



Jim  
2.2.12.1

## General Permit Application Form -01

Santa Barbara County Air Pollution Control District  
PO Box 6447, Santa Barbara, CA 93160-6447

**1. APPLICATION TYPE (check all that apply):**

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Authority to Construct (ATC)<br><input checked="" type="checkbox"/> Permit to Operate (PTO)<br><input type="checkbox"/> ATC Modification<br><input type="checkbox"/> PTO Modification<br><input type="checkbox"/> Change in Location<br><input type="checkbox"/> Other (Specify) | <input type="checkbox"/> Transfer of Ownership (use form -01T)<br><input type="checkbox"/> Emission Reduction Credits<br><input type="checkbox"/> Increase in Production Rate or Throughput<br><input type="checkbox"/> Decrease in Production Rate or Throughput |
|--|---|

Previous ATC/PTO Number (if known) PTO 9110 Platform A, PTO 9111 Platform B, PTO 9114 Platform Hillhouse.

Yes    No   Are Part 70 Minor Modification Forms Attached? (this applies to Part 70 sources only and applies to all application types except ATCs and Emission Reduction Credits). Complete Title V Form -1302 A1/A2, B, and M. Complete Title V Form -1302 C1/C2, D1/D2, E1/E2, F1/F2, G1/G2 as appropriate. [http://www.sbcapcd.org/eng/dl/appforms/t5-forms\(ver1.2\).pdf](http://www.sbcapcd.org/eng/dl/appforms/t5-forms(ver1.2).pdf)

Mail the completed application to the APCD's Engineering & Compliance Division (ECD) at the address listed below.

**2. FILING FEE:**

A \$341 application filing fee must be included with each application. The application filing fee is COLA adjusted every July 1<sup>st</sup>. Please ensure you are remitting the correct current fee (the current fee schedule is available on the APCD's webpage at: <http://www.sbcapcd.org/fees.htm>). This filing fee will not be refunded or applied to any subsequent application. Payment may also be made by credit card by using the Credit Card Authorization Form at the end of this application.

**3. IS YOUR PROJECT'S PROPERTY BOUNDARY LOCATED OR PROPOSED TO BE LOCATED WITHIN 1,000 FEET FROM THE OUTER BOUNDARY OF A SCHOOL?** If yes and the project results in an emission increase, submit a completed Form -03 (*School Summary Form*). <http://www.sbcapcd.org/eng/dl/appforms/apcd-03.pdf>    Yes    No.

If yes, provide name of school(s): \_\_\_\_\_  
 Address of school(s): \_\_\_\_\_  
 City: \_\_\_\_\_ Zip Code: \_\_\_\_\_

**4. DOES YOUR APPLICATION CONTAIN CONFIDENTIAL INFORMATION?**    Yes    No

If yes, please submit with a redacted duplicate application which shall be a public document. In order to be protected from disclosure to the public, all information claimed as confidential shall be submitted in accordance with APCD Policy & Procedure 6100-020 (*Handling of Confidential Information*): [http://www.sbcapcd.org/eng/dl/eng\\_p-and-p/6100-020.pdf](http://www.sbcapcd.org/eng/dl/eng_p-and-p/6100-020.pdf), and meet the criteria of CA Govt Code Sec 6254.7. Failure to follow required procedures for submitting confidential information, or to declare it as confidential at the time of application, shall be deemed a waiver by the applicant of the right to protect such information from public disclosure. *Note: Part 70 permit applications may contain confidential information in accordance with the above procedures, however, the content of the permit documents must be public (no redactions).*

FOR APCD USE ONLY				DATE STAMP
FID	8003	PERMIT NO.	A/P 13716	
PROJECT NAME	Platform IA			
FILING FEE	341.00	202.E?	YES / NO	

CK#0035925   DCOR, LLC

5. COMPANY/CONTACT INFORMATION:

<i>Owner Info</i>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Use as Billing Contact?	
Company Name		DCOR, LLC			
Doing Business As					
Contact Name		Christine White			
Position/Title		Environmental Advisor			
Mailing Address		290 Maple Court, Suite 290			
City:	Ventura	State	CA	Zip	93003
Tel #	805-535-2074	Fax #	805-535-2075	E-mail	CWhite@dcorllc.com

<i>Operator Info</i>		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Use as Billing Contact?	
Company Name		DCOR, LLC			
Doing Business As					
Contact Name		Christine White			
Position/Title		Environmental Advisor			
Mailing Address		290 Maple Court, Suite 290			
City:	Ventura	State	CA	Zip	93003
Tel #	805-535-2074	Fax #	805-535-2075	E-mail	CWhite@dcorllc.com

<i>Authorized Agent Info*</i>		<input type="checkbox"/> Yes <input type="checkbox"/> No		Use as Billing Contact?	
Company Name					
Contact Name					
Position/Title					
Mailing Address					
City:		State		Zip	
Tel #		Fax #		E-mail	

\*Use this section if the application is not submitted by the owner/operator. Complete APCD Form -01A ( <http://www.sbcapcd.org/eng/dl/appforms/apcd-01a.pdf>). Owner/Operator information above is still required.

<b>SEND PERMITTING CORRESPONDENCE TO</b> ( <i>check all that apply</i> ):	
<input checked="" type="checkbox"/> Owner	<input type="checkbox"/> Operator
<input type="checkbox"/> Authorized Agent	<input type="checkbox"/> Other (attach mailing information)

6. GENERAL NATURE OF BUSINESS OR AGENCY:

Oil and Gas Production

7. EQUIPMENT LOCATION (Address):

Specify the street address of the proposed or actual equipment location. If the location does not have a designated address, please specify the location by township, range, and section.

Equipment Address: Platforms A, B, and Hillhouse, OCS

City: State: CA Zip Code:

Work Site Phone:

[ ] Incorporated (within city limits) [X] Unincorporated (outside city limits) [ ] Used at Various Locations

Assessors Parcel No(s):

8. PROJECT DESCRIPTION (Describe the equipment to be constructed, modified and/or operated or the desired change in the existing permit. Attach a separate page if needed):

Please see attached project description.

9. DO YOU REQUIRE A LAND USE PERMIT OR OTHER LEAD AGENCY\* PERMIT(S) FOR THE PROJECT DESCRIBED IN THIS APPLICATION? [X] Yes [ ] No

A. If yes, please provide the following information

<u>Agency Name</u>	<u>Permit #</u>	<u>Phone #</u>	<u>App./ Permit Date</u>
Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE)		Theresa Bell 805-389-7554	Concurrent Submittal

Which is the lead agency? BOEMRE

\* The lead agency is the public agency that has the principal responsibility for approving a project. The lead agency is responsible for determining whether the project will have a significant effect on the environment and determines what environmental review and environmental document will be necessary. The lead agency will normally be a city or the county, rather than the Air Pollution Control District.

B. If yes, has the lead agency permit application been deemed complete and is a copy of their completeness letter attached? [ ] Yes [X] No

Please note that the APCD will not deem your application complete until the lead agency application is deemed complete.

C. If the lead agency permit application has not been deemed complete, please explain. Submittals are being made concurrently as discussed with SBCAPCD.

D. A copy of the final lead agency permit or other discretionary approval by the lead agency may be requested by the APCD as part of our completeness review process

10. PROJECT STATUS

- A. Date of Equipment Installation: Currently scheduled to start October 1, 2011
- B. Have you been issued a Notice to Comply (NTC) or Notice of Violation (NOV) for not obtaining a permit for this equipment/modification *and/or* have you installed this equipment without the required APCD permit(s)? If yes, the application filing is double per Rule 210. [ ]Yes [ X ]No
- C. Is this application being submitted due to the loss of a Rule 202 exemption? [ ]Yes [ X ]No
- D. Will this project be constructed in multiple phases? If yes, attach a separate sheet of paper describing in detail the nature and extend of each project phase, including the associated timing, equipment and emissions. [ ]Yes [ X ]No
- E. Is this application also for a change of owner/operator? If yes, please also include a completed APCD Form -01T. [ ]Yes [ X ]No

11. APPLICANT/PREPARER STATEMENT

The person who prepares the application also must sign the permit application. The preparer may be an employee of the owner/operator or an authorized agent (contractor/consultant) working on behalf of the owner/operator (an *Authorized Agent Form -01A* is required).

