-04**	**tpy**			**Vessel Total**	**2.80E-03**	**lb/hr**	**4.99E-05**	**tpy**
All Vessels Fuel Tanks																	
Fuel Tank	2400 hr/yr	2193681.5 gal/yr*	N A	N A		EPA TANKS	6.25E-09	lb/hr	0.000015	tpy	none						
						Vessel Total	**6.25E-09**	**lb/hr**	**1.50E-05**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**
						HAP Total Option 1			**1.45E-01**	**tpy**			**HAP Total Option 1**			**8.98E-03**	**tpy**
						HAP Total Option 2			**1.45E-01**	**tpy**			**HAP Total Option 2**			**8.95E-03**	**tpy**

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Chlorobenzene							Ethylbenzene						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handling Supply Tug (AHST)																	
Main Engine 1	60 hr/yr	160.0 gal/hr	2529 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.20E-05	lb/hr	9.60E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.74E-03	lb/hr	5.23E-05	tpy
Main Engine 2	60 hr/yr	160.0 gal/hr	2529 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.20E-05	lb/hr	9.60E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.74E-03	lb/hr	5.23E-05	tpy
Generator 1	60 hr/yr	25.0 gal/hr	380 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.00E-06	lb/hr	1.50E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.73E-04	lb/hr	8.18E-06	tpy
Generator 2	12 hr/yr	25.0 gal/hr	380 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.00E-06	lb/hr	3.00E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.73E-04	lb/hr	1.64E-06	tpy
Generator 3	0 hr/yr	25.0 gal/hr	380 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.00E-06	lb/hr	0.00E+00	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.73E-04	lb/hr	0.00E+00	tpy
Emergency Generator	6 hr/yr	5.6 gal/hr	170 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.12E-06	lb/hr	3.36E-09	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	6.10E-05	lb/hr	1.83E-07	tpy
						Vessel Total	**8.01E-05**	**lb/hr**	**2.10E-06**	**tpy**			**Vessel Total**	**4.37E-03**	**lb/hr**	**1.15E-04**	**tpy**
Offshore Supply Vessels (OSV1 & OSV2)																	
Main Engine 1	360 hr/yr	75.0 gal/hr	3000 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.50E-05	lb/hr	2.70E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.18E-04	lb/hr	1.47E-04	tpy
Main Engine 1	100 hr/yr	67.0 gal/hr	3000 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.34E-05	lb/hr	6.70E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	7.30E-04	lb/hr	3.65E-05	tpy
Main Engine 2	360 hr/yr	75.0 gal/hr	3000 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.50E-05	lb/hr	2.70E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.18E-04	lb/hr	1.47E-04	tpy
Main Engine 2	100 hr/yr	67.0 gal/hr	3000 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.34E-05	lb/hr	6.70E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	7.30E-04	lb/hr	3.65E-05	tpy
Thruster Engine 1	360 hr/yr	58.0 gal/hr	950 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.16E-05	lb/hr	2.09E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	6.32E-04	lb/hr	1.14E-04	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.16E-05	lb/hr	2.09E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	6.32E-04	lb/hr	1.14E-04	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.16E-05	lb/hr	2.09E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	6.32E-04	lb/hr	1.14E-04	tpy
Generator	820 hr/yr	27.0 gal/hr	400 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.40E-06	lb/hr	2.21E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.94E-04	lb/hr	1.21E-04	tpy
Generator	120 hr/yr	27.0 gal/hr	400 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.40E-06	lb/hr	3.24E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.94E-04	lb/hr	1.77E-05	tpy
Generator	0 hr/yr	27.0 gal/hr	400 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.40E-06	lb/hr	0.00E+00	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.94E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.60E-06	lb/hr	2.40E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.72E-05	lb/hr	1.31E-06	tpy
						Vessel Total	**1.09E-04**	**lb/hr**	**1.56E-05**	**tpy**			**Vessel Total**	**5.96E-03**	**lb/hr**	**8.48E-04**	**tpy**
Ware Vessel (WV) w/ OSV backup																	
Main Engine 1	300 hr/yr	87.0 gal/hr	3200 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.74E-05	lb/hr	2.61E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	9.48E-04	lb/hr	1.42E-04	tpy
Main Engine 2	300 hr/yr	87.0 gal/hr	3200 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.74E-05	lb/hr	2.61E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	9.48E-04	lb/hr	1.42E-04	tpy
Main Engine 3	400 hr/yr	81.0 gal/hr	3200 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.62E-05	lb/hr	3.24E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.83E-04	lb/hr	1.77E-04	tpy
Main Engine 4	400 hr/yr	81.0 gal/hr	3200 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.62E-05	lb/hr	3.24E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.83E-04	lb/hr	1.77E-04	tpy
Generator 1	700 hr/yr	32.0 gal/hr	500 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.40E-06	lb/hr	2.24E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.49E-04	lb/hr	1.22E-04	tpy
Generator 2	100 hr/yr	32.0 gal/hr	500 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.40E-06	lb/hr	3.20E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.49E-04	lb/hr	1.74E-05	tpy
Generator 3	0 hr/yr	32.0 gal/hr	500 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.40E-06	lb/hr	0.00E+00	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.49E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	12.0 gal/hr	170 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	2.40E-06	lb/hr	3.60E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.31E-04	lb/hr	1.96E-06	tpy
						Vessel Total	**8.88E-05**	**lb/hr**	**1.43E-05**	**tpy**			**Vessel Total**	**4.84E-03**	**lb/hr**	**7.79E-04**	**tpy**
34' boom work boats - 4																	
WB-1 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.00E-06	lb/hr	1.44E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.27E-04	lb/hr	7.85E-06	tpy
WB-1 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.00E-06	lb/hr	1.44E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.27E-04	lb/hr	7.85E-06	tpy
WB-2 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.00E-06	lb/hr	1.44E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.27E-04	lb/hr	7.85E-06	tpy
WB-2 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.00E-06	lb/hr	1.44E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.27E-04	lb/hr	7.85E-06	tpy
WB-3 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.00E-06	lb/hr	1.44E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.27E-04	lb/hr	7.85E-06	tpy
WB-3 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.00E-06	lb/hr	1.44E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.27E-04	lb/hr	7.85E-06	tpy
WB-4 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.00E-06	lb/hr	1.44E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.27E-04	lb/hr	7.85E-06	tpy
WB-4 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.00E-06	lb/hr	1.44E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.27E-04	lb/hr	7.85E-06	tpy
						Vessel Total	**4.80E-05**	**lb/hr**	**1.15E-06**	**tpy**			**Vessel Total**	**2.62E-03**	**lb/hr**	**6.28E-05**	**tpy**
Marine Research Vessel																	
Main Engine	600 hr/yr	45.0 gal/hr	850 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	9.01E-06	lb/hr	2.70E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	4.91E-04	lb/hr	1.47E-04	tpy
Generator 1	600 hr/yr	9.6 gal/hr	135 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.92E-06	lb/hr	5.75E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.05E-04	lb/hr	3.14E-05	tpy
Generator 2	600 hr/yr	6.4 gal/hr	90 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.28E-06	lb/hr	3.84E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	6.97E-05	lb/hr	2.09E-05	tpy
Generator 3	600 hr/yr	2.8 gal/hr	40 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.68E-07	lb/hr	1.70E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.10E-05	lb/hr	9.29E-06	tpy
						Vessel Total	**1.28E-05**	**lb/hr**	**3.83E-06**	**tpy**			**Vessel Total**	**6.96E-04**	**lb/hr**	**2.09E-04**	**tpy**
Spill Storage Tanker																	
Main Engine 1	12 hr/yr	88.7 gal/hr	1674 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.77E-05	lb/hr	1.06E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	9.67E-04	lb/hr	5.80E-06	tpy
Main Engine 2	12 hr/yr	88.7 gal/hr	1674 **hp**	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.77E-05	lb/hr	1.06E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	9.67E-04	lb/hr	5.80E-06	tpy
Generator 1	48 hr/yr	40.9 gal/hr	576.35 **kW**	1.51E-06	lb/MMBtu fuel input	VCAPCD	8.19E-06	lb/hr	1.97E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	4.46E-04	lb/hr	1.07E-05	tpy
Boiler 1	48 hr/yr	109.2 gal/hr	14.422 **MMBtu/hr**	1.51E+00	lb/10^12 Btu	VCAPCD	2.18E-05	lb/hr	5.24E-07	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	1.63E-04	lb/hr	3.90E-06	tpy
						Vessel Total	**6.55E-05**	**lb/hr**	**9.33E-07**	**tpy**			**Vessel Total**	**2.54E-03**	**lb/hr**	**2.62E-05**	**tpy**
All Vessels Fuel Tanks																	
Fuel Tank	2400 hr/yr	2193681.5 gal/yr*	N A	none							N A		EPA TANKS	6.25E-09	lb/hr	0.000015	tpy
						Vessel Total	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**			**Vessel Total**	**6.25E-09**	**lb/hr**	**1.50E-05**	**tpy**
						HAP Total Option 1			**3.00E-04**	**tpy**			**HAP Total Option 1**			**1.55E-02**	**tpy**
						HAP Total Option 2			**2.98E-04**	**tpy**			**HAP Total Option 2**			**1.54E-02**	**tpy**

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Formaldehyde							Hexane						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handling Supply Tug (AHST)																	
Main Engine 1	60 hr/yr	160.0 gal/hr	2529 **kW**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.86E-02	lb/hr	5.57E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.30E-03	lb/hr	1.29E-04	tpy
Main Engine 2	60 hr/yr	160.0 gal/hr	2529 **kW**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.86E-02	lb/hr	5.57E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.30E-03	lb/hr	1.29E-04	tpy
Generator 1	60 hr/yr	25.0 gal/hr	380 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	3.90E-03	lb/hr	1.17E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	6.73E-04	lb/hr	2.02E-05	tpy
Generator 2	12 hr/yr	25.0 gal/hr	380 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-3	3.90E-03	lb/hr	2.34E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	6.73E-04	lb/hr	4.04E-06	tpy
Generator 3	0 hr/yr	25.0 gal/hr	380 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-4	3.90E-03	lb/hr	0.00E+00	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	6.73E-04	lb/hr	0.00E+00	tpy
Emergency Generator	6 hr/yr	5.6 gal/hr	170 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	8.73E-04	lb/hr	2.62E-06	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.51E-04	lb/hr	4.52E-07	tpy
						Vessel Total	**4.97E-02**	**lb/hr**	**1.26E-03**	**tpy**			**Vessel Total**	**1.08E-02**	**lb/hr**	**2.83E-04**	**tpy**
Offshore Supply Vessels (OSV1 & OSV2)																	
Main Engine 1	360 hr/yr	75.0 gal/hr	3000 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	8.70E-03	lb/hr	1.57E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.02E-03	lb/hr	3.63E-04	tpy
Main Engine 1	100 hr/yr	67.0 gal/hr	3000 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	7.77E-03	lb/hr	3.89E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.80E-03	lb/hr	9.01E-05	tpy
Main Engine 2	360 hr/yr	75.0 gal/hr	3000 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	8.70E-03	lb/hr	1.57E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.02E-03	lb/hr	3.63E-04	tpy
Main Engine 2	100 hr/yr	67.0 gal/hr	3000 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	7.77E-03	lb/hr	3.89E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.80E-03	lb/hr	9.01E-05	tpy
Thruster Engine 1	360 hr/yr	58.0 gal/hr	950 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	6.73E-03	lb/hr	1.21E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.56E-03	lb/hr	2.81E-04	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	6.73E-03	lb/hr	1.21E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.56E-03	lb/hr	2.81E-04	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	6.73E-03	lb/hr	1.21E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.56E-03	lb/hr	2.81E-04	tpy
Generator	820 hr/yr	27.0 gal/hr	400 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.21E-03	lb/hr	1.73E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.26E-04	lb/hr	2.98E-04	tpy
Generator	120 hr/yr	27.0 gal/hr	400 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.21E-03	lb/hr	2.53E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.26E-04	lb/hr	4.36E-05	tpy
Generator	0 hr/yr	27.0 gal/hr	400 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.21E-03	lb/hr	0.00E+00	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.26E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	1.25E-03	lb/hr	1.87E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.15E-04	lb/hr	3.23E-06	tpy
						Vessel Total	**6.70E-02**	**lb/hr**	**9.54E-03**	**tpy**			**Vessel Total**	**1.47E-02**	**lb/hr**	**2.09E-03**	**tpy**
Ware Vessel (WV) w/ OSV backup																	
Main Engine 1	300 hr/yr	87.0 gal/hr	3200 **hp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.01E-02	lb/hr	1.51E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.34E-03	lb/hr	3.51E-04	tpy
Main Engine 2	300 hr/yr	87.0 gal/hr	3200 **hp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.01E-02	lb/hr	1.51E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.34E-03	lb/hr	3.51E-04	tpy
Main Engine 3	400 hr/yr	81.0 gal/hr	3200 **hp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	9.40E-03	lb/hr	1.88E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.18E-03	lb/hr	4.36E-04	tpy
Main Engine 4	400 hr/yr	81.0 gal/hr	3200 **hp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	9.40E-03	lb/hr	1.88E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.18E-03	lb/hr	4.36E-04	tpy
Generator 1	700 hr/yr	32.0 gal/hr	500 **kW**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	3.71E-03	lb/hr	1.30E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.61E-04	lb/hr	3.01E-04	tpy
Generator 2	100 hr/yr	32.0 gal/hr	500 **kW**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	3.71E-03	lb/hr	1.86E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.61E-04	lb/hr	4.30E-05	tpy
Generator 3	0 hr/yr	32.0 gal/hr	500 **kW**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	3.71E-03	lb/hr	0.00E+00	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.61E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	12.0 gal/hr	170 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	1.87E-03	lb/hr	2.81E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	3.23E-04	lb/hr	4.84E-06	tpy
						Vessel Total	**5.20E-02**	**lb/hr**	**8.30E-03**	**tpy**			**Vessel Total**	**1.19E-02**	**lb/hr**	**1.92E-03**	**tpy**
34' boom work boats - 4																	
WB-1 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.68E-03	lb/hr	1.12E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.07E-04	lb/hr	1.94E-05	tpy
WB-1 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.68E-03	lb/hr	1.12E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.07E-04	lb/hr	1.94E-05	tpy
WB-2 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.68E-03	lb/hr	1.12E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.07E-04	lb/hr	1.94E-05	tpy
WB-2 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.68E-03	lb/hr	1.12E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.07E-04	lb/hr	1.94E-05	tpy
WB-3 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.68E-03	lb/hr	1.12E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.07E-04	lb/hr	1.94E-05	tpy
WB-3 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.68E-03	lb/hr	1.12E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.07E-04	lb/hr	1.94E-05	tpy
WB-4 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.68E-03	lb/hr	1.12E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.07E-04	lb/hr	1.94E-05	tpy
WB-4 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.68E-03	lb/hr	1.12E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.07E-04	lb/hr	1.94E-05	tpy
						Vessel Total	**3.74E-02**	**lb/hr**	**8.98E-04**	**tpy**			**Vessel Total**	**6.46E-03**	**lb/hr**	**1.55E-04**	**tpy**
Marine Research Vessel																	
Main Engine	600 hr/yr	45.0 gal/hr	850 **hp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	5.22E-03	lb/hr	1.57E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.21E-03	lb/hr	3.63E-04	tpy
Generator 1	600 hr/yr	9.6 gal/hr	135 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	1.49E-03	lb/hr	4.48E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.58E-04	lb/hr	7.74E-05	tpy
Generator 2	600 hr/yr	6.4 gal/hr	90 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	9.97E-04	lb/hr	2.99E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.72E-04	lb/hr	5.16E-05	tpy
Generator 3	600 hr/yr	2.8 gal/hr	40 **kW**	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.43E-04	lb/hr	1.33E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.64E-05	lb/hr	2.29E-05	tpy
						Vessel Total	**8.16E-03**	**lb/hr**	**2.45E-03**	**tpy**			**Vessel Total**	**1.72E-03**	**lb/hr**	**5.15E-04**	**tpy**
Spill Storage Tanker																	
Main Engine 1	12 hr/yr	88.7 gal/hr	1674 **hp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.03E-02	lb/hr	6.17E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.39E-03	lb/hr	1.43E-05	tpy
Main Engine 2	12 hr/yr	88.7 gal/hr	1674 **hp**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.03E-02	lb/hr	6.17E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.39E-03	lb/hr	1.43E-05	tpy
Generator 1	48 hr/yr	40.9 gal/hr	576.35 **kW**	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	4.75E-03	lb/hr	1.14E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.10E-03	lb/hr	2.64E-05	tpy
Boiler 1	48 hr/yr	109.2 gal/hr	14.422 **MMBtu/hr**	3.49E-01	lbs/Mgal	CARB-CATEF	3.81E-02	lb/hr	9.14E-04	tpy	9.16E+00	lb/10^12 Btu	CARB-CATEF	1.32E-04	lb/hr	3.17E-06	tpy
						Vessel Total	**6.34E-02**	**lb/hr**	**1.15E-03**	**tpy**			**Vessel Total**	**6.01E-03**	**lb/hr**	**5.82E-05**	**tpy**
All Vessels Fuel Tanks																	
Fuel Tank	2400 hr/yr	2193681.5 gal/yr*	N A	none							N A		EPA TANKS	2.083E-09	lb/hr	0.000005	tpy
						Vessel Total	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**			**Vessel Total**	**2.08E-09**	**lb/hr**	**5.00E-06**	**tpy**
						HAP Total Option 1			**1.99E-01**	**tpy**			**HAP Total Option 1**			**3.79E-02**	**tpy**
						HAP Total Option 2			**1.97E-01**	**tpy**			**HAP Total Option 2**			**3.77E-02**	**tpy**