I certify pursuant to H&SC Section 42303.5 that all information contained herein and information submitted with this application is true and correct.

Christine White  
Signature of application preparer

6/24/11  
Date

Christine White  
Print name of application preparer

DCOR, LLC  
Employer name

12. APPLICATION CHECKLIST (*check all that apply*)

- [X] Application Filing Fee (Fee = \$341.00. The application filing fee is COLA adjusted every July 1<sup>st</sup>. Please ensure you are remitting the current fee.) As a convenience to applicants, the APCD will accept credit card payments. If you wish to use this payment option, please complete the attached *Credit Card Authorization Form* and submit it with your application.
- [ ] Existing permitted sources may request that the filing fee be deducted from their current reimbursable deposits by checking this box. Please deduct the filing fee from my existing reimbursement account.
- [ ] Form -01T (*Transfer of Owner/Operator*) attached if this application also addresses a change in owner and/or operator status from what is listed on the current permit. <http://www.sbcapcd.org/eng/dl/appforms/apcd-01t.pdf>
- [ ] Form -03 (*School Summary Form*) attached if the project's property boundary is within 1,000 feet of the outer boundary of a school (k-12) and the project results in an emissions increase. <http://www.sbcapcd.org/eng/dl/appforms/apcd-03.pdf>
- [ ] Information required by the APCD for processing the application as identified in APCD Rule 204 (*Applications*), the APCD's *General APCD Information Requirements List* (<http://www.sbcapcd.org/eng/dl/other/gen-info.pdf>), and/or one of the APCD's *Process/Equipment Summary Forms* (<http://www.sbcapcd.org/eng/dl/dl01.htm>).
- [ ] Form -01A (*Authorized Agent Form*) attached if this application was prepared by and/or if correspondence is requested to be sent to an Agent Authorized (e.g., contractor or consultant). This form must accompany each application. <http://www.sbcapcd.org/eng/dl/appforms/apcd-01a.pdf>
- [ ] Confidential Information submitted according to APCD Policy & Procedure 6100-020. (*Failure to follow Policy and Procedure 6100-020 is a waiver of right to claim information as confidential.*)

13. **NOTICE OF CERTIFICATION:**

All applicants must complete the following Notice of Certification. This certification must be signed by the Authorized Company Representative representing the owner/operator. Signatures by Authorized Agents will not be accepted.

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NOTICE of CERTIFICATION

I, Tina Wiegman, am employed by or represent  
Type or Print Name of Responsible Official

DCOR, LLC  
Type or Print Name of Business, Corporation, Co. Individual or Agency

(hereinafter referred to as the applicant), and certify pursuant to H&SC Section 42303.5 that all information contained herein and information submitted with this application is true and correct and the equipment listed herein complies or can be expected to comply with said rules and regulations when operated in the manner and under the circumstances proposed. If the project fees are required to be funded by the cost reimbursement basis, as the responsible person, I agree that I will pay the Santa Barbara County Air Pollution Control District the actual recorded cost, plus administrative cost, incurred by the APCD in the processing of the application within 30 days of the billing date. If I withdraw my application, I further understand that I shall inform the APCD in writing and I will be charged for all costs incurred through closure of the APCD files on the project.

For applications submitted for Authority to Construct, modifications to existing Authority to Construct, and Authority to Construct/Permit to Operate permits, I hereby certify that all major stationary sources in the state and all stationary sources in the air basin which are owned or operated by the applicant, or by an entity controlling, controlled by, or under common control with the applicant, are in compliance, or are on approved schedule for compliance with all applicable emission limitations and standards under the Clean Air Act (42 USC 7401 et seq.) and all applicable emission limitations and standards which are part of the State Implementation Plan approved by the Environmental Protection Agency.

Completed By: Christine White Title: Environmental Advisor

Date: 6/24/11 Phone: 805-535-2074

Signature of Authorized Company Representative: Tina Wiegman

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**PLEASE NOTE THAT FAILURE TO COMPLETELY PROVIDE ALL REQUIRED INFORMATION OR FEES WILL RESULT IN YOUR APPLICATION BEING RETURNED OR DEEMED INCOMPLETE.**

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# STATIONARY SOURCE SUMMARY

## (Form 1302-A1)

APCD: **Santa Barbara County Air Pollution Control District**

COMPANY NAME: **DCOR, LLC**

### ➤ APCD USE ONLY ◀

APCD IDS Processing ID:

Application #:

Date Application Received:

Application Filing Fee\*:

Date Application Deemed Complete:

#### I. SOURCE IDENTIFICATION

- Source Name: **Platforms A, B, and Hillhouse, part of South County Dos Cuadras Stationary Source**
- Four digit SIC Code: **1311** USEPA AIRS Plant ID (for APCD use only):
- Parent Company (if different than Source Name): **DCOR, LLC**
- Mailing Address of Responsible Official: **290 Maple Court, Suite 290, Ventura, CA 93003**
- Street Address of Source Location (include Zip Code): **OCS**
- UTM Coordinates (if required) (see instructions): **Platform A x=984,843 feet, y=804,200 feet; Platform B x=982,134 feet, y=804,478 feet; Platform Hillhouse x=987,642 feet, y=803,937 feet**
- Source located within:  
50 miles of the state line  Yes  No  
50 miles of a Native American Nation  Yes  No  Not Applicable
- Type of Organization:  Corporation  Sole Ownership  Government  Partnership  Utility Company
- Legal Owner's Name: **DCOR, LLC**
- Owner's Agent Name (if any): Title: Telephone #:
- Responsible Official: **Tina Wiegman** Title: **ES&RC Manager** Telephone #: **805-535-2073**
- Plant Site Manager/Contact: **Christine White** Title: **Environmental Advisor** Telephone #: **805-535-2074**
- Type of facility: **Oil and Gas Platforms**
- General description of processes/products: **Oil and Gas Production**
- Does your facility store, or otherwise handle, greater than threshold quantities of any substance on the Section 112(r) List of Substances and their Thresholds (see Attachment A)?  Yes  No
- Is a Federal Risk Management Plan [pursuant to Section 112(r)] required?  Not Applicable  Yes  No  
(If yes, attach verification that Risk Management Plan is registered with appropriate agency or description of status of Risk Management Plan submittal.)

\* Applications submitted without a filing fee will be returned to the applicant immediately as "improper" submittals

## STATIONARY SOURCE SUMMARY (Form 1302-A2)

<b>APCD:</b> Santa Barbara County Air Pollution Control District	> APCD USE ONLY < <b>APCD IDS Processing ID:</b>
<b>COMPANY NAME:</b> DCOR, LLC	<b>SOURCE NAME:</b> South County Dos Cuadras Stationary Source

### II. TYPE OF PERMIT ACTION

	CURRENT PERMIT (permit number)	EXPIRATION (date)
<input type="checkbox"/> Initial SBCAPCD's Regulation XIII Application		
<input type="checkbox"/> Permit Renewal		
<input type="checkbox"/> Significant Permit Revision*		
<input checked="" type="checkbox"/> Minor Permit Revision*	Platform A, PTO 9110 Platform B, PTO 9111  Platform Hillhouse, PTO 9114	Re-eval March 2012
<input type="checkbox"/> Administrative Amendment		

### III. DESCRIPTION OF PERMIT ACTION

1. Does the permit action requested involve:
- a:     Portable Source             Voluntary Emissions Caps  
           Acid Rain Source         Alternative Operating Scenarios  
           Source Subject to MACT Requirements [Section 112]
- b:     None of the options in 1.a. are applicable
2. Is source operating under a Title V Program Compliance Schedule?     Yes     No
3. For permit modifications, provide a general description of the proposed permit modification:  
     **Please see attached project description.**

\* Requires APCD-approved NSR permit prior to a permit revision submittal

# COMPLIANCE PLAN (Form 1302-I1)

<b>APCD:</b> <i>Santa Barbara County Air Pollution Control District</i>	<b>&gt; APCD USE ONLY &lt;</b> APCD IDS Processing ID:
<b>COMPANY NAME:</b> <i>DCOR, LLC</i>	<b>SOURCE NAME:</b> <i>South County Dos Cuadras Stationary Source</i>

## I. PROCEDURE FOR USING FORM 1302-I

☞ This form shall be submitted as part of the SBCAPCD's Regulation XIII Application. The Responsible Official shall identify the applicable federal requirement(s) to which the source is subject. In the Compliance Plan (Form 1302-I), a Responsible Official shall identify whether the source identified in the SBCAPCD's Regulation XIII Application currently operates in compliance with all applicable federal requirements.

## II. APPLICABLE FEDERAL REQUIREMENTS

Applicable Federal Requirement <sup>1</sup>	Affected Emission Unit	In compliance? (yes/no/exempt <sup>3</sup> )	Effective Date <sup>4</sup>
Regulatory Reference <sup>2</sup>	Regulation Title <sup>2</sup>		
<i>Please refer to PTO 9110, 9111, and 9114; Applicable requirements will not change per this permit modification</i>			

1 Review APCD SIP Rules, NSPS, NESHAPS, and MACTs .  
 2 Regulatory Reference is the abbreviated citation (e.g. 40 CFR 60 Subpart OOO, APCD Rule 325.H) and Title is the prosaic title (e.g. NSPS Standards of Performance for Nonmetallic Mineral Processing Plants, Crude Oil Production and Separation, Inspection)  
 3 If exempt from applicable federal requirement, include explanation for exemption.  
 4 Indicate the date during the permit term that the applicable federal requirement will become effective for the emission unit.

Other Applicable Federal Requirements <sup>5</sup>	Affected Emission Unit	In compliance?	Effective Date
<i>Please refer to PTO 9110, 9111, and 9114; Applicable requirements will not change per this permit modification</i>			
<sup>5</sup> All environmentally significant permit conditions -- such as emission, operation, and throughput limitations or compliance monitoring conditions associated with such limitations -- listed in all authority to construct (ATC) permits issued to the Part 70 source are also applicable requirements.			

\*\*\* If more than one page is used, please ensure that "Santa Barbara APCD", stationary source name and "Form 1302-I1" appear on each page. \*\*\*

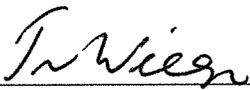
# COMPLIANCE PLAN (Form 1302-I2)

APCD: <i>Santa Barbara County Air Pollution Control District</i>	➤ APCD USE ONLY ◀
COMPANY NAME: <i>DCOR, LLC</i>	APCD IDS Processing ID:  SOURCE NAME: <i>South County Dos Cuadras Stationary Source</i>

### III. COMPLIANCE CERTIFICATION

Under penalty of perjury, I certify the following:

- Based on information and belief formed after reasonable inquiry, the source identified in this application will continue to comply with the applicable federal requirement(s) with which the source is in compliance identified in form 1302-I1;
- Based on information and belief formed after reasonable inquiry, the source identified in this application will comply with the future-effective applicable federal requirement(s) identified in form 1302-I1, on a timely basis<sup>1</sup>;
- Based on information and belief formed after reasonable inquiry, the source identified in this application is not in compliance with the applicable federal requirement(s), identified in form 1302-I1, and I have attached a compliance plan schedule.<sup>2</sup>

6/24/11  
\_\_\_\_\_  
Signature of Responsible OfficialDate

1. Unless a more detailed schedule is expressly required by the applicable federal requirement.
2. At the time of expected permit issuance, if the source expects to be out of compliance with an applicable federal requirement, the applicant is required to provide a compliance schedule with this application, with the following exception. A source which is operating under a variance that is effective for less than 90 days need not submit a Compliance Schedule. For sources operating under a variance, which is in effect for more than 90 days, the Compliance Schedule is the schedule that was approved as part of the variance granted by the hearing board.

The compliance schedule shall contain a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with this applicable federal requirement. For sources operating under a variance, the compliance schedule is part of the variance granted by the hearing board. The compliance schedule shall resemble, and be at least as stringent as that contained in any judicial consent decree or administrative order to which the source is subject. For sources not operating under a variance, consult the Air Pollution Control Officer regarding procedures for obtaining a compliance schedule.

# CERTIFICATION STATEMENT (Form 1302-M)

<b>APCD:</b> Santa Barbara County Air Pollution Control District	> APCD USE ONLY < APCD IDS PROCESSING ID:
<b>COMPANY NAME:</b> <i>DCOR, LLC</i>	<b>SOURCE NAME:</b> <i>South County Dos Cuadras Stationary Source</i>

Identify, by checking off below, the forms and attachments that are part of your application. If the application contains forms or attachments that are not identified below, please identify these attachments in the blank space provided below. Review the instructions if you are unsure of the forms and attachments that need to be included in a complete application.

<b>Forms included with application:</b> <input checked="" type="checkbox"/> Stationary Source Summary Forms <input type="checkbox"/> Total Stationary Source Emission Forms <input checked="" type="checkbox"/> Compliance Plan Form <input checked="" type="checkbox"/> Compliance Plan Certification Form <input type="checkbox"/> Exempt Equipment Form <input checked="" type="checkbox"/> Certification Statement Form  <p style="text-align: center;"><b>List other forms or attachments:</b></p> <hr/> <hr/> <hr/>
<input type="checkbox"/> Check here if additional forms are listed on the back

<b>Attachments included with application:</b> <input type="checkbox"/> Description of Operating Scenarios <input type="checkbox"/> Sample Emissions Calculations <input type="checkbox"/> Fugitive Emission Estimates <input type="checkbox"/> List of Applicable Requirements <input type="checkbox"/> Discussion of units out of compliance with applicable federal requirements and, if required, submit a Schedule of Compliance <input type="checkbox"/> Facility schematic showing emission points <input type="checkbox"/> NSR Permit <input type="checkbox"/> PSD Permit <input type="checkbox"/> Compliance Assurance monitoring protocols <input type="checkbox"/> Risk management verification per 112(r)
--

I certify under penalty of law, based on information and belief formed after reasonable inquiry, that the information contained in this application, composed of the forms and attachments identified above, are true, accurate, and complete.

I certify that I am the responsible official, as defined in SBCAPCD's Regulation XIII, Rule 1301 or USEPA's 40 CFR Part 70.

Signature of Responsible Official *Tina Wiegman* Date 6/24/2011

Print Name of Responsible Official: Tina Wiegman

Title of Responsible Official and Company Name: ES&RC Manager, DCOR, LLC

Pipeline Replacement Project Summary  
DCOR, LLC  
Dos Cuadras Stationary Source  
Platforms A, B, and Hillhouse

Introduction

DCOR, LLC (DCOR) is applying for a Authority to Construct / Permit to Operate (ATC/PTO) for a temporary project to replace undersea pipelines between Platforms A, B, and Hillhouse within the Dos Cuadras Stationary Source located in the Santa Barbara Channel. The project is being prioritized by DCOR to be completed in the Fall of 2011 based on the availability of a dynamically-positioned (DP), pipe laying vessel on the west coast. An additional vessel, the "American Spirit" tug boat, will also be used to support a portion of the project. The project is being conducted to voluntarily and proactively enhance the integrity of the Dos Cuadras Field undersea oil and gas pipeline network. A project location map is found in Appendix A.