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Hydrochloric acid (Hydrogen Chloride)						Naphthalene					
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE Unit
Anchor Handling Supply Tug (AHST)															
Main Engine 1	60 hr/yr	160.0 gal/hr	2529 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	2.98E-02	lb/hr	8.94E-04 tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-2	2.75E-03	lb/hr	8.24E-05 tpy
Main Engine 2	60 hr/yr	160.0 gal/hr	2529 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	2.98E-02	lb/hr	8.94E-04 tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.75E-03	lb/hr	8.24E-05 tpy
Generator 1	60 hr/yr	25.0 gal/hr	380 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	4.66E-03	lb/hr	1.40E-04 tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	2.80E-04	lb/hr	8.40E-06 tpy
Generator 2	12 hr/yr	25.0 gal/hr	380 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	4.66E-03	lb/hr	2.79E-05 tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-3	2.80E-04	lb/hr	1.68E-06 tpy
Generator 3	0 hr/yr	25.0 gal/hr	380 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	4.66E-03	lb/hr	0.00E+00 tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-4	2.80E-04	lb/hr	0.00E+00 tpy
Emergency Generator	6 hr/yr	5.6 gal/hr	170 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.04E-03	lb/hr	3.13E-06 tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	6.27E-05	lb/hr	1.88E-07 tpy
						Vessel Total	**7.46E-02**	**lb/hr**	**1.96E-03 tpy**			**Vessel Total**	**6.40E-03**	**lb/hr**	**1.75E-04 tpy**
Offshore Supply Vessels (OSV1 & OSV2)															
Main Engine 1	360 hr/yr	75.0 gal/hr	3000 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.40E-02	lb/hr	2.52E-03 tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-2	1.29E-03	lb/hr	2.32E-04 tpy
Main Engine 1	100 hr/yr	67.0 gal/hr	3000 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.25E-02	lb/hr	6.24E-04 tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.15E-03	lb/hr	5.75E-05 tpy
Main Engine 2	360 hr/yr	75.0 gal/hr	3000 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.40E-02	lb/hr	2.52E-03 tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.29E-03	lb/hr	2.32E-04 tpy
Main Engine 2	100 hr/yr	67.0 gal/hr	3000 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.25E-02	lb/hr	6.24E-04 tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.15E-03	lb/hr	5.75E-05 tpy
Thruster Engine 1	360 hr/yr	58.0 gal/hr	950 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.08E-02	lb/hr	1.94E-03 tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-3	9.96E-04	lb/hr	1.79E-04 tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.08E-02	lb/hr	1.94E-03 tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-3	9.96E-04	lb/hr	1.79E-04 tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.08E-02	lb/hr	1.94E-03 tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-7	9.96E-04	lb/hr	1.79E-04 tpy
Generator	820 hr/yr	27.0 gal/hr	400 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.03E-03	lb/hr	2.06E-03 tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.02E-04	lb/hr	1.24E-04 tpy
Generator	120 hr/yr	27.0 gal/hr	400 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.03E-03	lb/hr	3.02E-04 tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.02E-04	lb/hr	1.81E-05 tpy
Generator	0 hr/yr	27.0 gal/hr	400 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.03E-03	lb/hr	0.00E+00 tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.02E-04	lb/hr	0.00E+00 tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.49E-03	lb/hr	2.24E-05 tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	8.96E-05	lb/hr	1.34E-06 tpy
						Vessel Total	**1.02E-01**	**lb/hr**	**1.45E-02 tpy**			**Vessel Total**	**8.86E-03**	**lb/hr**	**1.26E-03 tpy**
Ware Vessel (WV) w/ OSV backup															
Main Engine 1	300 hr/yr	87.0 gal/hr	3200 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.62E-02	lb/hr	2.43E-03 tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-2	1.49E-03	lb/hr	2.24E-04 tpy
Main Engine 2	300 hr/yr	87.0 gal/hr	3200 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.62E-02	lb/hr	2.43E-03 tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.49E-03	lb/hr	2.24E-04 tpy
Main Engine 3	400 hr/yr	81.0 gal/hr	3200 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.51E-02	lb/hr	3.02E-03 tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.39E-03	lb/hr	2.78E-04 tpy
Main Engine 4	400 hr/yr	81.0 gal/hr	3200 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.51E-02	lb/hr	3.02E-03 tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-5	1.39E-03	lb/hr	2.78E-04 tpy
Generator 1	700 hr/yr	32.0 gal/hr	500 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.96E-03	lb/hr	2.09E-03 tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-5	5.50E-04	lb/hr	1.92E-04 tpy
Generator 2	100 hr/yr	32.0 gal/hr	500 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.96E-03	lb/hr	2.98E-04 tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-5	5.50E-04	lb/hr	2.75E-05 tpy
Generator 3	0 hr/yr	32.0 gal/hr	500 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.96E-03	lb/hr	0.00E+00 tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-5	5.50E-04	lb/hr	0.00E+00 tpy
Emergency Generator	30 hr/yr	12.0 gal/hr	170 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	2.24E-03	lb/hr	3.35E-05 tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.34E-04	lb/hr	2.02E-06 tpy
						Vessel Total	**8.27E-02**	**lb/hr**	**1.33E-02 tpy**			**Vessel Total**	**7.55E-03**	**lb/hr**	**1.23E-03 tpy**
34' boom work boats - 4															
WB-1 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.59E-03	lb/hr	1.34E-04 tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.36E-04	lb/hr	8.07E-06 tpy
WB-1 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.59E-03	lb/hr	1.34E-04 tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.36E-04	lb/hr	8.07E-06 tpy
WB-2 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.59E-03	lb/hr	1.34E-04 tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.36E-04	lb/hr	8.07E-06 tpy
WB-2 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.59E-03	lb/hr	1.34E-04 tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.36E-04	lb/hr	8.07E-06 tpy
WB-3 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.59E-03	lb/hr	1.34E-04 tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.36E-04	lb/hr	8.07E-06 tpy
WB-3 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.59E-03	lb/hr	1.34E-04 tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.36E-04	lb/hr	8.07E-06 tpy
WB-4 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.59E-03	lb/hr	1.34E-04 tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.36E-04	lb/hr	8.07E-06 tpy
WB-4 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.59E-03	lb/hr	1.34E-04 tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.36E-04	lb/hr	8.07E-06 tpy
						Vessel Total	**4.47E-02**	**lb/hr**	**1.07E-03 tpy**			**Vessel Total**	**2.69E-03**	**lb/hr**	**6.45E-05 tpy**
Marine Research Vessel															
Main Engine	600 hr/yr	45.0 gal/hr	850 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	8.39E-03	lb/hr	2.52E-03 tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-2	7.74E-04	lb/hr	2.32E-04 tpy
Generator 1	600 hr/yr	9.6 gal/hr	135 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.79E-03	lb/hr	5.36E-04 tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.07E-04	lb/hr	3.22E-05 tpy
Generator 2	600 hr/yr	6.4 gal/hr	90 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.19E-03	lb/hr	3.57E-04 tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	7.16E-05	lb/hr	2.15E-05 tpy
Generator 3	600 hr/yr	2.8 gal/hr	40 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.29E-04	lb/hr	1.59E-04 tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.18E-05	lb/hr	9.55E-06 tpy
						Vessel Total	**1.19E-02**	**lb/hr**	**3.57E-03 tpy**			**Vessel Total**	**9.84E-04**	**lb/hr**	**2.95E-04 tpy**
Spill Storage Tanker															
Main Engine 1	12 hr/yr	88.7 gal/hr	1674 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.65E-02	lb/hr	9.92E-05 tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-2	1.52E-03	lb/hr	9.14E-06 tpy
Main Engine 2	12 hr/yr	88.7 gal/hr	1674 **hp**	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.65E-02	lb/hr	9.92E-05 tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-5	1.52E-03	lb/hr	9.14E-06 tpy
Generator 1	48 hr/yr	40.9 gal/hr	576.35 **kW**	1.41E-03	lb/MMBtu fuel input	VCAPCD	7.63E-03	lb/hr	1.83E-04 tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-5	7.03E-04	lb/hr	1.69E-05 tpy
Boiler 1	48 hr/yr	109.2 gal/hr	14.422 **MMBtu/hr**	1.41E+03	lb/10^12 Btu	VCAPCD	2.03E-02	lb/hr	4.88E-04 tpy	2.78E+03	lb/10^12 Btu	CARB-CATEF	4.01E-02	lb/hr	9.62E-04 tpy
						Vessel Total	**6.10E-02**	**lb/hr**	**8.70E-04 tpy**			**Vessel Total**	**4.38E-02**	**lb/hr**	**9.97E-04 tpy**
All Vessels Fuel Tanks															
Fuel Tank	2400 hr/yr	2193681.5 gal/yr*	N A	none						none					
						Vessel Total	**0.00E+00**	**lb/hr**	**0.00E+00 tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00 tpy**
						HAP Total Option 1			**2.79E-01 tpy**			**HAP Total Option 1**			**5.86E-02 tpy**
						HAP Total Option 2			**2.78E-01 tpy**			**HAP Total Option 2**			**5.85E-02 tpy**

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit Description	Allowable Operation	Maximum Fuel Usage	Maximum	Toluene Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Xylenes (mixed isomers) Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handling Supply Tug (AHST)																	
Main Engine 1	60 hr/yr	160.0 gal/hr	2529 **kW**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-1	5.94E-03	lb/hr	1.78E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-1	4.08E-03	lb/hr	1.22E-04	tpy
Main Engine 2	60 hr/yr	160.0 gal/hr	2529 **kW**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-2	5.94E-03	lb/hr	1.78E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-2	4.08E-03	lb/hr	1.22E-04	tpy
Generator 1	60 hr/yr	25.0 gal/hr	380 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.35E-03	lb/hr	4.05E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	9.41E-04	lb/hr	2.82E-05	tpy
Generator 2	12 hr/yr	25.0 gal/hr	380 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-3	1.35E-03	lb/hr	8.10E-06	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-3	9.41E-04	lb/hr	5.65E-06	tpy
Generator 3	0 hr/yr	25.0 gal/hr	380 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-4	1.35E-03	lb/hr	0.00E+00	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-4	9.41E-04	lb/hr	0.00E+00	tpy
Emergency Generator	6 hr/yr	5.6 gal/hr	170 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.03E-04	lb/hr	9.08E-07	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.11E-04	lb/hr	6.32E-07	tpy
						Vessel Total	**1.62E-02**	**lb/hr**	**4.06E-04**	**tpy**			**Vessel Total**	**1.12E-02**	**lb/hr**	**2.79E-04**	**tpy**
Offshore Supply Vessels (OSV1 & OSV2)																	
Main Engine 1	360 hr/yr	75.0 gal/hr	3000 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-1	2.78E-03	lb/hr	5.01E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-1	1.91E-03	lb/hr	3.44E-04	tpy
Main Engine 1	100 hr/yr	67.0 gal/hr	3000 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-2	2.49E-03	lb/hr	1.24E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-2	1.71E-03	lb/hr	8.54E-05	tpy
Main Engine 2	360 hr/yr	75.0 gal/hr	3000 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-2	2.78E-03	lb/hr	5.01E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-2	1.91E-03	lb/hr	3.44E-04	tpy
Main Engine 2	100 hr/yr	67.0 gal/hr	3000 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-2	2.49E-03	lb/hr	1.24E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-2	1.71E-03	lb/hr	8.54E-05	tpy
Thruster Engine 1	360 hr/yr	58.0 gal/hr	950 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-2	2.15E-03	lb/hr	3.88E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-2	1.48E-03	lb/hr	2.66E-04	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-2	2.15E-03	lb/hr	3.88E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-2	1.48E-03	lb/hr	2.66E-04	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-6	2.15E-03	lb/hr	3.88E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-6	1.48E-03	lb/hr	2.66E-04	tpy
Generator	820 hr/yr	27.0 gal/hr	400 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.46E-03	lb/hr	5.98E-04	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.02E-03	lb/hr	4.17E-04	tpy
Generator	120 hr/yr	27.0 gal/hr	400 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.46E-03	lb/hr	8.75E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.02E-03	lb/hr	6.10E-05	tpy
Generator	0 hr/yr	27.0 gal/hr	400 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.46E-03	lb/hr	0.00E+00	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.02E-03	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	4.32E-04	lb/hr	6.48E-06	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.01E-04	lb/hr	4.52E-06	tpy
						Vessel Total	**2.18E-02**	**lb/hr**	**3.11E-03**	**tpy**			**Vessel Total**	**1.50E-02**	**lb/hr**	**2.14E-03**	**tpy**
Ware Vessel (WV) w/ OSV backup																	
Main Engine 1	300 hr/yr	87.0 gal/hr	3200 **hp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-1	3.23E-03	lb/hr	4.84E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-1	2.22E-03	lb/hr	3.33E-04	tpy
Main Engine 2	300 hr/yr	87.0 gal/hr	3200 **hp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-2	3.23E-03	lb/hr	4.84E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-2	2.22E-03	lb/hr	3.33E-04	tpy
Main Engine 3	400 hr/yr	81.0 gal/hr	3200 **hp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.01E-03	lb/hr	6.01E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.07E-03	lb/hr	4.13E-04	tpy
Main Engine 4	400 hr/yr	81.0 gal/hr	3200 **hp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-4	3.01E-03	lb/hr	6.01E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.07E-03	lb/hr	4.13E-04	tpy
Generator 1	700 hr/yr	32.0 gal/hr	500 **kW**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.19E-03	lb/hr	4.16E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.16E-04	lb/hr	2.86E-04	tpy
Generator 2	100 hr/yr	32.0 gal/hr	500 **kW**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.19E-03	lb/hr	5.94E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.16E-04	lb/hr	4.08E-05	tpy
Generator 3	0 hr/yr	32.0 gal/hr	500 **kW**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.19E-03	lb/hr	0.00E+00	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.16E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	12.0 gal/hr	170 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.48E-04	lb/hr	9.72E-06	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	4.52E-04	lb/hr	6.78E-06	tpy
						Vessel Total	**1.67E-02**	**lb/hr**	**2.66E-03**	**tpy**			**Vessel Total**	**1.15E-02**	**lb/hr**	**1.82E-03**	**tpy**
34' boom work boats - 4																	
WB-1 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.62E-03	lb/hr	3.89E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.13E-03	lb/hr	2.71E-05	tpy
WB-1 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.62E-03	lb/hr	3.89E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.13E-03	lb/hr	2.71E-05	tpy
WB-2 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.62E-03	lb/hr	3.89E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.13E-03	lb/hr	2.71E-05	tpy
WB-2 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.62E-03	lb/hr	3.89E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.13E-03	lb/hr	2.71E-05	tpy
WB-3 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.62E-03	lb/hr	3.89E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.13E-03	lb/hr	2.71E-05	tpy
WB-3 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.62E-03	lb/hr	3.89E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.13E-03	lb/hr	2.71E-05	tpy
WB-4 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.62E-03	lb/hr	3.89E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.13E-03	lb/hr	2.71E-05	tpy
WB-4 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.62E-03	lb/hr	3.89E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.13E-03	lb/hr	2.71E-05	tpy
						Vessel Total	**1.30E-02**	**lb/hr**	**3.11E-04**	**tpy**			**Vessel Total**	**9.04E-03**	**lb/hr**	**2.17E-04**	**tpy**
Marine Research Vessel																	
Main Engine	600 hr/yr	45.0 gal/hr	850 **hp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-1	1.67E-03	lb/hr	5.02E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-1	1.15E-03	lb/hr	3.45E-04	tpy
Generator 1	600 hr/yr	9.6 gal/hr	135 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.18E-04	lb/hr	1.55E-04	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.61E-04	lb/hr	1.08E-04	tpy
Generator 2	600 hr/yr	6.4 gal/hr	90 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.45E-04	lb/hr	1.04E-04	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.41E-04	lb/hr	7.22E-05	tpy
Generator 3	600 hr/yr	2.8 gal/hr	40 **kW**	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.54E-04	lb/hr	4.61E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.07E-04	lb/hr	3.21E-05	tpy
						Vessel Total	**2.69E-03**	**lb/hr**	**8.07E-04**	**tpy**			**Vessel Total**	**1.86E-03**	**lb/hr**	**5.57E-04**	**tpy**
Spill Storage Tanker																	
Main Engine 1	12 hr/yr	88.7 gal/hr	1674 **hp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-1	3.29E-03	lb/hr	1.98E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-1	2.26E-03	lb/hr	1.36E-05	tpy
Main Engine 2	12 hr/yr	88.7 gal/hr	1674 **hp**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-4	3.29E-03	lb/hr	1.98E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.26E-03	lb/hr	1.36E-05	tpy
Generator 1	48 hr/yr	40.9 gal/hr	576.35 **kW**	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.52E-03	lb/hr	3.65E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.04E-03	lb/hr	2.51E-05	tpy
Boiler 1	48 hr/yr	109.2 gal/hr	14.422 **MMBtu/hr**	1.14E+01	lb/10^12 Btu	CARB-CATEF	1.64E-04	lb/hr	3.93E-06	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	1.63E-04	lb/hr	3.90E-06	tpy
						Vessel Total	**8.27E-03**	**lb/hr**	**7.99E-05**	**tpy**			**Vessel Total**	**5.73E-03**	**lb/hr**	**5.61E-05**	**tpy**
All Vessels Fuel Tanks																	
Fuel Tank	2400 hr/yr	2193681.5 gal/yr*	N A	N A		EPA TANKS	5.417E-08	lb/hr	0.00013	tpy	none						
						Vessel Total	**5.42E-08**	**lb/hr**	**1.30E-04**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**
						HAP Total Option 1			**5.36E-02**	**tpy**			**HAP Total Option 1**			**3.67E-02**	**tpy**
						HAP Total Option 2			**5.31E-02**	**tpy**			**HAP Total Option 2**			**3.64E-02**	**tpy**