The project scope consists of the following:

- 1) Install 2,811 feet of new 6-inch gas pipeline between Platform Hillhouse and Platform A.
- 2) Install 2,500 feet of new 8-inch oil and gas pipelines between Platforms A and B.
- 3) Install 200 feet of new 12-inch oil pipeline and 3,000 feet of new 12-inch gas pipeline from Platform A into the existing main 12-inch Platform B to Rincon trunk lines. The modified pipelines will become the main Platform A to Rincon oil and gas pipelines. After the project is complete, all oil and gas produced from the Dos Cuadras Field will be routed to Platform A and then to Rincon.
- 4) Temporarily idle the existing 10-inch oil and gas pipeline tie-in segments from Platform A to the main Platform B to Rincon oil and gas pipeline.
- 5) Temporarily idle the existing 12-inch sections of the Platform B to Rincon oil and gas pipelines.
- 6) Temporarily idle the existing 6-inch Platform Hillhouse to Platform A gas pipeline.

Under the provisions of the SBCAPCD Rule 202 F.7:

***A permit shall not be required for equipment, including associated marine vessels, used for pile driving adjacent to or in waterways, or cable and pipe-laying vessels/barges or derrick barges if the potential to emit of such equipment per stationary source is less than 25 tons per year of any affected pollutant during any consecutive 12 month period. The Control Officer shall not require Best Available Control Technology for such sources if federal law preempts this requirement. To qualify for this exemption, the owner or operator of the stationary source shall submit a written request for exemption to the Control Officer, who shall make a determination in writing approving or denying the request. The request shall identify the equipment, its location, and shall include the emission calculations and assumptions that demonstrate that the equipment meets the exemption criteria. The owner or operator shall pay any applicable fee pursuant to Rule 210. Alternatively, an owner or operator of the stationary source may qualify for an exemption from the New Source Review provisions of Regulation VIII by obtaining an Authority to***

***Construct and Permit to Operate which limits the potential to emit of such equipment to less than 25 tons per year of any affected pollutant during any consecutive 12 month period.***

As allowed in SBCAPCD Rule 202 F.7, DCOR is applying for a SBCAPCD ATC/PTO to limit the potential to emit of the MSV (multi-service vessel) *Intrepid* and MV (motor vessel) *American Spirit* main and auxiliary engines to less than 25 tons of any affected pollutant during the pipeline replacement project. The potential to emit will be limited by a cap on the amount of diesel fuel that can be burned during the pipeline replacement project.

### **Project Details**

#### **MSV Intrepid**

The MSV Intrepid is a 380 foot long dynamically positioned (DP), reeled pipelay vessel with a saturation diving system. The vessel is owned and operated by Helix Energy Solutions located in Houston, Texas. The vessel has four main 3,326 horsepower Wartsila engines that are used to propel the vessel, dynamically position the vessel during pipelay and diving operations, and generate power to run electrified ship operations and deck equipment. The engines are turbo-charged, have enhanced after cooling and high pressure injectors. A 665 horsepower emergency auxiliary generator is also onboard and is available to power dive compressors in the event of vessel main engine failure. Detailed information on the Intrepid can be found in Appendix B.

During normal operations, the Intrepid runs only two of its four main engines. A third engine is turned on only in periods of inclement weather or strong currents. A fourth engine is available to replace one of the operating engines in the event of engine trouble or failure. There is never a time when all four main engines are running at the same time. The ship's engines work in conjunction with each other to constantly maintain a combined load to not exceed 25% during DP operations. During project mobilization and de-mobilization, when the Intrepid will be self-propelled, vessel emissions have been calculated conservatively assuming three engines are operating at 65% load for 6 hours (within 25 miles of the project location). While at the project location during dynamic positioning operations (pipelay and diving subsea tie-in work), vessel emissions have been calculated conservatively assuming three engines are operating at 25% load 24 hours a day. While working in the mild ocean current and weather conditions found in the Santa Barbara Channel it is likely that only two main engines will be in operation at 20% load during most or all the dynamic positioning operation phases of the project. Average daily fuel consumption for the Intrepid is reported by Helix to be between 2,700 and 3,725 gallons. A summary of Intrepid fuel use during a recent three month operating period in Trinidad and the Gulf of Mexico under high current and/or rough weather conditions is found in Appendix C.

### MV American Spirit

The MV American Spirit is a 60 foot long tug boat owned and operated by American Marine Corporation located in Terminal Island, California. The vessel has two Caterpillar C-18 450 horsepower main engines with Tier 2 emissions ratings and a Mariner "I" Series 28.2 horsepower auxiliary generator with Tier 2 emission ratings. On day four (4) of the project the tug will bring a barge containing 12-inch pipe from Long Beach into the project location. Once at the project location, the barge will be tied off to the side of the Intrepid. The American Spirit will remain at the project location on a platform mooring buoy for eleven (11) days and then will transport the empty barge back to Long Beach. While on the mooring buoy, the American Spirit will only operate its auxiliary generator engine. Project emissions are calculated assuming a six (6) hour mobilization and demobilization (within 25 miles of the project location) operating two main engines at 65% load. While moored at the project location, the auxiliary generator emissions are calculated assuming 24 hours per day at 50% load. Detailed information about the American Spirit can be found in Appendix D.

### Project Schedule and Emissions

A detailed summary of the DCOR Dos Cuadras pipeline replacement project schedule, the equipment that will be used, and the estimated emissions is found in Appendix E. Included in Table 1 is a summary of the diesel-driven equipment that will be used as well as operating hours, power ratings, load factors, fuel use factors, emission control factors, and SBCAPCD air permit status. Table 2 summarizes project criteria emissions (NO<sub>x</sub>, ROC, CO, SO<sub>x</sub>, PM, and PM<sub>10</sub>). Table 3 details the emission factors for various equipment types and Table 4 estimates project greenhouse gas emissions (CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O). The project duration is expected to be 33 days (including mobilization and demobilization) and estimated project NO<sub>x</sub> emissions are 18.4 tons. Please note that some of the equipment that will be used during the project is already under SBCAPCD DOS Cuadras Stationary Source facility air permits:

Platform A:	PTO 9110
Platform B:	PTO 9111
Platform Hillhouse:	PTO 9114

The permitted equipment includes the crew boat Alan T and the Platform A and Hillhouse south crane engines. That Alan T will already be operating in the project location in support of ongoing DCOR platform operations and will be available to assist the Intrepid in case of emergency. The project schedule conservatively estimates that the Alan T will be available to assist one hour per day for the duration of Intrepid operations. The Platform A and Hillhouse south cranes will also be used during certain phases of the project for 1 hour a day. The current permitted fuel and emissions limits for these units will not be exceeded on a daily, quarterly, or annual basis and these emissions are **not** requested to be included in this ATC/PTO.

### **Proposed Permit Conditions**

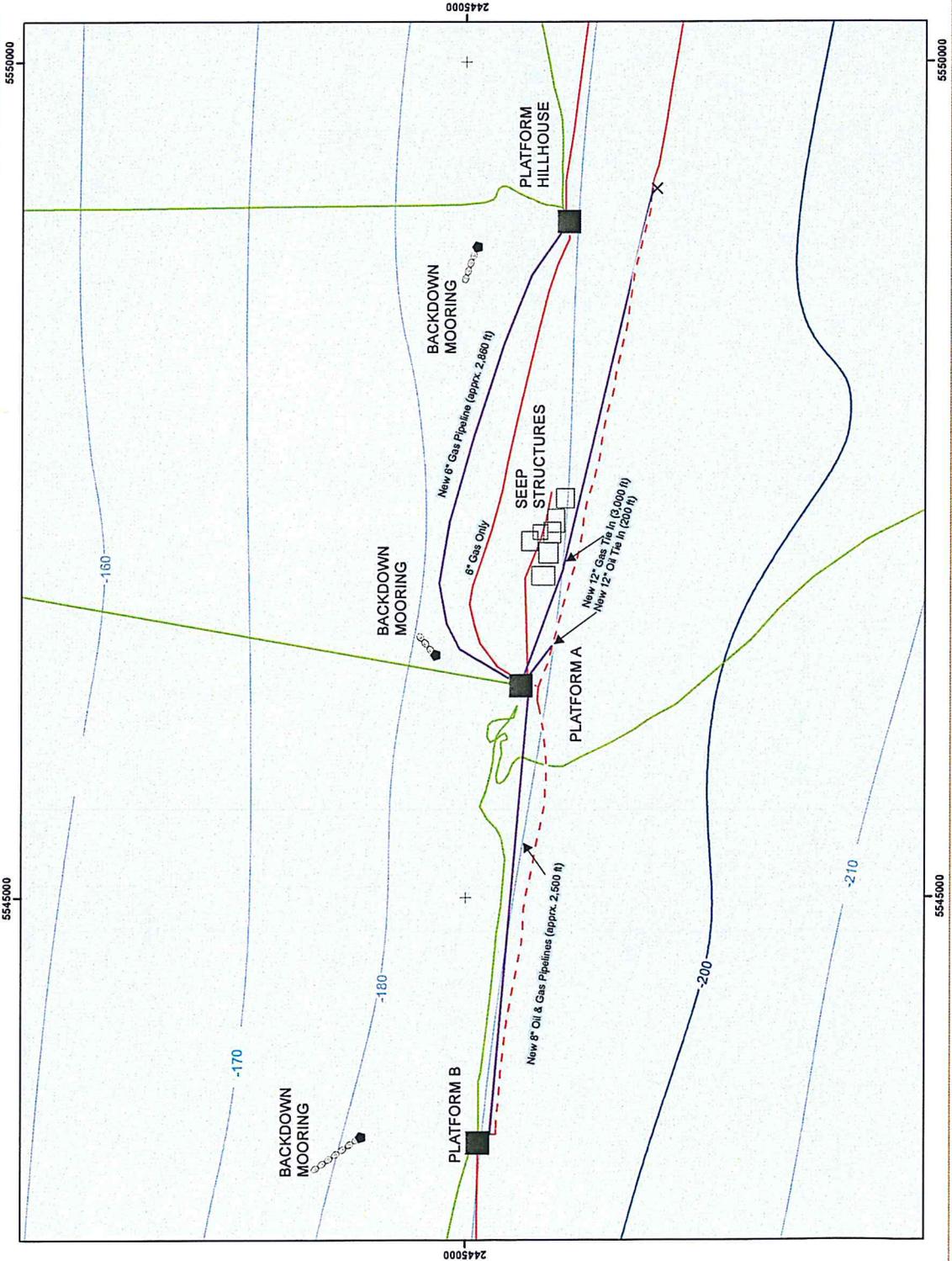
In order to limit the potential to emit of the Intrepid and the American Spirit, DCOR proposes that SBCAPCD include a “gatekeeper” permit condition that limits project fuel consumption to 145,348 gallons of California ultra low sulfur diesel. This fuel use limitation was calculated assuming a 25 ton project limit (50,000 lbs) and the project’s most conservative NOx emission factor, 344 lbs /kgal, associated with the Intrepid’s main engines. DCOR proposes to track and report daily project fuel use per the specifications outlined in the Pipeline Replacement Project Fuel Measurement Plan included in Appendix F. DCOR requests that all of the 25-ton exemption allowed under SBCAPCD Rule 202 F.7 be available for this project in case something unexpected is encountered and the project schedule extends past the estimated 33 days.

Rule 202.F. 5 provides an exemption for specialty equipment. During the project, DCOR will be replacing section of pipeline on the seafloor. Although, engineering has been done to ensure that the project can be completed with the equipment on the Intrepid, with a project of this scope, there could be unknowns. DCOR request that the permit includes language that allows for the specialty equipment exemption without modifying the permit.

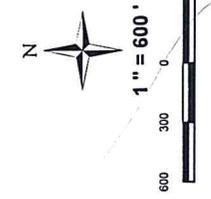
### **SBCAPCD Permit Processing Schedule**

Due to the tight schedule, DCOR requests that SBCAPCD proceed with processing the ATC/PTO application concurrently with the lead agency, BOEMRE’s review of the project application and environmental impacts document. It is understood that the final ATC/PTO will not be issued until the lead agency has deemed the project application complete. DCOR does not anticipate that BOEMRE will have any problems with the project scope or environmental impacts based on a preliminary review of the project with the agency. Based on the west coast availability of the Intrepid it is anticipated that the project will start on or around October 1, 2011.

APPENDIX A



NOTES:  
1. Bathymetry contours from Fugro data combined with NOAA database. Contours are in feet and referenced to Mean Lower Low Water (MLLW).