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit Description	Allowable Operation	Maximum Fuel Usage	Maximum	o-Xylene Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	m-Xylene Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handling Supply Tug (AHST)																	
Main Engine 1	60 hr/yr	160.0 gal/hr	2529 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.34E-03	lb/hr	1.00E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.46E-03	lb/hr	1.04E-04	tpy
Main Engine 2	60 hr/yr	160.0 gal/hr	2529 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.34E-03	lb/hr	1.00E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.46E-03	lb/hr	1.04E-04	tpy
Generator 1	60 hr/yr	25.0 gal/hr	380 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.23E-04	lb/hr	1.57E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	5.40E-04	lb/hr	1.62E-05	tpy
Generator 2	12 hr/yr	25.0 gal/hr	380 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.23E-04	lb/hr	3.14E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	5.40E-04	lb/hr	3.24E-06	tpy
Generator 3	0 hr/yr	25.0 gal/hr	380 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.23E-04	lb/hr	0.00E+00	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	5.40E-04	lb/hr	0.00E+00	tpy
Emergency Generator	6 hr/yr	5.6 gal/hr	170 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.17E-04	lb/hr	3.51E-07	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.21E-04	lb/hr	3.63E-07	tpy
						Vessel Total	**8.37E-03**	**lb/hr**	**2.20E-04**	**tpy**			**Vessel Total**	**8.65E-03**	**lb/hr**	**2.27E-04**	**tpy**
Offshore Supply Vessels (OSV1 & OSV2)																	
Main Engine 1	360 hr/yr	75.0 gal/hr	3000 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.57E-03	lb/hr	2.82E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.62E-03	lb/hr	2.92E-04	tpy
Main Engine 1	100 hr/yr	67.0 gal/hr	3000 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.40E-03	lb/hr	7.00E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.45E-03	lb/hr	7.24E-05	tpy
Main Engine 2	360 hr/yr	75.0 gal/hr	3000 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.57E-03	lb/hr	2.82E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.62E-03	lb/hr	2.92E-04	tpy
Main Engine 2	100 hr/yr	67.0 gal/hr	3000 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.40E-03	lb/hr	7.00E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.45E-03	lb/hr	7.24E-05	tpy
Thruster Engine 1	360 hr/yr	58.0 gal/hr	950 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.21E-03	lb/hr	2.18E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.25E-03	lb/hr	2.26E-04	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.21E-03	lb/hr	2.18E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.25E-03	lb/hr	2.26E-04	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.21E-03	lb/hr	2.18E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.25E-03	lb/hr	2.26E-04	tpy
Generator	820 hr/yr	27.0 gal/hr	400 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.64E-04	lb/hr	2.31E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	5.83E-04	lb/hr	2.39E-04	tpy
Generator	120 hr/yr	27.0 gal/hr	400 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.64E-04	lb/hr	3.39E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	5.83E-04	lb/hr	3.50E-05	tpy
Generator	0 hr/yr	27.0 gal/hr	400 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.64E-04	lb/hr	0.00E+00	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	5.83E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.67E-04	lb/hr	2.51E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.73E-04	lb/hr	2.59E-06	tpy
						Vessel Total	**1.14E-02**	**lb/hr**	**1.63E-03**	**tpy**			**Vessel Total**	**1.18E-02**	**lb/hr**	**1.68E-03**	**tpy**
Ware Vessel (WV) w/ OSV backup																	
Main Engine 1	300 hr/yr	87.0 gal/hr	3200 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.82E-03	lb/hr	2.73E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.88E-03	lb/hr	2.82E-04	tpy
Main Engine 2	300 hr/yr	87.0 gal/hr	3200 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.82E-03	lb/hr	2.73E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.88E-03	lb/hr	2.82E-04	tpy
Main Engine 3	400 hr/yr	81.0 gal/hr	3200 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.69E-03	lb/hr	3.39E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.75E-03	lb/hr	3.50E-04	tpy
Main Engine 4	400 hr/yr	81.0 gal/hr	3200 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.69E-03	lb/hr	3.39E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.75E-03	lb/hr	3.50E-04	tpy
Generator 1	700 hr/yr	32.0 gal/hr	500 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.69E-04	lb/hr	2.34E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.91E-04	lb/hr	2.42E-04	tpy
Generator 2	100 hr/yr	32.0 gal/hr	500 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.69E-04	lb/hr	3.34E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.91E-04	lb/hr	3.46E-05	tpy
Generator 3	0 hr/yr	32.0 gal/hr	500 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.69E-04	lb/hr	0.00E+00	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.91E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	12.0 gal/hr	170 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	2.51E-04	lb/hr	3.76E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	2.59E-04	lb/hr	3.89E-06	tpy
						Vessel Total	**9.28E-03**	**lb/hr**	**1.49E-03**	**tpy**			**Vessel Total**	**9.59E-03**	**lb/hr**	**1.54E-03**	**tpy**
34' boom work boats - 4																	
WB-1 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.27E-04	lb/hr	1.50E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.48E-04	lb/hr	1.56E-05	tpy
WB-1 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.27E-04	lb/hr	1.50E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.48E-04	lb/hr	1.56E-05	tpy
WB-2 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.27E-04	lb/hr	1.50E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.48E-04	lb/hr	1.56E-05	tpy
WB-2 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.27E-04	lb/hr	1.50E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.48E-04	lb/hr	1.56E-05	tpy
WB-3 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.27E-04	lb/hr	1.50E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.48E-04	lb/hr	1.56E-05	tpy
WB-3 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.27E-04	lb/hr	1.50E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.48E-04	lb/hr	1.56E-05	tpy
WB-4 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.27E-04	lb/hr	1.50E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.48E-04	lb/hr	1.56E-05	tpy
WB-4 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.27E-04	lb/hr	1.50E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.48E-04	lb/hr	1.56E-05	tpy
						Vessel Total	**5.02E-03**	**lb/hr**	**1.20E-04**	**tpy**			**Vessel Total**	**5.18E-03**	**lb/hr**	**1.24E-04**	**tpy**
Marine Research Vessel																	
Main Engine	600 hr/yr	45.0 gal/hr	850 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	9.41E-04	lb/hr	2.82E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	9.73E-04	lb/hr	2.92E-04	tpy
Generator 1	600 hr/yr	9.6 gal/hr	135 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	2.00E-04	lb/hr	6.01E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	2.07E-04	lb/hr	6.21E-05	tpy
Generator 2	600 hr/yr	6.4 gal/hr	90 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.34E-04	lb/hr	4.01E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.38E-04	lb/hr	4.14E-05	tpy
Generator 3	600 hr/yr	2.8 gal/hr	40 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.94E-05	lb/hr	1.78E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.14E-05	lb/hr	1.84E-05	tpy
						Vessel Total	**1.33E-03**	**lb/hr**	**4.00E-04**	**tpy**			**Vessel Total**	**1.38E-03**	**lb/hr**	**4.14E-04**	**tpy**
Spill Storage Tanker																	
Main Engine 1	12 hr/yr	88.7 gal/hr	1674 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.85E-03	lb/hr	1.11E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.92E-03	lb/hr	1.15E-05	tpy
Main Engine 2	12 hr/yr	88.7 gal/hr	1674 **hp**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.85E-03	lb/hr	1.11E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.92E-03	lb/hr	1.15E-05	tpy
Generator 1	48 hr/yr	40.9 gal/hr	576.35 **kW**	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	8.56E-04	lb/hr	2.05E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	8.84E-04	lb/hr	2.12E-05	tpy
Boiler 1	48 hr/yr	109.2 gal/hr	14.422 **MMBtu/hr**	none							none						
						Vessel Total	**4.56E-03**	**lb/hr**	**4.28E-05**	**tpy**			**Vessel Total**	**4.72E-03**	**lb/hr**	**4.42E-05**	**tpy**
All Vessels Fuel Tanks																	
Fuel Tank	2400 hr/yr	2193681.5 gal/yr*	N A	none							N A		EPA TANKS	1.125E-07	lb/hr	0.00027	tpy
						Vessel Total	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**			**Vessel Total**	**1.13E-07**	**lb/hr**	**2.70E-04**	**tpy**
						HAP Total Option 1			**2.93E-02**	**tpy**			**HAP Total Option 1**			**3.07E-02**	**tpy**
						HAP Total Option 2			**2.92E-02**	**tpy**			**HAP Total Option 2**			**3.06E-02**	**tpy**

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Arsenic Compounds (inorganic including arsine)							Beryllium Compounds						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handling Supply Tug (AHST)																	
Main Engine 1	60 hr/yr	160.0 gal/hr	2529 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.56E-04	lb/hr	7.68E-06	tpy	none						
Main Engine 2	60 hr/yr	160.0 gal/hr	2529 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.56E-04	lb/hr	7.68E-06	tpy	none						
Generator 1	60 hr/yr	25.0 gal/hr	380 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.00E-05	lb/hr	1.20E-06	tpy	none						
Generator 2	12 hr/yr	25.0 gal/hr	380 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.00E-05	lb/hr	2.40E-07	tpy	none						
Generator 3	0 hr/yr	25.0 gal/hr	380 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.00E-05	lb/hr	0.00E+00	tpy	none						
Emergency Generator	6 hr/yr	5.6 gal/hr	170 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	8.96E-06	lb/hr	2.69E-08	tpy	none						
						Vessel Total	**6.41E-04**	**lb/hr**	**1.68E-05**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**
Offshore Supply Vessels (OSV1 & OSV2)																	
Main Engine 1	360 hr/yr	75.0 gal/hr	3000 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.20E-04	lb/hr	2.16E-05	tpy	none						
Main Engine 1	100 hr/yr	67.0 gal/hr	3000 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.07E-04	lb/hr	5.36E-06	tpy	none						
Main Engine 2	360 hr/yr	75.0 gal/hr	3000 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.20E-04	lb/hr	2.16E-05	tpy	none						
Main Engine 2	100 hr/yr	67.0 gal/hr	3000 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.07E-04	lb/hr	5.36E-06	tpy	none						
Thruster Engine 1	360 hr/yr	58.0 gal/hr	950 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	9.28E-05	lb/hr	1.67E-05	tpy	none						
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	9.28E-05	lb/hr	1.67E-05	tpy	none						
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	9.28E-05	lb/hr	1.67E-05	tpy	none						
Generator	820 hr/yr	27.0 gal/hr	400 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.32E-05	lb/hr	1.77E-05	tpy	none						
Generator	120 hr/yr	27.0 gal/hr	400 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.32E-05	lb/hr	2.59E-06	tpy	none						
Generator	0 hr/yr	27.0 gal/hr	400 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.32E-05	lb/hr	0.00E+00	tpy	none						
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.28E-05	lb/hr	1.92E-07	tpy	none						
						Vessel Total	**8.75E-04**	**lb/hr**	**1.25E-04**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**
Ware Vessel (WV) w/ OSV backup																	
Main Engine 1	300 hr/yr	87.0 gal/hr	3200 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.39E-04	lb/hr	2.09E-05	tpy	none						
Main Engine 2	300 hr/yr	87.0 gal/hr	3200 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.39E-04	lb/hr	2.09E-05	tpy	none						
Main Engine 3	400 hr/yr	81.0 gal/hr	3200 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.30E-04	lb/hr	2.59E-05	tpy	none						
Main Engine 4	400 hr/yr	81.0 gal/hr	3200 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.30E-04	lb/hr	2.59E-05	tpy	none						
Generator 1	700 hr/yr	32.0 gal/hr	500 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	5.12E-05	lb/hr	1.79E-05	tpy	none						
Generator 2	100 hr/yr	32.0 gal/hr	500 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	5.12E-05	lb/hr	2.56E-06	tpy	none						
Generator 3	0 hr/yr	32.0 gal/hr	500 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	5.12E-05	lb/hr	0.00E+00	tpy	none						
Emergency Generator	30 hr/yr	12.0 gal/hr	170 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.92E-05	lb/hr	2.88E-07	tpy	none						
						Vessel Total	**7.10E-04**	**lb/hr**	**1.14E-04**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**
34' boom work boats - 4																	
WB-1 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.80E-05	lb/hr	1.15E-06	tpy	none						
WB-1 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.80E-05	lb/hr	1.15E-06	tpy	none						
WB-2 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.80E-05	lb/hr	1.15E-06	tpy	none						
WB-2 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.80E-05	lb/hr	1.15E-06	tpy	none						
WB-3 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.80E-05	lb/hr	1.15E-06	tpy	none						
WB-3 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.80E-05	lb/hr	1.15E-06	tpy	none						
WB-4 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.80E-05	lb/hr	1.15E-06	tpy	none						
WB-4 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.80E-05	lb/hr	1.15E-06	tpy	none						
						Vessel Total	**3.84E-04**	**lb/hr**	**9.22E-06**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**
Marine Research Vessel																	
Main Engine	600 hr/yr	45.0 gal/hr	850 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	7.21E-05	lb/hr	2.16E-05	tpy	none						
Generator 1	600 hr/yr	9.6 gal/hr	135 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.53E-05	lb/hr	4.60E-06	tpy	none						
Generator 2	600 hr/yr	6.4 gal/hr	90 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.02E-05	lb/hr	3.07E-06	tpy	none						
Generator 3	600 hr/yr	2.8 gal/hr	40 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.55E-06	lb/hr	1.36E-06	tpy	none						
						Vessel Total	**1.02E-04**	**lb/hr**	**3.07E-05**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**
Spill Storage Tanker																	
Main Engine 1	12 hr/yr	88.7 gal/hr	1674 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.42E-04	lb/hr	8.52E-07	tpy	none						
Main Engine 2	12 hr/yr	88.7 gal/hr	1674 **hp**	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.42E-04	lb/hr	8.52E-07	tpy	none						
Generator 1	48 hr/yr	40.9 gal/hr	576.35 **kW**	1.21E-05	lb/MMBtu fuel input	VCAPCD	6.55E-05	lb/hr	1.57E-06	tpy	none						
Boiler 1	48 hr/yr	109.2 gal/hr	14.422 **MMBtu/hr**	4.00E+00	lb/10^12 Btu	AP-42 1.3-10	5.77E-05	lb/hr	1.38E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	4.33E-05	lb/hr	1.04E-06	tpy
						Vessel Total	**4.07E-04**	**lb/hr**	**4.66E-06**	**tpy**			**Vessel Total**	**4.33E-05**	**lb/hr**	**1.04E-06**	**tpy**
All Vessels Fuel Tanks																	
Fuel Tank	2400 hr/yr	2193681.5 gal/yr*	N A	none							none						
						Vessel Total	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**
						HAP Total Option 1			**3.21E-03**	**tpy**			**HAP Total Option 1**			**3.77E-05**	**tpy**
						HAP Total Option 2			**3.20E-03**	**tpy**			**HAP Total Option 2**			**3.77E-05**	**tpy**

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Cadmium Compounds						Chromium Compounds					
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handling Supply Tug (AHST)																	
Main Engine 1	60 hr/yr	160.0 gal/hr	2529 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	2.40E-04	lb/hr	7.20E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.12E-04	lb/hr	3.36E-06	tpy
Main Engine 2	60 hr/yr	160.0 gal/hr	2529 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	2.40E-04	lb/hr	7.20E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.12E-04	lb/hr	3.36E-06	tpy
Generator 1	60 hr/yr	25.0 gal/hr	380 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	3.75E-05	lb/hr	1.13E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.75E-05	lb/hr	5.25E-07	tpy
Generator 2	12 hr/yr	25.0 gal/hr	380 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	3.75E-05	lb/hr	2.25E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.75E-05	lb/hr	1.05E-07	tpy
Generator 3	0 hr/yr	25.0 gal/hr	380 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	3.75E-05	lb/hr	0.00E+00	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.75E-05	lb/hr	0.00E+00	tpy
Emergency Generator	6 hr/yr	5.6 gal/hr	170 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	8.40E-06	lb/hr	2.52E-08	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	3.92E-06	lb/hr	1.18E-08	tpy
						Vessel Total	**6.01E-04**	**lb/hr**	**1.58E-05**	**tpy**			**Vessel Total**	**2.80E-04**	**lb/hr**	**7.36E-06**	**tpy**
Offshore Supply Vessels (OSV1 & OSV2)																	
Main Engine 1	360 hr/yr	75.0 gal/hr	3000 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.13E-04	lb/hr	2.03E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.25E-05	lb/hr	9.45E-06	tpy
Main Engine 1	100 hr/yr	67.0 gal/hr	3000 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.01E-04	lb/hr	5.03E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.69E-05	lb/hr	2.35E-06	tpy
Main Engine 2	360 hr/yr	75.0 gal/hr	3000 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.13E-04	lb/hr	2.03E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.25E-05	lb/hr	9.45E-06	tpy
Main Engine 2	100 hr/yr	67.0 gal/hr	3000 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.01E-04	lb/hr	5.03E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.69E-05	lb/hr	2.35E-06	tpy
Thruster Engine 1	360 hr/yr	58.0 gal/hr	950 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	8.70E-05	lb/hr	1.57E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.06E-05	lb/hr	7.31E-06	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	8.70E-05	lb/hr	1.57E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.06E-05	lb/hr	7.31E-06	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	8.70E-05	lb/hr	1.57E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.06E-05	lb/hr	7.31E-06	tpy
Generator	820 hr/yr	27.0 gal/hr	400 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.05E-05	lb/hr	1.66E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.89E-05	lb/hr	7.75E-06	tpy
Generator	120 hr/yr	27.0 gal/hr	400 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.05E-05	lb/hr	2.43E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.89E-05	lb/hr	1.13E-06	tpy
Generator	0 hr/yr	27.0 gal/hr	400 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.05E-05	lb/hr	0.00E+00	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.89E-05	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.20E-05	lb/hr	1.80E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.60E-06	lb/hr	8.40E-08	tpy
						Vessel Total	**8.21E-04**	**lb/hr**	**1.17E-04**	**tpy**			**Vessel Total**	**3.83E-04**	**lb/hr**	**5.45E-05**	**tpy**
Ware Vessel (WV) w/ OSV backup																	
Main Engine 1	300 hr/yr	87.0 gal/hr	3200 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.31E-04	lb/hr	1.96E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	6.09E-05	lb/hr	9.14E-06	tpy
Main Engine 2	300 hr/yr	87.0 gal/hr	3200 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.31E-04	lb/hr	1.96E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	6.09E-05	lb/hr	9.14E-06	tpy
Main Engine 3	400 hr/yr	81.0 gal/hr	3200 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.22E-04	lb/hr	2.43E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.67E-05	lb/hr	1.13E-05	tpy
Main Engine 4	400 hr/yr	81.0 gal/hr	3200 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.22E-04	lb/hr	2.43E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.67E-05	lb/hr	1.13E-05	tpy
Generator 1	700 hr/yr	32.0 gal/hr	500 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.80E-05	lb/hr	1.68E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.24E-05	lb/hr	7.84E-06	tpy
Generator 2	100 hr/yr	32.0 gal/hr	500 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.80E-05	lb/hr	2.40E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.24E-05	lb/hr	1.12E-06	tpy
Generator 3	0 hr/yr	32.0 gal/hr	500 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.80E-05	lb/hr	0.00E+00	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.24E-05	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	12.0 gal/hr	170 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.80E-05	lb/hr	2.70E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	8.40E-06	lb/hr	1.26E-07	tpy
						Vessel Total	**6.66E-04**	**lb/hr**	**1.07E-04**	**tpy**			**Vessel Total**	**3.11E-04**	**lb/hr**	**5.00E-05**	**tpy**
34' boom work boats - 4																	
WB-1 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.50E-05	lb/hr	1.08E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.10E-05	lb/hr	5.04E-07	tpy
WB-1 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.50E-05	lb/hr	1.08E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.10E-05	lb/hr	5.04E-07	tpy
WB-2 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.50E-05	lb/hr	1.08E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.10E-05	lb/hr	5.04E-07	tpy
WB-2 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.50E-05	lb/hr	1.08E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.10E-05	lb/hr	5.04E-07	tpy
WB-3 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.50E-05	lb/hr	1.08E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.10E-05	lb/hr	5.04E-07	tpy
WB-3 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.50E-05	lb/hr	1.08E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.10E-05	lb/hr	5.04E-07	tpy
WB-4 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.50E-05	lb/hr	1.08E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.10E-05	lb/hr	5.04E-07	tpy
WB-4 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.50E-05	lb/hr	1.08E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.10E-05	lb/hr	5.04E-07	tpy
						Vessel Total	**3.60E-04**	**lb/hr**	**8.64E-06**	**tpy**			**Vessel Total**	**1.68E-04**	**lb/hr**	**4.03E-06**	**tpy**
Marine Research Vessel																	
Main Engine	600 hr/yr	45.0 gal/hr	850 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	6.76E-05	lb/hr	2.03E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	3.15E-05	lb/hr	9.46E-06	tpy
Generator 1	600 hr/yr	9.6 gal/hr	135 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.44E-05	lb/hr	4.32E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	6.71E-06	lb/hr	2.01E-06	tpy
Generator 2	600 hr/yr	6.4 gal/hr	90 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	9.59E-06	lb/hr	2.88E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.48E-06	lb/hr	1.34E-06	tpy
Generator 3	600 hr/yr	2.8 gal/hr	40 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.26E-06	lb/hr	1.28E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.99E-06	lb/hr	5.97E-07	tpy
						Vessel Total	**9.58E-05**	**lb/hr**	**2.87E-05**	**tpy**			**Vessel Total**	**4.47E-05**	**lb/hr**	**1.34E-05**	**tpy**
Spill Storage Tanker																	
Main Engine 1	12 hr/yr	88.7 gal/hr	1674 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.33E-04	lb/hr	7.98E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	6.21E-05	lb/hr	3.73E-07	tpy
Main Engine 2	12 hr/yr	88.7 gal/hr	1674 **hp**	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.33E-04	lb/hr	7.98E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	6.21E-05	lb/hr	3.73E-07	tpy
Generator 1	48 hr/yr	40.9 gal/hr	576.35 **kW**	1.14E-05	lb/MMBtu fuel input	VCAPCD	6.14E-05	lb/hr	1.47E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.87E-05	lb/hr	6.88E-07	tpy
Boiler 1	48 hr/yr	109.2 gal/hr	14.422 **MMBtu/hr**	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	4.33E-05	lb/hr	1.04E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	4.33E-05	lb/hr	1.04E-06	tpy
						Vessel Total	**3.71E-04**	**lb/hr**	**4.11E-06**	**tpy**			**Vessel Total**	**1.96E-04**	**lb/hr**	**2.47E-06**	**tpy**
All Vessels Fuel Tanks																	
Fuel Tank	2400 hr/yr	2193681.5 gal/yr*	N A	none							none						
						Vessel Total	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**
						HAP Total Option 1			**4.44E-03**	**tpy**			**HAP Total Option 1**			**2.91E-03**	**tpy**
						HAP Total Option 2			**4.43E-03**	**tpy**			**HAP Total Option 2**			**2.90E-03**	**tpy**

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Lead Compounds							Manganese Compounds						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handling Supply Tug (AHST)																	
Main Engine 1	60 hr/yr	160.0 gal/hr	2529 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.33E-03	lb/hr	3.98E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	4.96E-04	lb/hr	1.49E-05	tpy
Main Engine 2	60 hr/yr	160.0 gal/hr	2529 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.33E-03	lb/hr	3.98E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	4.96E-04	lb/hr	1.49E-05	tpy
Generator 1	60 hr/yr	25.0 gal/hr	380 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.08E-04	lb/hr	6.23E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	7.75E-05	lb/hr	2.33E-06	tpy
Generator 2	12 hr/yr	25.0 gal/hr	380 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.08E-04	lb/hr	1.25E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	7.75E-05	lb/hr	4.65E-07	tpy
Generator 3	0 hr/yr	25.0 gal/hr	380 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.08E-04	lb/hr	0.00E+00	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	7.75E-05	lb/hr	0.00E+00	tpy
Emergency Generator	6 hr/yr	5.6 gal/hr	170 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.65E-05	lb/hr	1.39E-07	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.74E-05	lb/hr	5.21E-08	tpy
						Vessel Total	**3.32E-03**	**lb/hr**	**8.73E-05**	**tpy**			**Vessel Total**	**1.24E-03**	**lb/hr**	**3.26E-05**	**tpy**
Offshore Supply Vessels (OSV1 & OSV2)																	
Main Engine 1	360 hr/yr	75.0 gal/hr	3000 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	6.23E-04	lb/hr	1.12E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.33E-04	lb/hr	4.19E-05	tpy
Main Engine 1	100 hr/yr	67.0 gal/hr	3000 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	5.56E-04	lb/hr	2.78E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.08E-04	lb/hr	1.04E-05	tpy
Main Engine 2	360 hr/yr	75.0 gal/hr	3000 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	6.23E-04	lb/hr	1.12E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.33E-04	lb/hr	4.19E-05	tpy
Main Engine 2	100 hr/yr	67.0 gal/hr	3000 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	5.56E-04	lb/hr	2.78E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.08E-04	lb/hr	1.04E-05	tpy
Thruster Engine 1	360 hr/yr	58.0 gal/hr	950 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.81E-04	lb/hr	8.67E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.80E-04	lb/hr	3.24E-05	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.81E-04	lb/hr	8.67E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.80E-04	lb/hr	3.24E-05	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.81E-04	lb/hr	8.67E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.80E-04	lb/hr	3.24E-05	tpy
Generator	820 hr/yr	27.0 gal/hr	400 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	9.19E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.37E-05	lb/hr	3.43E-05	tpy
Generator	120 hr/yr	27.0 gal/hr	400 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	1.34E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.37E-05	lb/hr	5.02E-06	tpy
Generator	0 hr/yr	27.0 gal/hr	400 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	0.00E+00	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.37E-05	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	6.64E-05	lb/hr	9.96E-07	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.48E-05	lb/hr	3.72E-07	tpy
						Vessel Total	**4.54E-03**	**lb/hr**	**6.46E-04**	**tpy**			**Vessel Total**	**1.70E-03**	**lb/hr**	**2.41E-04**	**tpy**
Ware Vessel (WV) w/ OSV backup																	
Main Engine 1	300 hr/yr	87.0 gal/hr	3200 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	7.22E-04	lb/hr	1.08E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.70E-04	lb/hr	4.05E-05	tpy
Main Engine 2	300 hr/yr	87.0 gal/hr	3200 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	7.22E-04	lb/hr	1.08E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.70E-04	lb/hr	4.05E-05	tpy
Main Engine 3	400 hr/yr	81.0 gal/hr	3200 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	6.72E-04	lb/hr	1.34E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.51E-04	lb/hr	5.02E-05	tpy
Main Engine 4	400 hr/yr	81.0 gal/hr	3200 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	6.72E-04	lb/hr	1.34E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.51E-04	lb/hr	5.02E-05	tpy
Generator 1	700 hr/yr	32.0 gal/hr	500 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.66E-04	lb/hr	9.30E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.92E-05	lb/hr	3.47E-05	tpy
Generator 2	100 hr/yr	32.0 gal/hr	500 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.66E-04	lb/hr	1.33E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.92E-05	lb/hr	4.96E-06	tpy
Generator 3	0 hr/yr	32.0 gal/hr	500 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.66E-04	lb/hr	0.00E+00	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.92E-05	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	12.0 gal/hr	170 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	9.96E-05	lb/hr	1.49E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	3.72E-05	lb/hr	5.58E-07	tpy
						Vessel Total	**3.69E-03**	**lb/hr**	**5.93E-04**	**tpy**			**Vessel Total**	**1.38E-03**	**lb/hr**	**2.22E-04**	**tpy**
34' boom work boats - 4																	
WB-1 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.49E-04	lb/hr	5.98E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.30E-05	lb/hr	2.23E-06	tpy
WB-1 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.49E-04	lb/hr	5.98E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.30E-05	lb/hr	2.23E-06	tpy
WB-2 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.49E-04	lb/hr	5.98E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.30E-05	lb/hr	2.23E-06	tpy
WB-2 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.49E-04	lb/hr	5.98E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.30E-05	lb/hr	2.23E-06	tpy
WB-3 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.49E-04	lb/hr	5.98E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.30E-05	lb/hr	2.23E-06	tpy
WB-3 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.49E-04	lb/hr	5.98E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.30E-05	lb/hr	2.23E-06	tpy
WB-4 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.49E-04	lb/hr	5.98E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.30E-05	lb/hr	2.23E-06	tpy
WB-4 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.49E-04	lb/hr	5.98E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.30E-05	lb/hr	2.23E-06	tpy
						Vessel Total	**1.99E-03**	**lb/hr**	**4.78E-05**	**tpy**			**Vessel Total**	**7.44E-04**	**lb/hr**	**1.79E-05**	**tpy**
Marine Research Vessel																	
Main Engine	600 hr/yr	45.0 gal/hr	850 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	3.74E-04	lb/hr	1.12E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.40E-04	lb/hr	4.19E-05	tpy
Generator 1	600 hr/yr	9.6 gal/hr	135 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	7.96E-05	lb/hr	2.39E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.97E-05	lb/hr	8.92E-06	tpy
Generator 2	600 hr/yr	6.4 gal/hr	90 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	5.31E-05	lb/hr	1.59E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.98E-05	lb/hr	5.95E-06	tpy
Generator 3	600 hr/yr	2.8 gal/hr	40 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.36E-05	lb/hr	7.08E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.81E-06	lb/hr	2.64E-06	tpy
						Vessel Total	**5.30E-04**	**lb/hr**	**1.59E-04**	**tpy**			**Vessel Total**	**1.98E-04**	**lb/hr**	**5.94E-05**	**tpy**
Spill Storage Tanker																	
Main Engine 1	12 hr/yr	88.7 gal/hr	1674 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	7.36E-04	lb/hr	4.42E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.75E-04	lb/hr	1.65E-06	tpy
Main Engine 2	12 hr/yr	88.7 gal/hr	1674 **hp**	6.28E-05	lb/MMBtu fuel input	VCAPCD	7.36E-04	lb/hr	4.42E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.75E-04	lb/hr	1.65E-06	tpy
Generator 1	48 hr/yr	40.9 gal/hr	576.35 **kW**	6.28E-05	lb/MMBtu fuel input	VCAPCD	3.40E-04	lb/hr	8.16E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.27E-04	lb/hr	3.05E-06	tpy
Boiler 1	48 hr/yr	109.2 gal/hr	14.422 **MMBtu/hr**	9.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.30E-04	lb/hr	3.12E-06	tpy	0.00E+00	0.00E+00	AP-42 1.3-10	0.00E+00	lb/hr	0.00E+00	tpy
						Vessel Total	**1.94E-03**	**lb/hr**	**2.01E-05**	**tpy**			**Vessel Total**	**6.77E-04**	**lb/hr**	**6.35E-06**	**tpy**
All Vessels Fuel Tanks																	
Fuel Tank	2400 hr/yr	2193681.5 gal/yr*	N A	none							none						
						Vessel Total	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**
						HAP Total Option 1			**5.66E-02**	**tpy**			**HAP Total Option 1**			**4.41E-03**	**tpy**
						HAP Total Option 2			**5.66E-02**	**tpy**			**HAP Total Option 2**			**4.39E-03**	**tpy**