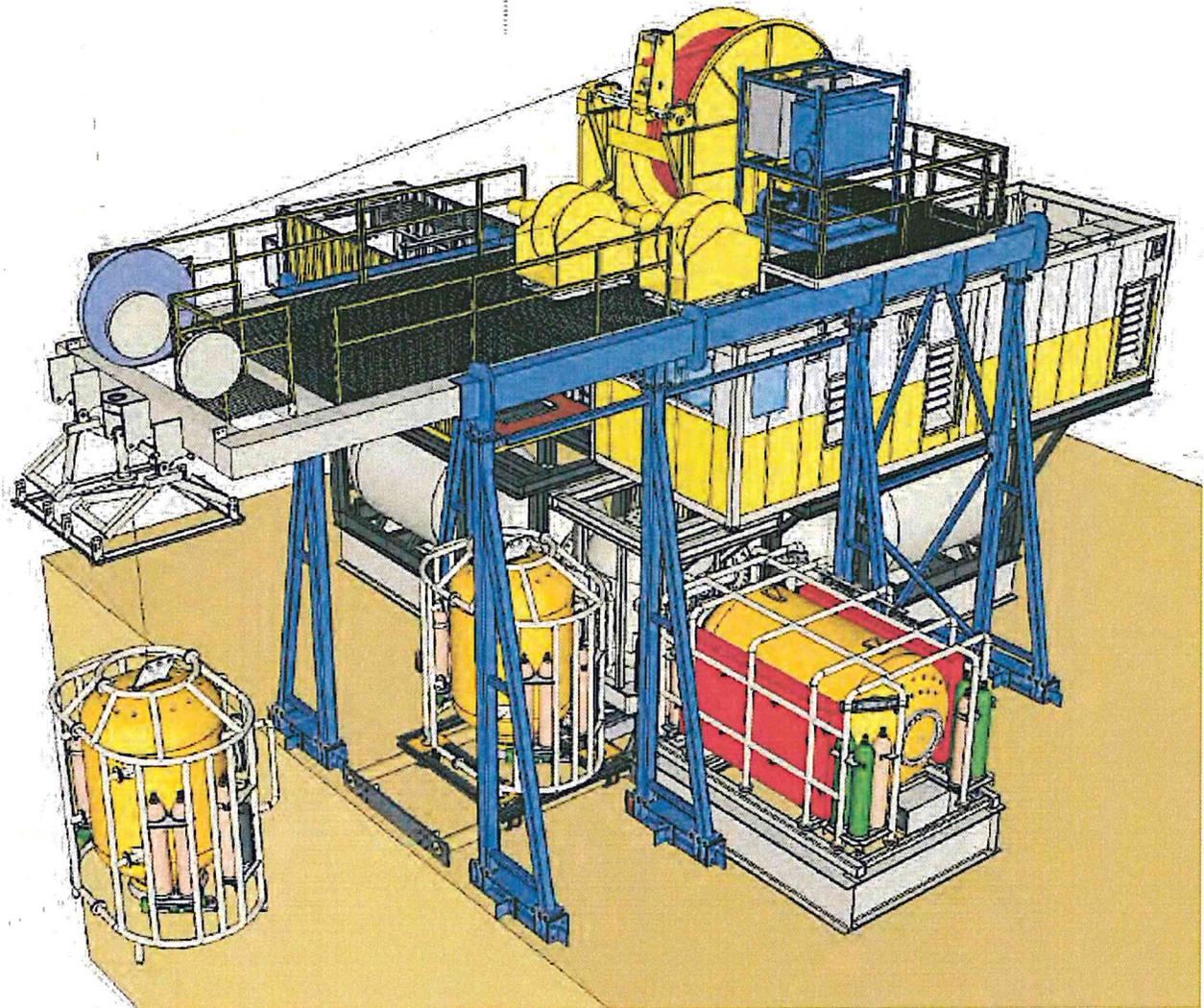
APPENDIX B

# Intrepid

## Reeled Pipelay Vessel with Saturation Diving System



# Intrepid saturation diving system configuration



Thermatech 3-man Diving Bell



Perry Submarine Split Lock



Thermatech Hyperbaric Rescue Chamber



The premier reeled pipelay vessel in the Gulf of Mexico, the Intrepid is a 380 foot long carousel reel specialty platform for laying small diameter pipeline. Extremely efficient in deploying umbilicals, flexible risers and flowlines, the vessel has laid pipe in water depths exceeding 7,000 ft. with its deepwater crane, capable of reaching depths of 10,000 feet.

**Saturation Diving**

The Intrepid's Nautilus 1000' ABS Class / IMCA Compliant Saturation Diving System with rescue chamber consists of the following systems:

- Secondary Life Support System
- Mixed Gas/Air package
- Surface Diver LARS (2x)
- Surface Diver Deck Decompression Chambers
- Jetting Package
- Underwater Burning Package
- 50/120 Dive Compressors (2x)
- Surface Diver Control Van
- U/W Video Packages (2x)
- Generator

**Rigid / Flexible Pipelay & Umbilical Installation**

Equipped with a state-of-the-art carousel reel system, the Intrepid can install a variety of products safely and efficiently in deep waters.

**Jumper Installation**

The vessel's large deck space and facilities allow for large jumpers to be fabricated offshore, thereby minimizing installation time.

**Subsea Components**

The vessel is equipped with a crane capable of deploying payloads to a depth of 3,000 m on a single fall, and 1,525 m on double fall.

**Main Crane**

**Main Hoist Traction Winch with 2 Falls**

Min. Radius. . . . .	8.7 - 8.8 m
Max. Radius. . . . .	39 - 39.6 m
Hoisting Capacity at Harbor / Sheltered Waters Lift . . . . .	400 mT @ 16 m.
Hoisting Speed . . . . .	0 - 59.1 ft. per min.

**Main Hoist Traction Winch with 1 Fall**

Min. Radius. . . . .	7.8 m
Max. Radius. . . . .	37 m
Max. Hook Travel . . . . .	3,000 m
Hoisting Capacity at Harbor Lift. . . . .	200 mT
Hoisting Speed. . . . .	0 - 118.1 ft. per min.

**Pipelay System**

Product Capability. . . . .	3.5" - 10" O.D.
Carousel Loading Capability. . . . .	1,550 mT

**Tensioners**

Main (4-track) . . . . .	120 mT
No. 2 (2-track) . . . . .	18 mT
Hang Off/Friction Clamp . . . . .	200 mT

**A/R Winch**

Capacity. . . . .	200 mT
Wire Rope Length. . . . .	3,000 m

**ROVs**

2x Triton XLS Work-Class ROVs, rated to 3,000 m depth

**Helideck**

Approved by ABS for 11.34 mT  
Accommodates S061 aircraft

*(vessel specifications continued on reverse)*

**Dimensions**

Overall Length.....	116.3 m
BP.....	111.6 m
Breadth Moulded.....	31.9 m
Depth Moulded.....	7.6 m
Gross Tonnage.....	7,995.4 tons (7,217 mT)
Net Tonnage.....	2,386.5 tons (2,165 mT)
Lightship Displacement....	8,131.8 tons (7,337 mT)
Max. Moulded Draft.....	5.6 m
Displacement at Summer	14,301.4 tons (12,974 mT)

**Capacities**

Deck Space.....	1,647 m <sup>2</sup>
Moonpool Dimension.....	978.3 ft <sup>2</sup> (48.9 ft x 20 ft.)
Water Ballast Tanks.....	6,130 m <sup>3</sup>
Fresh Water Tanks.....	219 m <sup>3</sup>
Max. Deck Load.....	4,000 mT
Fuel Oil Tanks.....	1,463 m <sup>3</sup>
Fuel Oil Day Tanks.....	2 x 10 m <sup>3</sup>
Fuel Oil Set Tanks.....	2 x 15 m <sup>3</sup>
Lube Oil Tanks.....	2 x 4.6 m <sup>3</sup>
Soil Transfer Tank.....	23.5 m <sup>3</sup>
Slop Tank.....	23.5 m <sup>3</sup>

**Propulsion**

8 Lips type FS 500/-226/500 MNR thrusters, 1,100 HP (820 kW) fully azimuthing, fixed pitch, variable speed

**Dynamic Positioning System**

DP-2 redundant system, Kongsberg Simrad DSP-2122, consisting of 2 process computers  
Joystick control available from main operator's console, forward bridge and two remote stations

**Accommodations**

Total Bunks.....	89
Marine Crew.....	42
ROV Crew.....	13
Project Crew.....	20
Other.....	14



Changing the way you succeed.

Helix Energy Solutions Group, Inc.  
 400 North Sam Houston Pkwy. East  
 Houston, Texas 77060  
 Phone: 281-618-0400  
 www.helixesg.com

## ENGINE INTERNATIONAL AIR POLLUTION PREVENTION CERTIFICATE

(Note: This Certificate shall be supplemented by a Record of Construction,  
Technical File and Means of Verification)

Issued under the provisions of the Protocol of 1997 to the International Convention for the Prevention  
of Pollution from Ships, 1973, as modified by the Protocol of 1978 related thereto (hereinafter  
referred to as "the Convention") under the authority of the Government of:

Commonwealth of The Bahamas  
(full designation of country)

by the American Bureau of Shipping

Engine Manufacturer	Model Number	Serial Number	Test Cycle(s)	Rated Power (kW) And Speed (RPM)	Engine Approval Number
Wartsila Italia S.p.A.	Wartsila W8L28A	26569	E2	263.5 kW 900 rpm	ABSLD-NTC-1248-0100-00009

**THIS IS TO CERTIFY:**

1. That the above-mentioned marine diesel engine has been surveyed for pre-certification in accordance with the requirements of the Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines made mandatory by Annex VI of the Convention; and
2. That the pre-certification survey shows that the engine, its components, adjustable features, and Technical File, prior to the engine's installation and/or service on board a ship, fully comply with the applicable requirements of regulation 13 of Annex VI of the Convention.

This certificate is valid for the life of the engine, subject to surveys in accordance with regulation 5 of Annex VI of the Convention, installed in ships under the authority of this Government.