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Mercury Compounds							Nickel Compounds						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handling Supply Tug (AHST)																	
Main Engine 1	60 hr/yr	160.0 gal/hr	2529 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	3.20E-04	lb/hr	9.60E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	6.24E-04	lb/hr	1.87E-05	tpy
Main Engine 2	60 hr/yr	160.0 gal/hr	2529 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	3.20E-04	lb/hr	9.60E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	6.24E-04	lb/hr	1.87E-05	tpy
Generator 1	60 hr/yr	25.0 gal/hr	380 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.00E-05	lb/hr	1.50E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	9.75E-05	lb/hr	2.93E-06	tpy
Generator 2	12 hr/yr	25.0 gal/hr	380 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.00E-05	lb/hr	3.00E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	9.75E-05	lb/hr	5.85E-07	tpy
Generator 3	0 hr/yr	25.0 gal/hr	380 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.00E-05	lb/hr	0.00E+00	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	9.75E-05	lb/hr	0.00E+00	tpy
Emergency Generator	6 hr/yr	5.6 gal/hr	170 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.12E-05	lb/hr	3.36E-08	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.18E-05	lb/hr	6.55E-08	tpy
						Vessel Total	**8.01E-04**	**lb/hr**	**2.10E-05**	**tpy**			**Vessel Total**	**1.56E-03**	**lb/hr**	**4.10E-05**	**tpy**
Offshore Supply Vessels (OSV1 & OSV2)																	
Main Engine 1	360 hr/yr	75.0 gal/hr	3000 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.50E-04	lb/hr	2.70E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.93E-04	lb/hr	5.27E-05	tpy
Main Engine 1	100 hr/yr	67.0 gal/hr	3000 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.34E-04	lb/hr	6.70E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.61E-04	lb/hr	1.31E-05	tpy
Main Engine 2	360 hr/yr	75.0 gal/hr	3000 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.50E-04	lb/hr	2.70E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.93E-04	lb/hr	5.27E-05	tpy
Main Engine 2	100 hr/yr	67.0 gal/hr	3000 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.34E-04	lb/hr	6.70E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.61E-04	lb/hr	1.31E-05	tpy
Thruster Engine 1	360 hr/yr	58.0 gal/hr	950 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.16E-04	lb/hr	2.09E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.26E-04	lb/hr	4.07E-05	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.16E-04	lb/hr	2.09E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.26E-04	lb/hr	4.07E-05	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.16E-04	lb/hr	2.09E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.26E-04	lb/hr	4.07E-05	tpy
Generator	820 hr/yr	27.0 gal/hr	400 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.40E-05	lb/hr	2.21E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.05E-04	lb/hr	4.32E-05	tpy
Generator	120 hr/yr	27.0 gal/hr	400 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.40E-05	lb/hr	3.24E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.05E-04	lb/hr	6.32E-06	tpy
Generator	0 hr/yr	27.0 gal/hr	400 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.40E-05	lb/hr	0.00E+00	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.05E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.60E-05	lb/hr	2.40E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.12E-05	lb/hr	4.68E-07	tpy
						Vessel Total	**1.09E-03**	**lb/hr**	**1.56E-04**	**tpy**			**Vessel Total**	**2.13E-03**	**lb/hr**	**3.04E-04**	**tpy**
Ware Vessel (WV) w/ OSV backup																	
Main Engine 1	300 hr/yr	87.0 gal/hr	3200 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.74E-04	lb/hr	2.61E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.39E-04	lb/hr	5.09E-05	tpy
Main Engine 2	300 hr/yr	87.0 gal/hr	3200 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.74E-04	lb/hr	2.61E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.39E-04	lb/hr	5.09E-05	tpy
Main Engine 3	400 hr/yr	81.0 gal/hr	3200 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.62E-04	lb/hr	3.24E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.16E-04	lb/hr	6.32E-05	tpy
Main Engine 4	400 hr/yr	81.0 gal/hr	3200 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.62E-04	lb/hr	3.24E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.16E-04	lb/hr	6.32E-05	tpy
Generator 1	700 hr/yr	32.0 gal/hr	500 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.40E-05	lb/hr	2.24E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.25E-04	lb/hr	4.37E-05	tpy
Generator 2	100 hr/yr	32.0 gal/hr	500 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.40E-05	lb/hr	3.20E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.25E-04	lb/hr	6.24E-06	tpy
Generator 3	0 hr/yr	32.0 gal/hr	500 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.40E-05	lb/hr	0.00E+00	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.25E-04	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	12.0 gal/hr	170 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	2.40E-05	lb/hr	3.60E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	4.68E-05	lb/hr	7.02E-07	tpy
						Vessel Total	**8.88E-04**	**lb/hr**	**1.43E-04**	**tpy**			**Vessel Total**	**1.73E-03**	**lb/hr**	**2.79E-04**	**tpy**
34' boom work boats - 4																	
WB-1 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.00E-05	lb/hr	1.44E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	2.81E-06	tpy
WB-1 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.00E-05	lb/hr	1.44E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	2.81E-06	tpy
WB-2 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.00E-05	lb/hr	1.44E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	2.81E-06	tpy
WB-2 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.00E-05	lb/hr	1.44E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	2.81E-06	tpy
WB-3 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.00E-05	lb/hr	1.44E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	2.81E-06	tpy
WB-3 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.00E-05	lb/hr	1.44E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	2.81E-06	tpy
WB-4 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.00E-05	lb/hr	1.44E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	2.81E-06	tpy
WB-4 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.00E-05	lb/hr	1.44E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	2.81E-06	tpy
						Vessel Total	**4.80E-04**	**lb/hr**	**1.15E-05**	**tpy**			**Vessel Total**	**9.36E-04**	**lb/hr**	**2.25E-05**	**tpy**
Marine Research Vessel																	
Main Engine	600 hr/yr	45.0 gal/hr	850 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	9.01E-05	lb/hr	2.70E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.76E-04	lb/hr	5.27E-05	tpy
Generator 1	600 hr/yr	9.6 gal/hr	135 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.92E-05	lb/hr	5.75E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.74E-05	lb/hr	1.12E-05	tpy
Generator 2	600 hr/yr	6.4 gal/hr	90 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.28E-05	lb/hr	3.84E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.49E-05	lb/hr	7.48E-06	tpy
Generator 3	600 hr/yr	2.8 gal/hr	40 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.68E-06	lb/hr	1.70E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.11E-05	lb/hr	3.32E-06	tpy
						Vessel Total	**1.28E-04**	**lb/hr**	**3.83E-05**	**tpy**			**Vessel Total**	**2.49E-04**	**lb/hr**	**7.47E-05**	**tpy**
Spill Storage Tanker																	
Main Engine 1	12 hr/yr	88.7 gal/hr	1674 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.77E-04	lb/hr	1.06E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.46E-04	lb/hr	2.08E-06	tpy
Main Engine 2	12 hr/yr	88.7 gal/hr	1674 **hp**	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.77E-04	lb/hr	1.06E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.46E-04	lb/hr	2.08E-06	tpy
Generator 1	48 hr/yr	40.9 gal/hr	576.35 **kW**	1.51E-05	lb/MMBtu fuel input	VCAPCD	8.19E-05	lb/hr	1.97E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.60E-04	lb/hr	3.83E-06	tpy
Boiler 1	48 hr/yr	109.2 gal/hr	14.422 **MMBtu/hr**	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	4.33E-05	lb/hr	1.04E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	4.33E-05	lb/hr	1.04E-06	tpy
						Vessel Total	**4.80E-04**	**lb/hr**	**5.13E-06**	**tpy**			**Vessel Total**	**8.95E-04**	**lb/hr**	**9.02E-06**	**tpy**
All Vessels Fuel Tanks																	
Fuel Tank	2400 hr/yr	2193681.5 gal/yr*	N A	none							none						
						Vessel Total	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**
						HAP Total Option 1			**1.24E-02**	**tpy**			**HAP Total Option 1**			**7.16E-03**	**tpy**
						HAP Total Option 2			**1.24E-02**	**tpy**			**HAP Total Option 2**			**7.14E-03**	**tpy**

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit	Allowable	Maximum	Maximum	Polycyclic Organic Matter (See notes 13 & 14)							Selenium Compounds						
Description	Operation	Fuel Usage		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handling Supply Tug (AHST)																	
Main Engine 1	60 hr/yr	160.0 gal/hr	2529 **kW**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-2	4.48E-03	lb/hr	1.34E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.52E-04	lb/hr	1.06E-05	tpy
Main Engine 2	60 hr/yr	160.0 gal/hr	2529 **kW**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.48E-03	lb/hr	1.34E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.52E-04	lb/hr	1.06E-05	tpy
Generator 1	60 hr/yr	25.0 gal/hr	380 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.55E-04	lb/hr	1.66E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	5.50E-05	lb/hr	1.65E-06	tpy
Generator 2	12 hr/yr	25.0 gal/hr	380 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-3	5.55E-04	lb/hr	3.33E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	5.50E-05	lb/hr	3.30E-07	tpy
Generator 3	0 hr/yr	25.0 gal/hr	380 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-4	5.55E-04	lb/hr	0.00E+00	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	5.50E-05	lb/hr	0.00E+00	tpy
Emergency Generator	6 hr/yr	5.6 gal/hr	170 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.24E-04	lb/hr	3.73E-07	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.23E-05	lb/hr	3.70E-08	tpy
						Vessel Total	**1.08E-02**	**lb/hr**	**2.89E-04**	**tpy**			**Vessel Total**	**8.81E-04**	**lb/hr**	**2.31E-05**	**tpy**
Offshore Supply Vessels (OSV1 & OSV2)																	
Main Engine 1	360 hr/yr	75.0 gal/hr	3000 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-2	2.10E-03	lb/hr	3.78E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.65E-04	lb/hr	2.97E-05	tpy
Main Engine 1	100 hr/yr	67.0 gal/hr	3000 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.88E-03	lb/hr	9.38E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.47E-04	lb/hr	7.37E-06	tpy
Main Engine 2	360 hr/yr	75.0 gal/hr	3000 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.10E-03	lb/hr	3.78E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.65E-04	lb/hr	2.97E-05	tpy
Main Engine 2	100 hr/yr	67.0 gal/hr	3000 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.88E-03	lb/hr	9.38E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.47E-04	lb/hr	7.37E-06	tpy
Thruster Engine 1	360 hr/yr	58.0 gal/hr	950 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.62E-03	lb/hr	2.92E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.28E-04	lb/hr	2.30E-05	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.62E-03	lb/hr	2.92E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.28E-04	lb/hr	2.30E-05	tpy
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-7	1.62E-03	lb/hr	2.92E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.28E-04	lb/hr	2.30E-05	tpy
Generator	820 hr/yr	27.0 gal/hr	400 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.99E-04	lb/hr	2.46E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	5.94E-05	lb/hr	2.44E-05	tpy
Generator	120 hr/yr	27.0 gal/hr	400 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.99E-04	lb/hr	3.60E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	5.94E-05	lb/hr	3.56E-06	tpy
Generator	0 hr/yr	27.0 gal/hr	400 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.99E-04	lb/hr	0.00E+00	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	5.94E-05	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.78E-04	lb/hr	2.66E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.76E-05	lb/hr	2.64E-07	tpy
						Vessel Total	**1.48E-02**	**lb/hr**	**2.11E-03**	**tpy**			**Vessel Total**	**1.20E-03**	**lb/hr**	**1.71E-04**	**tpy**
Ware Vessel (WV) w/ OSV backup																	
Main Engine 1	300 hr/yr	87.0 gal/hr	3200 **hp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-2	2.44E-03	lb/hr	3.65E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.91E-04	lb/hr	2.87E-05	tpy
Main Engine 2	300 hr/yr	87.0 gal/hr	3200 **hp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.44E-03	lb/hr	3.65E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.91E-04	lb/hr	2.87E-05	tpy
Main Engine 3	400 hr/yr	81.0 gal/hr	3200 **hp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.27E-03	lb/hr	4.54E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.78E-04	lb/hr	3.56E-05	tpy
Main Engine 4	400 hr/yr	81.0 gal/hr	3200 **hp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-5	2.27E-03	lb/hr	4.54E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.78E-04	lb/hr	3.56E-05	tpy
Generator 1	700 hr/yr	32.0 gal/hr	500 **kW**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-5	8.96E-04	lb/hr	3.14E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	7.04E-05	lb/hr	2.46E-05	tpy
Generator 2	100 hr/yr	32.0 gal/hr	500 **kW**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-5	8.96E-04	lb/hr	4.48E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	7.04E-05	lb/hr	3.52E-06	tpy
Generator 3	0 hr/yr	32.0 gal/hr	500 **kW**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-5	8.96E-04	lb/hr	0.00E+00	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	7.04E-05	lb/hr	0.00E+00	tpy
Emergency Generator	30 hr/yr	12.0 gal/hr	170 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.66E-04	lb/hr	3.99E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	2.64E-05	lb/hr	3.96E-07	tpy
						Vessel Total	**1.24E-02**	**lb/hr**	**2.00E-03**	**tpy**			**Vessel Total**	**9.77E-04**	**lb/hr**	**1.57E-04**	**tpy**
34' boom work boats - 4																	
WB-1 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.66E-04	lb/hr	1.60E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	6.60E-05	lb/hr	1.58E-06	tpy
WB-1 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.66E-04	lb/hr	1.60E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	6.60E-05	lb/hr	1.58E-06	tpy
WB-2 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.66E-04	lb/hr	1.60E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	6.60E-05	lb/hr	1.58E-06	tpy
WB-2 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.66E-04	lb/hr	1.60E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	6.60E-05	lb/hr	1.58E-06	tpy
WB-3 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.66E-04	lb/hr	1.60E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	6.60E-05	lb/hr	1.58E-06	tpy
WB-3 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.66E-04	lb/hr	1.60E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	6.60E-05	lb/hr	1.58E-06	tpy
WB-4 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.66E-04	lb/hr	1.60E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	6.60E-05	lb/hr	1.58E-06	tpy
WB-4 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.66E-04	lb/hr	1.60E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	6.60E-05	lb/hr	1.58E-06	tpy
						Vessel Total	**5.33E-03**	**lb/hr**	**1.28E-04**	**tpy**			**Vessel Total**	**5.28E-04**	**lb/hr**	**1.27E-05**	**tpy**
Marine Research Vessel																	
Main Engine	600 hr/yr	45.0 gal/hr	850 **hp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-2	1.26E-03	lb/hr	3.78E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	9.91E-05	lb/hr	2.97E-05	tpy
Generator 1	600 hr/yr	9.6 gal/hr	135 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.13E-04	lb/hr	6.38E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	2.11E-05	lb/hr	6.33E-06	tpy
Generator 2	600 hr/yr	6.4 gal/hr	90 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.42E-04	lb/hr	4.26E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.41E-05	lb/hr	4.22E-06	tpy
Generator 3	600 hr/yr	2.8 gal/hr	40 **kW**	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.31E-05	lb/hr	1.89E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	6.25E-06	lb/hr	1.88E-06	tpy
						Vessel Total	**1.68E-03**	**lb/hr**	**5.04E-04**	**tpy**			**Vessel Total**	**1.41E-04**	**lb/hr**	**4.22E-05**	**tpy**
Spill Storage Tanker																	
Main Engine 1	12 hr/yr	88.7 gal/hr	1674 **hp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-2	2.48E-03	lb/hr	1.49E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.95E-04	lb/hr	1.17E-06	tpy
Main Engine 2	12 hr/yr	88.7 gal/hr	1674 **hp**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-5	2.48E-03	lb/hr	1.49E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.95E-04	lb/hr	1.17E-06	tpy
Generator 1	48 hr/yr	40.9 gal/hr	576.35 **kW**	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-5	1.15E-03	lb/hr	2.75E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	9.01E-05	lb/hr	2.16E-06	tpy
Boiler 1	48 hr/yr	109.2 gal/hr	14.422 **MMBtu/hr**	3.30E-03	lbs/Mgal	AP-42 1.3-8	3.60E-04	lb/hr	8.65E-06	tpy	1.50E+01	lb/10^12 Btu	AP-42 1.3-10	2.16E-04	lb/hr	5.19E-06	tpy
						Vessel Total	**6.48E-03**	**lb/hr**	**6.60E-05**	**tpy**			**Vessel Total**	**6.97E-04**	**lb/hr**	**9.70E-06**	**tpy**
All Vessels Fuel Tanks																	
Fuel Tank	2400 hr/yr	2193681.5 gal/yr*	N A	N A		EPA TANKS	7.083E-08	lb/hr	0.00017	tpy	none						
						Vessel Total	**7.08E-08**	**lb/hr**	**1.70E-04**	**tpy**			**Vessel Total**	**0.00E+00**	**lb/hr**	**0.00E+00**	**tpy**
						HAP Total Option 1			**3.95E-02**	**tpy**			**HAP Total Option 1**			**3.27E-03**	**tpy**
						HAP Total Option 2			**3.94E-02**	**tpy**			**HAP Total Option 2**			**3.26E-03**	**tpy**

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory - Annual PTE

Emission Unit Description	Allowable Operation	Maximum Fuel Usage	Maximum	Total HAPs	Hourly (lb/hr)	Annual (tons/yr)
Anchor Handling Supply Tug (AHST)						
Main Engine 1	60 hr/yr	160.0 gal/hr	2529 **kW**		1.19E-01	3.56E-03
Main Engine 2	60 hr/yr	160.0 gal/hr	2529 **kW**		1.19E-01	3.56E-03
Generator 1	60 hr/yr	25.0 gal/hr	380 **kW**		2.03E-02	6.10E-04
Generator 2	12 hr/yr	25.0 gal/hr	380 **kW**		2.03E-02	1.22E-04
Generator 3	0 hr/yr	25.0 gal/hr	380 **kW**		2.03E-02	0.00E+00
Emergency Generator	6 hr/yr	5.6 gal/hr	170 **kW**		4.55E-03	1.37E-05
				Vessel Total	**3.03E-01**	**7.87E-03**
Offshore Supply Vessels (OSV1 & OSV2)						
Main Engine 1	360 hr/yr	75.0 gal/hr	3000 **bhp**		5.56E-02	1.00E-02
Main Engine 1	100 hr/yr	67.0 gal/hr	3000 **bhp**		4.97E-02	2.49E-03
Main Engine 2	360 hr/yr	75.0 gal/hr	3000 **bhp**		5.56E-02	1.00E-02
Main Engine 2	100 hr/yr	67.0 gal/hr	3000 **bhp**		4.97E-02	2.49E-03
Thruster Engine 1	360 hr/yr	58.0 gal/hr	950 **bhp**		4.30E-02	7.74E-03
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**		4.30E-02	7.74E-03
Thruster Engine 2	360 hr/yr	58.0 gal/hr	950 **bhp**		4.30E-02	7.74E-03
Generator	820 hr/yr	27.0 gal/hr	400 **kW**		2.20E-02	9.00E-03
Generator	120 hr/yr	27.0 gal/hr	400 **kW**		2.20E-02	1.32E-03
Generator	0 hr/yr	27.0 gal/hr	400 **kW**		2.20E-02	0.00E+00
Emergency Generator	30 hr/yr	8.0 gal/hr	99 **kW**		6.50E-03	9.76E-05
				Vessel Total	**4.12E-01**	**5.86E-02**
Ware Vessel (WV) w/ OSV backup						
Main Engine 1	300 hr/yr	87.0 gal/hr	3200 **hp**		6.45E-02	9.68E-03
Main Engine 2	300 hr/yr	87.0 gal/hr	3200 **hp**		6.45E-02	9.68E-03
Main Engine 3	400 hr/yr	81.0 gal/hr	3200 **hp**		6.01E-02	1.20E-02
Main Engine 4	400 hr/yr	81.0 gal/hr	3200 **hp**		6.01E-02	1.20E-02
Generator 1	700 hr/yr	32.0 gal/hr	500 **kW**		2.37E-02	8.31E-03
Generator 2	100 hr/yr	32.0 gal/hr	500 **kW**		2.37E-02	1.19E-03
Generator 3	0 hr/yr	32.0 gal/hr	500 **kW**		2.37E-02	0.00E+00
Emergency Generator	30 hr/yr	12.0 gal/hr	170 **kW**		9.76E-03	1.46E-04
				Vessel Total	**3.30E-01**	**5.30E-02**
34' boom work boats - 4						
WB-1 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**		2.44E-02	5.85E-04
WB-1 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**		2.44E-02	5.85E-04
WB-2 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**		2.44E-02	5.85E-04
WB-2 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**		2.44E-02	5.85E-04
WB-3 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**		2.44E-02	5.85E-04
WB-3 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**		2.44E-02	5.85E-04
WB-4 Propulsion Engine 1	48 hr/yr	30.0 gal/hr	566 **hp**		2.44E-02	5.85E-04
WB-4 Propulsion Engine 2	48 hr/yr	30.0 gal/hr	566 **hp**		2.44E-02	5.85E-04
				Vessel Total	**1.95E-01**	**4.68E-03**
Marine Research Vessel						
Main Engine	600 hr/yr	45.0 gal/hr	850 **hp**		3.34E-02	1.00E-02
Generator 1	600 hr/yr	9.6 gal/hr	135 **kW**		7.80E-03	2.34E-03
Generator 2	600 hr/yr	6.4 gal/hr	90 **kW**		5.20E-03	1.56E-03
Generator 3	600 hr/yr	2.8 gal/hr	40 **kW**		2.31E-03	6.93E-04
				Vessel Total	**4.87E-02**	**1.46E-02**
Spill Storage Tanker						
Main Engine 1	12 hr/yr	88.7 gal/hr	1674 **hp**		6.58E-02	3.95E-04
Main Engine 2	12 hr/yr	88.7 gal/hr	1674 **hp**		6.58E-02	3.95E-04
Generator 1	48 hr/yr	40.9 gal/hr	576.35 **kW**		3.04E-02	7.29E-04
Boiler 1	48 hr/yr	109.2 gal/hr	14.422 **MMBtu/hr**		1.79E-01	4.29E-03
				Vessel Total	**3.41E-01**	**5.80E-03**
All Vessels Fuel Tanks						
Fuel Tank	2400 hr/yr	2193681.5 gal/yr*	N A		2.52E-07	6.05E-04
				Vessel Total	**2.52E-07**	**6.05E-04**
				HAP Total Option 1		**1.26E+00**
				HAP Total Option 2		**1.26E+00**

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Unit Inventory - Annual PTE

Notes:

1 I kW = 1.3405 hp; 1 lb = 454 g; assumed break specific fuel consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1) and fuel heat content of 132,096 Btu/gal ULSD #1 (Tesoro/Kenai Refinery).

2 Assumed well gas heat content of 1,085 Btu/scf for test flare (email from Dan Lowe 1/7/09) and propane heat content of 2,516 Btu/scf for flare pilot & purge (National Propane Gas Association http://www.npga.org/i4a/pages/index.cfm?pageid=633).

3 ULSD #1 has a density of 0.8094 kg/L (Tesoro/Kenai Refinery); so assume 6.74 lbs/ gal diesel

4 Incinerator waste fuel heat content is assumed 6,203 Btu/lb ("Air Pollution Training Institue, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17).

5 Incinerators will burn ULSD for ignition purposes only.

6 An equivalent of 2 main drilling engines at 100% load will operate continuously for up to 4800 hours per season.

7 Mud degassing emission rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig resevoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977)

8 OSRV cruising time includes laying & remoivng boom for rig fuel transfer activities (up to 6 times per year).

10 Polycyclic organic matter EF includes napthalene - napthalene also accounted for individually

11 POM EF calculated by adding EFs for individual pollutants based on: Guidance on the Major Source Determination for Certain Hazardous Air Pollutants (EPA-HQ-OAR-2007-0750-0001)

12 See HAP Emisison Factor Basis for EF detail information and example calculations.

13 Fuel tank emissions are derived from EPA's TANKS Emissions Estimation Software, Version 4.09D: http://www.epa.gov/ttnchie1/software/tanks/index.html

14 Fuel tank POM emissions are 1,2,4- Trimethylbenzene only.

15 100 Seasonal drilling days

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Inventory - Option 1 - Ware Barge/Tug and 2 OSV's

Source Description	Potential to Emit (PTE)																	
	Acet-aldehyde		Acrolein		Benzene		1,3-Butadiene		Chloro-benzene		Ethyl-benzene		Form-aldehyde		Hexane		Hydrochloric acid	
	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr
Drill Rig Equipment	1.04E-01	6.60E-02	2.90E-02	2.76E-02	8.40E-02	4.22E-02	5.12E-03	3.15E-03	1.71E-04	9.45E-05	8.84E-03	4.56E-03	1.15E-01	6.98E-02	2.17E-02	1.11E-02	1.60E-01	8.80E-02
Ice Breaker 1	1.87E-01	4.63E-02	4.00E-02	1.01E-02	1.61E-01	3.96E-02	9.29E-03	2.30E-03	3.24E-04	8.00E-05	1.71E-02	4.22E-03	2.02E-01	4.98E-02	4.21E-02	1.04E-02	3.02E-01	7.45E-02
Ice Breaker 2	1.87E-01	4.63E-02	4.00E-02	1.01E-02	1.61E-01	3.96E-02	9.29E-03	2.30E-03	3.24E-04	8.00E-05	1.71E-02	4.22E-03	2.02E-01	4.98E-02	4.21E-02	1.04E-02	3.02E-01	7.45E-02
Oil Spill Response Vessel 1 (Dedicated OSRV)	4.37E-02	1.02E-02	5.30E-03	1.24E-03	4.42E-02	1.08E-02	2.21E-03	5.19E-04	8.26E-05	1.95E-05	4.50E-03	1.06E-03	5.15E-02	1.28E-02	1.11E-02	2.63E-03	7.69E-02	1.82E-02
Oil Spill Response Vessel 2	4.37E-02	1.05E-03	5.30E-03	1.28E-04	4.42E-02	1.04E-03	2.21E-03	5.33E-05	8.26E-05	1.98E-06	4.50E-03	1.08E-04	5.15E-02	1.20E-03	1.11E-02	2.66E-04	7.69E-02	1.84E-03
Anchor Handling Supply Tug (AHST)	4.24E-02	1.12E-03	5.14E-03	1.36E-04	4.27E-02	1.10E-03	2.15E-03	5.67E-05	8.01E-05	2.10E-06	4.37E-03	1.15E-04	4.97E-02	1.26E-03	1.08E-02	2.83E-04	7.46E-02	1.96E-03
Offshore Supply Vessels (OSV1 & OSV2)	5.80E-02	8.26E-03	7.04E-03	1.00E-03	5.79E-02	8.24E-03	2.94E-03	4.18E-04	1.09E-04	1.56E-05	5.96E-03	8.48E-04	6.70E-02	9.54E-03	1.47E-02	2.09E-03	1.02E-01	1.45E-02
34' boom work boats - 4	2.43E-02	5.84E-04	2.93E-03	7.04E-05	2.96E-02	7.10E-04	1.24E-03	2.98E-05	4.80E-05	1.15E-06	2.62E-03	6.28E-05	3.74E-02	8.98E-04	6.46E-03	1.55E-04	4.47E-02	1.07E-03
Marine Research Vessel	6.73E-03	2.02E-03	8.16E-04	2.45E-04	6.94E-03	2.08E-03	3.41E-04	1.02E-04	1.28E-05	3.83E-06	6.96E-04	2.09E-04	8.16E-03	2.45E-03	1.72E-03	5.15E-04	1.19E-02	3.57E-03
Spill Storage Tanker	6.16E-02	1.14E-03	4.11E-02	9.45E-04	2.27E-02	2.16E-04	2.80E-03	4.99E-05	6.55E-05	9.33E-07	2.54E-03	2.62E-05	6.34E-02	1.15E-03	6.01E-03	5.82E-05	6.10E-02	8.70E-04
All Vessels Fuel Tanks	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.25E-09	1.50E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.25E-09	1.50E-05	0.00E+00	0.00E+00	2.08E-09	5.00E-06	0.00E+00	0.00E+00

Source Description																		
	Naphthalene		Toluene		Xylenes		o-xylene		m-xylene		Arsenic Compounds		Beryllium Compounds		Cadmium Compounds		Chromium Compounds	
	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr
Drill Rig Equipment	3.28E-02	3.03E-02	3.11E-02	1.54E-02	2.14E-02	1.06E-02	1.68E-02	8.54E-03	1.74E-02	8.99E-03	1.92E-03	1.41E-03	2.10E-05	2.52E-05	2.73E-03	2.44E-03	1.82E-03	1.80E-03
Ice Breaker 1	4.73E-02	1.19E-02	5.85E-02	1.43E-02	4.02E-02	9.86E-03	3.27E-02	8.06E-03	3.38E-02	8.33E-03	2.91E-03	7.23E-04	2.22E-05	5.71E-06	3.32E-03	8.30E-04	1.90E-03	4.78E-04
Ice Breaker 2	4.73E-02	1.19E-02	5.85E-02	1.43E-02	4.02E-02	9.86E-03	3.27E-02	8.06E-03	3.38E-02	8.33E-03	2.91E-03	7.23E-04	2.22E-05	5.71E-06	3.32E-03	8.30E-04	1.90E-03	4.78E-04
Oil Spill Response Vessel 1 (Dedicated OSRV)	6.56E-03	1.46E-03	1.68E-02	4.24E-03	1.16E-02	2.93E-03	8.63E-03	2.04E-03	8.92E-03	2.11E-03	6.61E-04	1.56E-04	0.00E+00	0.00E+00	6.20E-04	1.46E-04	2.89E-04	6.83E-05
Oil Spill Response Vessel 2	6.56E-03	1.63E-04	1.68E-02	3.88E-04	1.16E-02	2.67E-04	8.63E-03	2.07E-04	8.92E-03	2.14E-04	6.61E-04	1.58E-05	0.00E+00	0.00E+00	6.20E-04	1.48E-05	2.89E-04	6.93E-06
Anchor Handling Supply Tug (AHST)	6.40E-03	1.75E-04	1.62E-02	4.06E-04	1.12E-02	2.79E-04	8.37E-03	2.20E-04	8.65E-03	2.27E-04	6.41E-04	1.68E-05	0.00E+00	0.00E+00	6.01E-04	1.58E-05	2.80E-04	7.36E-06
Offshore Supply Vessels (OSV1 & OSV2)	8.86E-03	1.26E-03	2.18E-02	3.11E-03	1.50E-02	2.14E-03	1.14E-02	1.63E-03	1.18E-02	1.68E-03	8.75E-04	1.25E-04	0.00E+00	0.00E+00	8.21E-04	1.17E-04	3.83E-04	5.45E-05
34' boom work boats - 4	2.69E-03	6.45E-05	1.30E-02	3.11E-04	9.04E-03	2.17E-04	5.02E-03	1.20E-04	5.18E-03	1.24E-04	3.84E-04	9.22E-06	0.00E+00	0.00E+00	3.60E-04	8.64E-06	1.68E-04	4.03E-06
Marine Research Vessel	9.84E-04	2.95E-04	2.69E-03	8.07E-04	1.86E-03	5.57E-04	1.33E-03	4.00E-04	1.38E-03	4.14E-04	1.02E-04	3.07E-05	0.00E+00	0.00E+00	9.58E-05	2.87E-05	4.47E-05	1.34E-05
Spill Storage Tanker	4.38E-02	9.97E-04	8.27E-03	7.99E-05	5.73E-03	5.61E-05	4.56E-03	4.28E-05	4.72E-03	4.42E-05	4.07E-04	4.66E-06	4.33E-05	1.04E-06	3.71E-04	4.11E-06	1.96E-04	2.47E-06
All Vessels Fuel Tanks	0.00E+00	0.00E+00	5.42E-08	1.30E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-07	2.70E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Source Description														
	Lead Compounds		Manganese Compounds		Mercury Compounds		Nickel Compounds		Polycyclic Organic Matter		Selenium Compounds		Hourly (lb/hr)	Annual (tons/yr)
	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr		
Drill Rig Equipment	3.61E-02	3.87E-02	2.54E-03	1.33E-03	2.40E-03	7.56E-03	4.24E-03	2.92E-03	2.23E-02	1.17E-02	1.87E-03	1.03E-03	**7.23E-01**	**4.55E-01**
Ice Breaker 1	3.17E-02	8.02E-03	4.85E-03	1.20E-03	3.64E-03	2.22E-03	6.81E-03	1.69E-03	4.39E-02	1.08E-02	3.55E-03	8.77E-04	**1.28E+00**	**3.17E-01**
Ice Breaker 2	3.17E-02	8.02E-03	4.85E-03	1.20E-03	3.64E-03	2.22E-03	6.81E-03	1.69E-03	4.39E-02	1.08E-02	3.55E-03	8.77E-04	**1.28E+00**	**3.17E-01**
Oil Spill Response Vessel 1 (Dedicated OSRV)	3.43E-03	8.10E-04	1.28E-03	3.03E-04	8.26E-04	1.95E-04	1.61E-03	3.81E-04	1.10E-02	2.52E-03	9.09E-04	2.15E-04	**3.13E-01**	**7.50E-02**
Oil Spill Response Vessel 2	3.43E-03	8.22E-05	1.28E-03	3.07E-05	8.26E-04	1.98E-05	1.61E-03	3.86E-05	1.10E-02	2.70E-04	9.09E-04	2.18E-05	**3.13E-01**	**7.43E-03**
Anchor Handling Supply Tug (AHST)	3.32E-03	8.73E-05	1.24E-03	3.26E-05	8.01E-04	2.10E-05	1.56E-03	4.10E-05	1.08E-02	2.89E-04	8.81E-04	2.31E-05	**3.03E-01**	**7.87E-03**
Offshore Supply Vessels (OSV1 & OSV2)	4.54E-03	6.46E-04	1.70E-03	2.41E-04	1.09E-03	1.56E-04	2.13E-03	3.04E-04	1.48E-02	2.11E-03	1.20E-03	1.71E-04	**4.12E-01**	**5.86E-02**
34' boom work boats - 4	1.99E-03	4.78E-05	7.44E-04	1.79E-05	4.80E-04	1.15E-05	9.36E-04	2.25E-05	5.33E-03	1.28E-04	5.28E-04	1.27E-05	**1.95E-01**	**4.68E-03**
Marine Research Vessel	5.30E-04	1.59E-04	1.98E-04	5.94E-05	1.28E-04	3.83E-05	2.49E-04	7.47E-05	1.68E-03	5.04E-04	1.41E-04	4.22E-05	**4.87E-02**	**1.46E-02**
Spill Storage Tanker	1.94E-03	2.01E-05	6.77E-04	6.35E-06	4.80E-04	5.13E-06	8.95E-04	9.02E-06	6.48E-03	6.60E-05	6.97E-04	9.70E-06	**3.41E-01**	**5.80E-03**
All Vessels Fuel Tanks	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.08E-08	1.70E-04	0.00E+00	0.00E+00	**2.52E-07**	**6.05E-04**