Issued at Galveston, Texas, U.S.A. on 17 March 2010



Reeves, Jeffrey A., Galveston Station  
Surveyor, American Bureau of Shipping

**SUPPLEMENT TO ENGINE INTERNATIONAL AIR POLLUTION PREVENTION  
CERTIFICATE  
(EIAPP CERTIFICATE)**

**RECORD OF CONSTRUCTION, TECHNICAL FILE AND MEANS OF VERIFICATION**

In respect of the provisions of Annex VI of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocols of 1978 and 1997 relating thereto (hereinafter referred to as "the Convention") and of the Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines (hereinafter referred to as the "NO<sub>x</sub> Technical Code").

- Notes:**
1. This Record and its attachments shall be permanently attached to the EIAPP Certificate. The EIAPP Certificate shall accompany the engine throughout its life and shall be available on board the ship at all times.
  2. If the language of the original Record is neither English nor French, the text shall include a translation into one of these languages.
  3. Unless otherwise stated, regulations mentioned in this Record refer to regulations of Annex VI of the Convention and the requirements for an engine's Technical File and Means of Verification refer to mandatory requirements of the NO<sub>x</sub> Technical Code.

**1 Particulars of the engine**

**1.1 Name and address of manufacturer**

<b>Name</b>	Wärtsilä Italia S.p.A
<b>Address</b>	Bagnoli della Rosandra, 334 34018 San Dorligo della Valle Trieste ITALY

- 1.2 Place of engine build Wärtsilä Italia S.p.A., address as above
- 1.3 Date of engine build September 2003
- 1.4 Place of pre-certification survey Onboard-Galveston Port
- 1.5 Date of pre-certification survey 4 October 2009
- 1.8 Engine type and model number Wärtsilä W8L26A
- 1.7 Engine serial number 26569
- 1.8 If applicable, the engine is a parent engine  or a member engine  of the following engine family  or engine group  Wärtsilä 26A (26715A) Group II
- 1.9 Test cycle(s) (see chapter 3 of the NO<sub>x</sub> Technical Code) Test Cycle E2
- 1.10 Rated Power (kW) and Speed (RPM) 263.5 + 295.6 + 312.5 kW/cyl. @ 900 rpm (Engine Group)
- 1.11 Engine approval number ABSLD-NTC-1248-0000-00001(Parent Engine)
- 1.12 Specification(s) of test fuel ISO 8217 DMA
- 1.13 NO<sub>x</sub> reducing device designated approval number (if installed) N/A
- 1.14 Applicable NO<sub>x</sub> Emission Limit (g/kWh) (regulation 13 of Annex VI) 11.5 g/kWh
- 1.15 Engine's actual NO<sub>x</sub> Emission Value (g/kWh) E2: 10.4 g/kWh

**2 Particulars of the Technical File\***

2.1 Technical File identification/approval number ABSLD-NTC-1248-0100-00009

2.2 Technical File approval date 7 December 2009

\* The Technical File, as required by chapter 2 of NO<sub>x</sub> Technical Code, is an essential part of EIAPP Certificate and must always accompany an engine throughout its life and always be available on board a ship.

**3 Specifications for the On-board NO<sub>x</sub> Verification Procedures for the Engine Parameter Survey\*\***

3.1 On-board NO<sub>x</sub> verification procedures identification/approval number \_\_\_\_\_

ABSLD-NTC-1248-0100-00009

3.2 On-board NO<sub>x</sub> verification procedures approval date 7 December 2009

\*\* The specifications for the on-board NO<sub>x</sub> verification procedures, as required by chapter 6 of the NO<sub>x</sub> Technical Code, is an essential part of the EIAPP Certificate and must always accompany an engine through its life and always be available on board a ship.

**THIS IS TO CERTIFY** that this Record is correct in all respects.

Issued at Galveston, Texas, U.S.A. on 17 March 2010



Reeves, Jeffrey A., Galveston Station  
Surveyor, American Bureau of Shipping



## 1.0.2. Output

Engine output at site conditions				
Output 100%	kW	2480		
Engine speed	rpm	900		
Idling speed	rpm	300		
Conditions at site				
		Max.	Nom.	Min.
Ambient air pressure	mbar	–	1000	–
Site altitude above sea level	m	–	0	–
Suction air temperature	°C	45	–	15
Charge air coolant temperature	°C	38	–	25
Tolerance at full load between receiver temperature and LT water before air cooler	°C	11	–	–

Engine output according to ISO conditions		
Output 100%	kW	2480
Engine speed	rpm	900
Reference conditions according ISO 3046-1:1995(E)		
Ambient air pressure	mbar	1000
Site altitude above sea level	m	0
Suction air temperature	°C	45
Charge air coolant temperature	°C	38
Total exhaust gas back pressure	mbar	30

**Note!**

The full output of the engine is available at the ISO conditions. No compensation (uprating) is allowed for site conditions better than the ISO conditions. For derating data see section 1.0.3.

Fuel limiter is set at 110 % for governing purposes only.

## 1.0.1. Basic Information

Project name	CAL. DIVE
Engine designation number	26567 - 26568 - 26569 - 26570

Engine type	8L26
Cylinder bore	260 mm
Stroke	320 mm
Number of cylinders	8
Direction of rotation	Clockwise
Firing order	1-3-2-5-8-6-7-4

The Wärtsilä 26 diesel engine is a 4-stroke, medium speed, turbocharged and intercooled engine with direct fuel injection.

↳ Sea Water  
Exchange

↳ High pressure fuel  
Injection (450 bar)

**NAPIER TURBOCHARGER**

**TYPE NAPIER 297/357**

**SPECIFICATION**

Type	Max. Permissible Speed ( R.P.M. )	Pressure Ratio	Max. Turbine Inlet Temperature	Weight
NAPIER 297	SEE TURBOCHARGER TYPE PLATE FOR DETAILS	5:1	SEE TURBOCHARGER TYPE PLATE FOR DETAILS	774 kgs approx.
NAPIER 357	SEE TURBOCHARGER TYPE PLATE FOR DETAILS	5:1	SEE TURBOCHARGER TYPE PLATE FOR DETAILS	

**NAMEPLATES**

The turbocharger has a name plate mounted on the main casing. The information shown on this name plate is explained overleaf. (Example only)

**EUROPEAN GAS TURBINES LTD.**

TYPE: NAPIER 297 FRAME LETTER EJ

SPECIFICATION 4GS87B125M

SERIAL No. 1234

○ MAX. SPEED 29500 R.P.M. ○

MAX. TEMP 650 °C

**ALTERATION RECORD**

M	1	2	3	4	5	6	7	8	9	10	11	12	13
K	14	15	16	17	18	19	20	21	22	23	24	25	26

## ENGINE INTERNATIONAL AIR POLLUTION PREVENTION CERTIFICATE

(Note: This Certificate shall be supplemented by a Record of Construction, Technical File and Means of Verification)

Issued under the provisions of the Protocol of 1997 to the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 related thereto (hereinafter referred to as "the Convention") under the authority of the Government of:

Commonwealth of The Bahamas  
(full designation of country)

by the American Bureau of Shipping

Engine Manufacturer	Model Number	Serial Number	Test Cycle(s)	Rated Power (kW) And Speed (RPM)	Engine Approval Number
Wärtsilä Italia S.p.A.	Wärtsilä W8L28A	28569	E2	283.5 kW 900 rpm	ABSLED-NTC-1248-0100-00009

**THIS IS TO CERTIFY:**

- That the above-mentioned marine diesel engine has been surveyed for pre-certification in accordance with the requirements of the Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines made mandatory by Annex VI of the Convention; and
- That the pre-certification survey shows that the engine, its components, adjustable features, and Technical File, prior to the engine's installation and/or service on board a ship, fully comply with the applicable requirements of regulation 13 of Annex VI of the Convention.

This certificate is valid for the life of the engine, subject to surveys in accordance with regulation 5 of Annex VI of the Convention, installed in ships under the authority of this Government.