TOTALS	**5.20**	**1.26**

Devil's Paw Prospect - Projected Maximum Emissions
HAP Emissions Inventory - Option 2 - Ware Vessel (w/ backup OSV)

Source Description	Acet-aldehyde		Acrolein		Benzene		1,3-Butadiene		Chloro-benzene		Ethyl-benzene		Form-aldehyde		Hexane		Hydrochloric acid	
	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr
Drill Rig Equipment	1.04E-01	6.60E-02	2.90E-02	2.76E-02	8.40E-02	4.22E-02	5.12E-03	3.15E-03	1.71E-04	9.45E-05	8.84E-03	4.56E-03	1.15E-01	6.98E-02	2.17E-02	1.11E-02	1.60E-01	8.80E-02
Ice Breaker 1	1.87E-01	4.63E-02	4.00E-02	1.01E-02	1.61E-01	3.96E-02	9.29E-03	2.30E-03	3.24E-04	8.00E-05	1.71E-02	4.22E-03	2.02E-01	4.98E-02	4.21E-02	1.04E-02	3.02E-01	7.45E-02
Ice Breaker 2	1.87E-01	4.63E-02	4.00E-02	1.01E-02	1.61E-01	3.96E-02	9.29E-03	2.30E-03	3.24E-04	8.00E-05	1.71E-02	4.22E-03	2.02E-01	4.98E-02	4.21E-02	1.04E-02	3.02E-01	7.45E-02
Oil Spill Response Vessel 1 (Dedicated OSRV)	4.37E-02	1.02E-02	5.30E-03	1.24E-03	4.42E-02	1.08E-02	2.21E-03	5.19E-04	8.26E-05	1.95E-05	4.50E-03	1.06E-03	5.15E-02	1.28E-02	1.11E-02	2.63E-03	7.69E-02	1.82E-02
Oil Spill Response Vessel 2	4.37E-02	1.05E-03	5.30E-03	1.28E-04	4.42E-02	1.04E-03	2.21E-03	5.33E-05	8.26E-05	1.98E-06	4.50E-03	1.08E-04	5.15E-02	1.20E-03	1.11E-02	2.66E-04	7.69E-02	1.84E-03
Anchor Handling Supply Tug (AHST)	4.24E-02	1.12E-03	5.14E-03	1.36E-04	4.27E-02	1.10E-03	2.15E-03	5.67E-05	8.01E-05	2.10E-06	4.37E-03	1.15E-04	4.97E-02	1.26E-03	1.08E-02	2.83E-04	7.46E-02	1.96E-03
Ware Vessel (WV) w/ OSV backup	4.74E-02	7.65E-03	5.76E-03	9.29E-04	4.58E-02	7.33E-03	2.40E-03	3.87E-04	8.88E-05	1.43E-05	4.84E-03	7.79E-04	5.20E-02	8.30E-03	1.19E-02	1.92E-03	8.27E-02	1.33E-02
34' boom work boats - 4	2.43E-02	5.84E-04	2.93E-03	7.04E-05	2.96E-02	7.10E-04	1.24E-03	2.98E-05	4.80E-05	1.15E-06	2.62E-03	6.28E-05	3.74E-02	8.98E-04	6.46E-03	1.55E-04	4.47E-02	1.07E-03
Marine Research Vessel	6.73E-03	2.02E-03	8.16E-04	2.45E-04	6.94E-03	2.08E-03	3.41E-04	1.02E-04	1.28E-05	3.83E-06	6.96E-04	2.09E-04	8.16E-03	2.45E-03	1.72E-03	5.15E-04	1.19E-02	3.57E-03
Spill Storage Tanker	6.16E-02	1.14E-03	4.11E-02	9.45E-04	2.27E-02	2.16E-04	2.80E-03	4.99E-05	6.55E-05	9.33E-07	2.54E-03	2.62E-05	6.34E-02	1.15E-03	6.01E-03	5.82E-05	6.10E-02	8.70E-04
All Vessels Fuel Tanks	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.25E-09	1.50E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.25E-09	1.50E-05	0.00E+00	0.00E+00	2.08E-09	5.00E-06	0.00E+00	0.00E+00

Source Description	Naphthalene		Toluene		Xylenes		o-xylene		m-xylene		Arsenic Compounds		Beryllium Compounds		Cadmium Compounds		Chromium Compounds	
	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr
Drill Rig Equipment	3.28E-02	3.03E-02	3.11E-02	1.54E-02	2.14E-02	1.06E-02	1.68E-02	8.54E-03	1.74E-02	8.99E-03	1.92E-03	1.41E-03	2.10E-05	2.52E-05	2.73E-03	2.44E-03	1.82E-03	1.80E-03
Ice Breaker 1	4.73E-02	1.19E-02	5.85E-02	1.43E-02	4.02E-02	9.86E-03	3.27E-02	8.06E-03	3.38E-02	8.33E-03	2.91E-03	7.23E-04	2.22E-05	5.71E-06	3.32E-03	8.30E-04	1.90E-03	4.78E-04
Ice Breaker 2	4.73E-02	1.19E-02	5.85E-02	1.43E-02	4.02E-02	9.86E-03	3.27E-02	8.06E-03	3.38E-02	8.33E-03	2.91E-03	7.23E-04	2.22E-05	5.71E-06	3.32E-03	8.30E-04	1.90E-03	4.78E-04
Oil Spill Response Vessel 1 (Dedicated OSRV)	6.56E-03	1.46E-03	1.68E-02	4.24E-03	1.16E-02	2.93E-03	8.63E-03	2.04E-03	8.92E-03	2.11E-03	6.61E-04	1.56E-04	0.00E+00	0.00E+00	6.20E-04	1.46E-04	2.89E-04	6.83E-05
Oil Spill Response Vessel 2	6.56E-03	1.63E-04	1.68E-02	3.88E-04	1.16E-02	2.67E-04	8.63E-03	2.07E-04	8.92E-03	2.14E-04	6.61E-04	1.58E-05	0.00E+00	0.00E+00	6.20E-04	1.48E-05	2.89E-04	6.93E-06
Anchor Handling Supply Tug (AHST)	6.40E-03	1.75E-04	1.62E-02	4.06E-04	1.12E-02	2.79E-04	8.37E-03	2.20E-04	8.65E-03	2.27E-04	6.41E-04	1.68E-05	0.00E+00	0.00E+00	6.01E-04	1.58E-05	2.80E-04	7.36E-06
Ware Vessel (WV) w/ OSV backup	7.55E-03	1.23E-03	1.67E-02	2.66E-03	1.15E-02	1.82E-03	9.28E-03	1.49E-03	9.59E-03	1.54E-03	7.10E-04	1.14E-04	0.00E+00	0.00E+00	6.66E-04	1.07E-04	3.11E-04	5.00E-05
34' boom work boats - 4	2.69E-03	6.45E-05	1.30E-02	3.11E-04	9.04E-03	2.17E-04	5.02E-03	1.20E-04	5.18E-03	1.24E-04	3.84E-04	9.22E-06	0.00E+00	0.00E+00	3.60E-04	8.64E-06	1.68E-04	4.03E-06
Marine Research Vessel	9.84E-04	2.95E-04	2.69E-03	8.07E-04	1.86E-03	5.57E-04	1.33E-03	4.00E-04	1.38E-03	4.14E-04	1.02E-04	3.07E-05	0.00E+00	0.00E+00	9.58E-05	2.87E-05	4.47E-05	1.34E-05
Spill Storage Tanker	4.38E-02	9.97E-04	8.27E-03	7.99E-05	5.73E-03	5.61E-05	4.56E-03	4.28E-05	4.72E-03	4.42E-05	4.07E-04	4.66E-06	4.33E-05	1.04E-06	3.71E-04	4.11E-06	1.96E-04	2.47E-06
All Vessels Fuel Tanks	0.00E+00	0.00E+00	5.42E-08	1.30E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-07	2.70E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

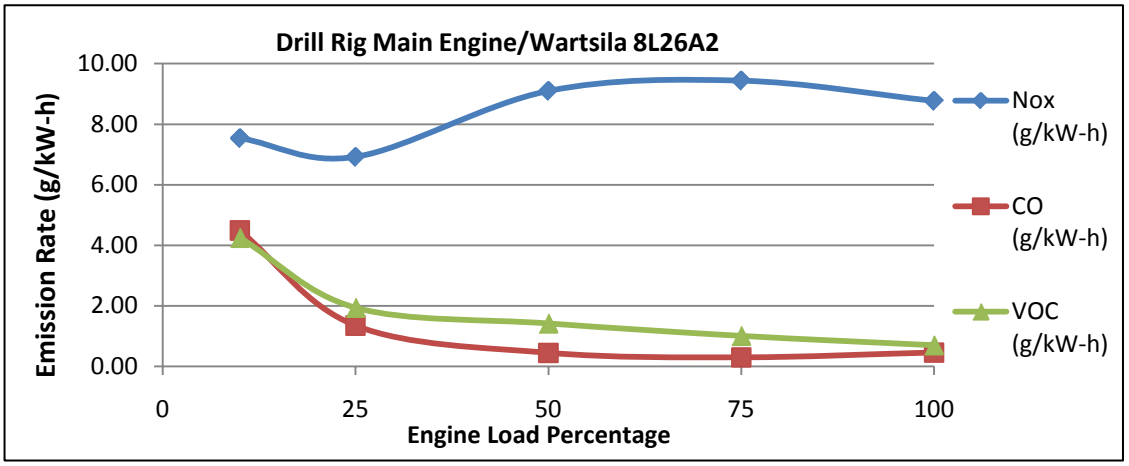
Source Description	Lead Compounds		Manganese Compounds		Mercury Compounds		Nickel Compounds		Polycyclic Organic Matter		Selenium Compounds		Hourly (lb/hr)	Annual (tons/yr)
	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr		
Drill Rig Equipment	3.61E-02	3.87E-02	2.54E-03	1.33E-03	2.40E-03	7.56E-03	4.24E-03	2.92E-03	2.23E-02	1.17E-02	1.87E-03	1.03E-03	**7.23E-01**	**4.55E-01**
Ice Breaker 1	3.17E-02	8.02E-03	4.85E-03	1.20E-03	3.64E-03	2.22E-03	6.81E-03	1.69E-03	4.39E-02	1.08E-02	3.55E-03	8.77E-04	**1.28E+00**	**3.17E-01**
Ice Breaker 2	3.17E-02	8.02E-03	4.85E-03	1.20E-03	3.64E-03	2.22E-03	6.81E-03	1.69E-03	4.39E-02	1.08E-02	3.55E-03	8.77E-04	**1.28E+00**	**3.17E-01**
Oil Spill Response Vessel 1 (Dedicated OSRV)	3.43E-03	8.10E-04	1.28E-03	3.03E-04	8.26E-04	1.95E-04	1.61E-03	3.81E-04	1.10E-02	2.52E-03	9.09E-04	2.15E-04	**3.13E-01**	**7.50E-02**
Oil Spill Response Vessel 2	3.43E-03	8.22E-05	1.28E-03	3.07E-05	8.26E-04	1.98E-05	1.61E-03	3.86E-05	1.10E-02	2.70E-04	9.09E-04	2.18E-05	**3.13E-01**	**7.43E-03**
Anchor Handling Supply Tug (AHST)	3.32E-03	8.73E-05	1.24E-03	3.26E-05	8.01E-04	2.10E-05	1.56E-03	4.10E-05	1.08E-02	2.89E-04	8.81E-04	2.31E-05	**3.03E-01**	**7.87E-03**
Ware Vessel (WV) w/ OSV backup	3.69E-03	5.93E-04	1.38E-03	2.22E-04	8.88E-04	1.43E-04	1.73E-03	2.79E-04	1.24E-02	2.00E-03	9.77E-04	1.57E-04	**3.30E-01**	**5.30E-02**
34' boom work boats - 4	1.99E-03	4.78E-05	7.44E-04	1.79E-05	4.80E-04	1.15E-05	9.36E-04	2.25E-05	5.33E-03	1.28E-04	5.28E-04	1.27E-05	**1.95E-01**	**4.68E-03**
Marine Research Vessel	5.30E-04	1.59E-04	1.98E-04	5.94E-05	1.28E-04	3.83E-05	2.49E-04	7.47E-05	1.68E-03	5.04E-04	1.41E-04	4.22E-05	**4.87E-02**	**1.46E-02**
Spill Storage Tanker	1.94E-03	2.01E-05	6.77E-04	6.35E-06	4.80E-04	5.13E-06	8.95E-04	9.02E-06	6.48E-03	6.60E-05	6.97E-04	9.70E-06	**3.41E-01**	**5.80E-03**
All Vessels Fuel Tanks	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.08E-08	1.70E-04	0.00E+00	0.00E+00	**2.52E-07**	**6.05E-04**

TOTALS	**5.12**	**1.26**

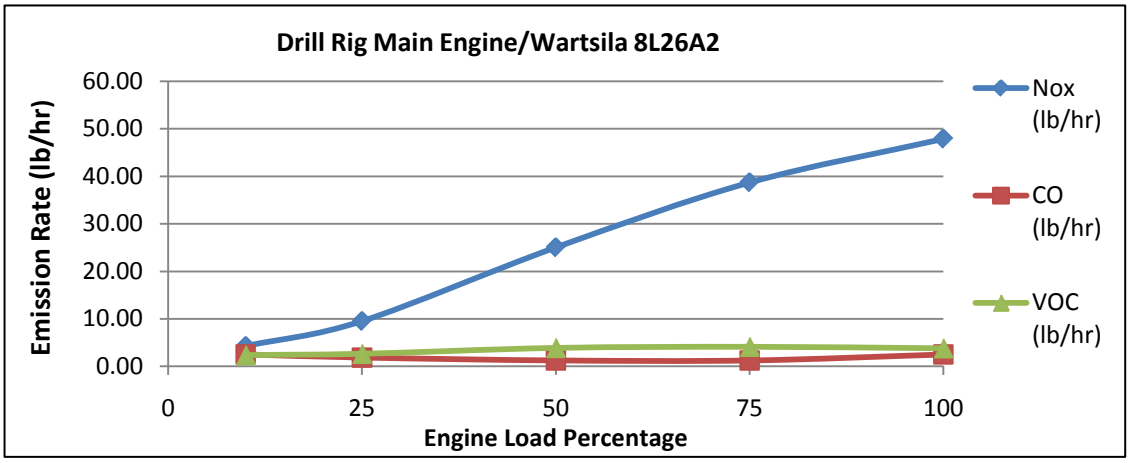
Appendix B
Drill Rig Engine Load Emissions Profiles

Wartsila 8L26A2 Engine
Drill Rig Main Engine - Uncontrolled

Engine Rating (kW)	Percent Load	Nox (g/kW-h)	CO (g/kW-h)	VOC (g/kW-h)	PM (g/kW-hr)
2480	100	8.77	0.46	0.70	None available
1862	75	9.44	0.30	1.01	from the
1249	50	9.10	0.45	1.42	manufacturer.
624	25	6.92	1.35	1.94	
256	10	7.54	4.49	4.25	

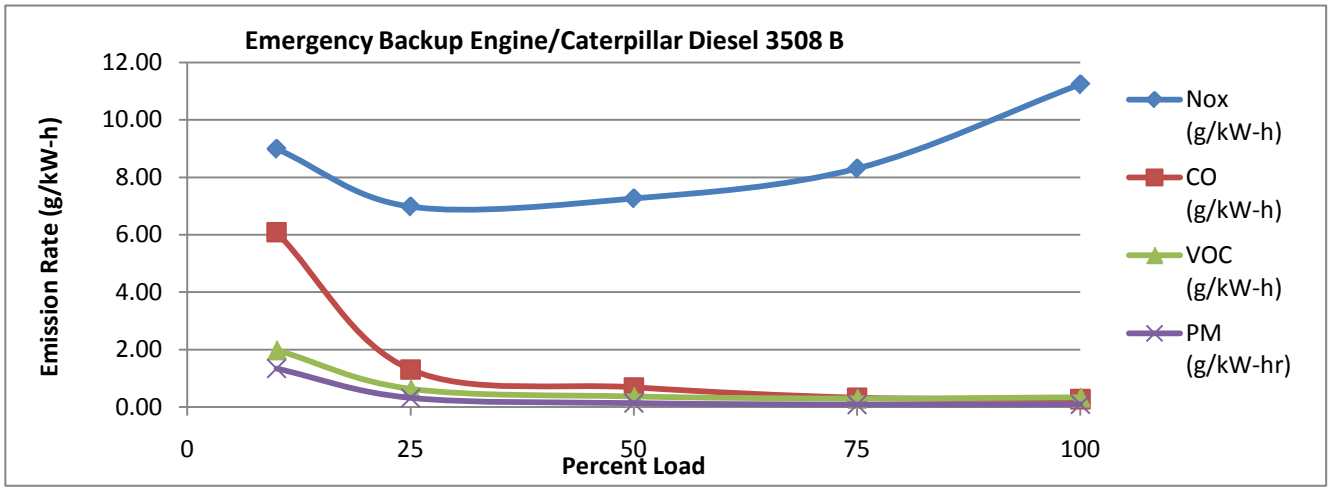


Engine Rating (kW)	Percent Load	Nox (lb/hr)	CO (lb/hr)	VOC (lb/hr)	PM (lb/hr)
2480	100	47.91	2.51	3.82	None available
1862	75	38.72	1.23	4.14	from the
1249	50	25.04	1.24	3.91	manufacturer.
624	25	9.51	1.86	2.67	
256	10	4.25	2.53	2.40	

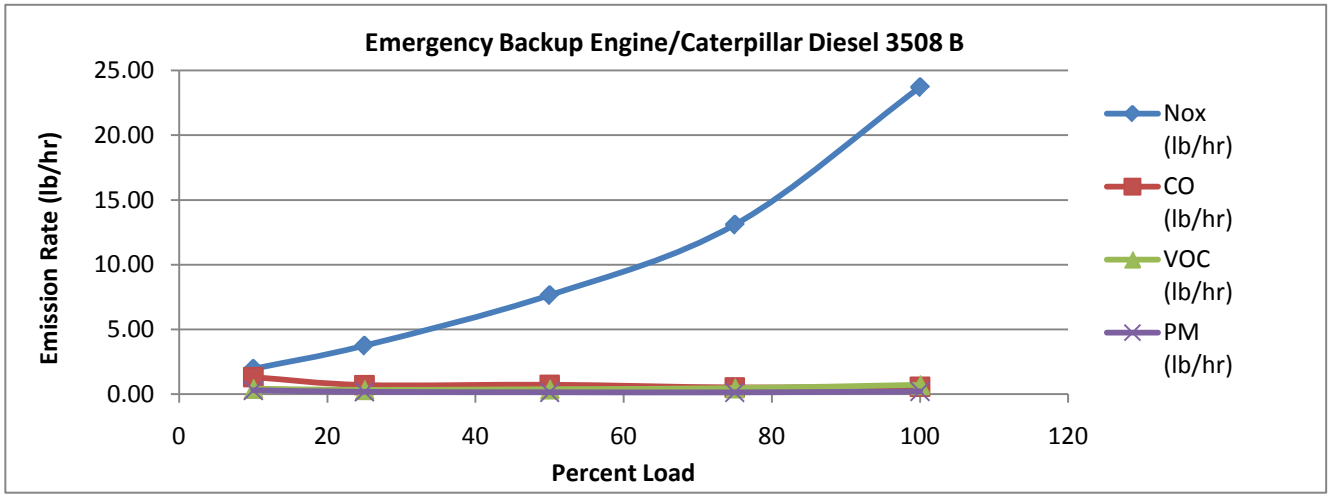


Caterpillar Diesel 3508 B
Drill Rig Emergency Back-up Engine

Engine Rating (hp)	Engine Rating (kW)	Percent Load	Fuel Use (g/kW-h)	Nox (g/kW-h)	CO (g/kW-h)	VOC (g/kW-h)	PM (g/kW-hr)
1285	959	100	205	11.23	0.27	0.34	0.09
959	715	75	210	8.31	0.32	0.30	0.08
640	477	50	220	7.27	0.68	0.37	0.13
326	243	25	251	6.98	1.31	0.63	0.32
132	98	10	350	8.99	6.09	1.98	1.34

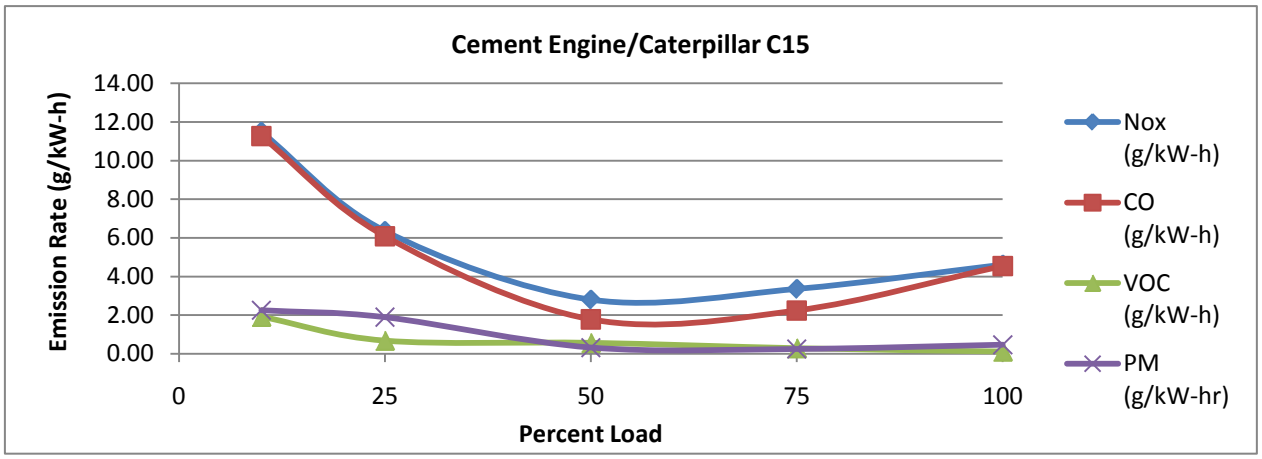


Engine Rating (hp)	Engine Rating (kW)	Percent Load	Fuel Use (lb/hr)	Nox (lb/hr)	CO (lb/hr)	VOC (lb/hr)	PM (lb/hr)
1285	959	100	432	23.72	0.58	0.72	0.2
959	715	75	331	13.09	0.51	0.47	0.13
640	477	50	231	7.64	0.72	0.39	0.14
326	243	25	134	3.74	0.70	0.34	0.17
132	98	10	76	1.95	1.32	0.43	0.29

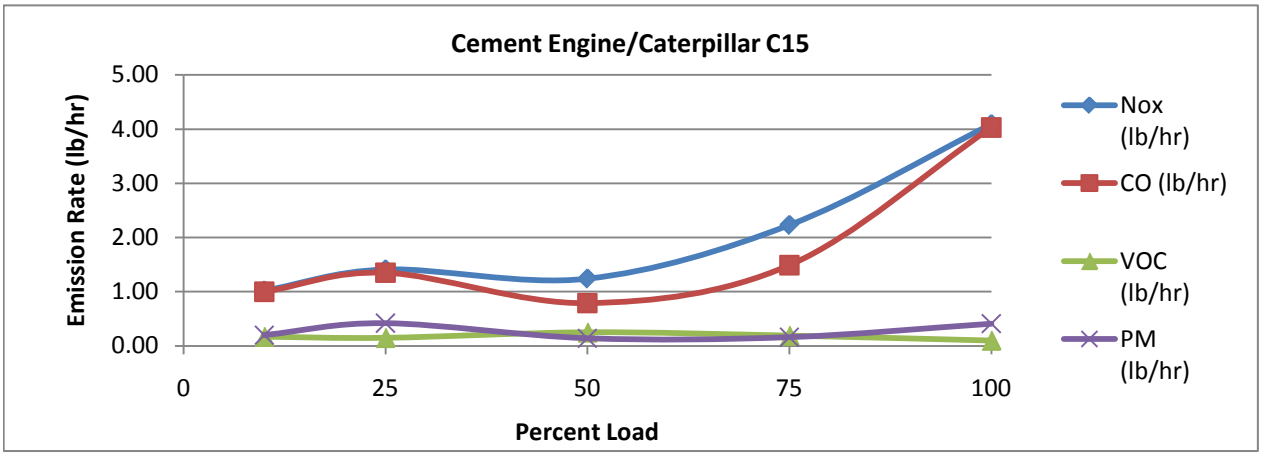


Drill Rig Cement Engine Caterpillar C15 DITA
Engine Speed 2,100 RPM

Engine Rating (hp)	Engine Rating (kW)	Percent Load	Nox (g/kW-h)	CO (g/kW-h)	VOC (g/kW-h)	PM (g/kW-hr)
540	403	100	4.61	4.54	0.11	0.46
405	302	75	3.35	2.24	0.29	0.24
270	201	50	2.79	1.78	0.56	0.32
135	101	25	6.36	6.09	0.68	1.89
54	40	10	11.50	11.27	1.92	2.25

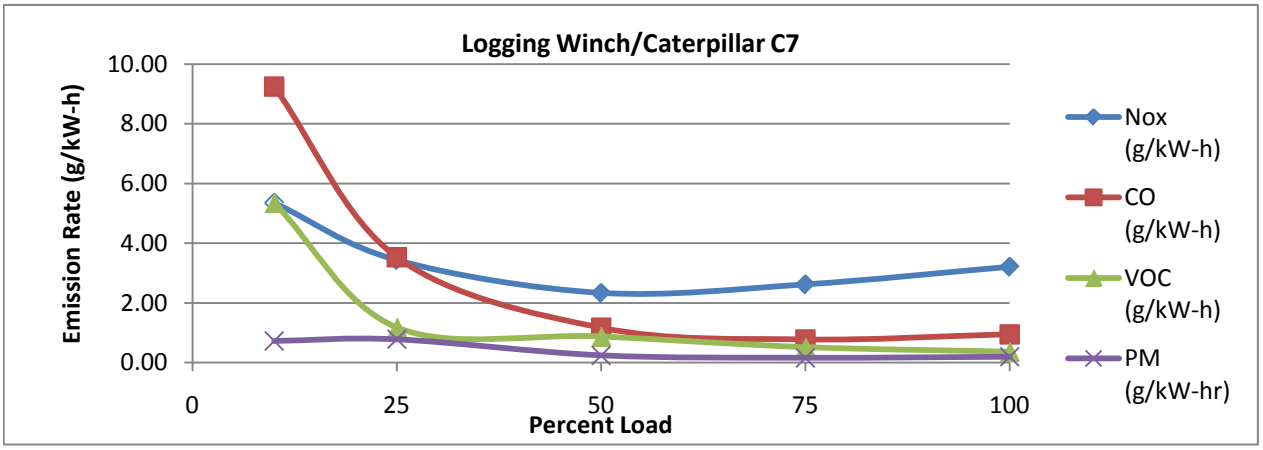
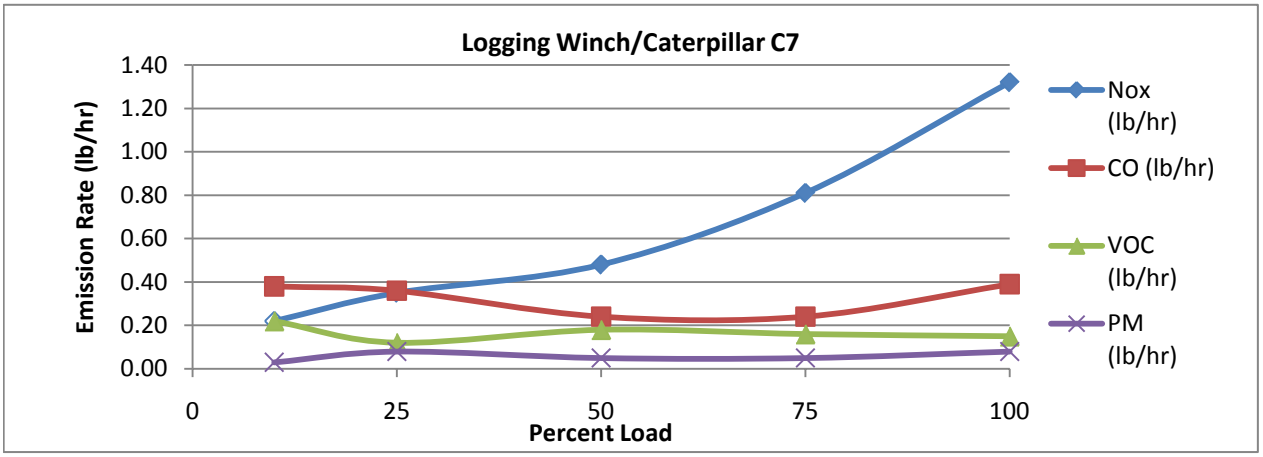


Engine Rating (hp)	Engine Rating (kW)	Percent Load	Nox (lb/hr)	CO (lb/hr)	VOC (lb/hr)	PM (lb/hr)
540	403	100	4.09	4.03	0.10	0.41
405	302	75	2.23	1.49	0.19	0.16
270	201	50	1.24	0.79	0.25	0.14
135	101	25	1.41	1.35	0.15	0.42
54	40	10	1.02	1.00	0.17	0.20



Drill Rig Logging Winch Caterpillar C7
Engine Speed 2,200 RPM

Engine Rating (hp)	Engine Rating (kW)	Percent Load	Nox (g/kW-h)	CO (g/kW-h)	VOC (g/kW-h)	PM (g/kW-hr)
250	186	100	3.21	0.95	0.37	0.19
188	140	75	2.62	0.78	0.52	0.16
125	93	50	2.34	1.17	0.88	0.24
62	46	25	3.44	3.53	1.18	0.79
25	19	10	5.36	9.25	5.36	0.73



Engine Rating (hp)	Engine Rating (kW)	Percent Load	Nox (lb/hr)	CO (lb/hr)	VOC (lb/hr)	PM (lb/hr)
250	186	100	1.32	0.39	0.15	0.08
188	140	75	0.81	0.24	0.16	0.05
125	93	50	0.48	0.24	0.18	0.05
62	46	25	0.35	0.36	0.12	0.08
25	19	10	0.22	0.38	0.22	0.03