Issued at Galveston, Texas, U.S.A. on 17 March 2010



Reeves, Jeffrey A., Galveston, Texas  
Surveyor, American Bureau of Shipping



**SUPPLEMENT TO ENGINE INTERNATIONAL AIR POLLUTION PREVENTION  
CERTIFICATE  
(EIAPP CERTIFICATE)**

**RECORD OF CONSTRUCTION, TECHNICAL FILE AND MEANS OF VERIFICATION**

In respect of the provisions of Annex VI of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocols of 1978 and 1997 relating thereto (hereinafter referred to as "the Convention") and of the Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines (hereinafter referred to as the "NO<sub>x</sub> Technical Code").

**Notes:**

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**1 Particulars of the engine**

**1.1 Name and address of manufacturer**

Name	Wärtsilä Italia S.p.A
Address	Bagnoli della Rosandra, 334 34018 San Dorigo della Valle Trieste ITALY

- 1.2 Place of engine build Wärtsilä Italia S.p.A., address as above
- 1.3 Date of engine build September 2003
- 1.4 Place of pre-certification survey Onboard-Galveston Port
- 1.5 Date of pre-certification survey 4 October 2009
- 1.6 Engine type and model number Wärtsilä W8L26A
- 1.7 Engine serial number 28569
- 1.8 If applicable, the engine is a parent engine  or a member engine  of the following engine family  or engine group  Wärtsilä 26A (26715A) Group II
- 1.9 Test cycle(s) (see chapter 3 of the NO<sub>x</sub> Technical Code) Test Cycle E2
- 1.10 Rated Power (kW) and Speed (RPM) 263.5 + 295.6 + 312.5 kW/cyl. @ 900 rpm (Engine Group)
- 1.11 Engine approval number ABSLD-NTC-1248-0000-00001 (Parent Engine)
- 1.12 Specification(s) of test fuel ISO 8217 DMA
- 1.13 NO<sub>x</sub> reducing device designated approval number (if installed) N/A
- 1.14 Applicable NO<sub>x</sub> Emission Limit (g/kWh) (regulation 13 of Annex VI) 11.5 g/kWh
- 1.15 Engine's actual NO<sub>x</sub> Emission Value (g/kWh) E2: 10.4 g/kWh (310.86 16/k-g)

**2 Particulars of the Technical File\***

2.1 Technical File identification/approval number ABSLD-NTC-1248-0100-00009

2.2 Technical File approval date 7 December 2009

\* The Technical File, as required by chapter 2 of NO<sub>x</sub> Technical Code, is an essential part of EIAPP Certificate and must always accompany an engine throughout its life and always be available on board a ship.

**3 Specifications for the On-board NO<sub>x</sub> Verification Procedures for the Engine Parameter Survey\*\***

3.1 On-board NO<sub>x</sub> verification procedures identification/approval number ABSLD-NTC-1248-0100-00009

3.2 On-board NO<sub>x</sub> verification procedures approval date 7 December 2009

\*\* The specifications for the on-board NO<sub>x</sub> verification procedures, as required by chapter 6 of the NO<sub>x</sub> Technical Code, is an essential part of the EIAPP Certificate and must always accompany an engine through its life and always be available on board a ship.

**THIS IS TO CERTIFY** that this Record is correct in all respects.

Issued at Galveston, Texas, U.S.A. on 17 March 2010



Reeves, Jeffrey A. Galveston, Texas  
Surveyor, American Bureau of Shipping

APPENDIX C

	Nov	Dec	Jan
Intrepid Fuel Use	gal/day	gal/day	gal/day
November 2010 to January 2011	4755.06	3900.15	2905.87
	4226.72	4250.02	2641.70
	4490.89	2905.87	2641.70
	3698.38	3698.38	2641.70
	3962.55	4226.72	2641.70
	3434.21	3962.55	2641.70
	3698.38	3962.55	2641.70
	4226.72	4226.72	3170.04
	3434.21	3962.55	2641.70
	3434.21	3962.55	2377.53
	4226.72	3962.55	3170.04
	3434.21	3962.55	4490.89
	3698.38	4226.72	5283.40
	3434.21	3698.38	4226.72
	3434.21	4490.89	3170.04
	2905.87	3962.55	2377.53
	3434.21	4226.72	2641.70
	3962.55	3434.21	2641.70
	3434.21	1585.02	2113.36
	3434.21	2113.36	2113.36
	2905.87	1585.02	2641.70
	3170.04	1585.02	2113.36
	3170.04	1585.02	2377.53
	4226.72	2377.53	2377.53
	3434.21	3962.55	2113.36
	3962.55	5547.57	2113.36
	3698.38	3434.21	2377.53
	2905.87	3434.21	2113.36
	4755.06	3962.55	2113.36
	4755.06	3962.55	2113.36
		3962.55	2113.36
Average Daily Usage (gallons)	3724.80	3552.25	2701.35
Average tons per day NOx using .344 lb/gal factor	0.64	0.61	0.46
No of days to consume 25tons NOx	39.02	40.92	53.81

November working conditions were primarily diver operations in high currents in Trinidad  
December was a mix of diving, open ocean transit from Trinidad to GOM, dockside, and pipelay  
January was primarily pipelay in GOM, note Jan was rough weather

APPENDIX D


**American Spirit**

<i>Year Built:</i>	Complete rebuild 2004, Re-power 2010, Built 1973
<i>Dimensions:</i>	60' x 20' x 7.8'
<i>Main Propulsion:</i>	2 x Caterpillar C-18 1100HP Tier2
<i>Reduction Gears:</i>	Twin Disc 514, 4.5:1
<i>Propellers:</i>	Workhorse 48" x 54" 4-Blade S.S.
<i>Speed:</i>	9 Knots
<i>Fuel Capacity:</i>	7,000 Gallons
<i>Water Capacity:</i>	2,000 Gallons
<i>Lube Oil Capacity:</i>	164 Gallons
<i>Electronics:</i>	Radar, Single Side Band Radio, 2 VHF's, 2 Portable VHF's, AIS, Compass Auto Pilot, DPGS
<i>Towing Winch:</i>	SKAGIT Single Drum Winch w/50,000 lbs Line Pull Driven by 3/71 GM Diesel Engine w/Stern Rollers for Anchor Handling
<i>Gross Tons:</i>	67 Tons
<i>Net Tons:</i>	45 Tons
<i>Call Letters:</i>	WY8840
<i>Official Number:</i>	525 438
<i>Area of Operations:</i>	Oceans, Coastwise, Lakes, Bays, Rivers, and Sounds

***For further information please contact the American Marine Corporation office nearest you:***

1500 S. Barracuda St.  
Berth 270/271  
Terminal Island, CA 90731  
Phone (310) 547-0919  
Fax (310) 547-0031

65 N. Nimitz Hwy.  
Pier 14  
Honolulu, HI 96817  
Phone (808) 545-5190  
Fax (808) 538-1703

6000 "A" Street  
Anchorage, AK 99518  
Phone (907) 562-5420  
Fax (907) 562-5426

**Christine White**

---

**From:** Maricela Guzman [marcel@amarinecorp.com]  
**Sent:** Wednesday, May 11, 2011 12:09 PM  
**To:** jmacklin@helixesg.com  
**Cc:** Christine White; Aaron Weber (aweber@helixesg.com); George Wittich; Megan Shahnazarian  
**Subject:** Ref: American Marine Tug Specifics

Good afternoon Gentlemen/Ladies,

Below please find American Marine Tugs Specifics as requested and feel free to contact our office if you have any questions or need clarifications:

**American Spirit Specs:**

Engine Type: Caterpillar 18 liter X2  
Model Number: C-18--- 450 hp X2  
Fuel System: Unit injectors  
Intercoolers: Engine closed keel cooler/heat exchanger  
Emissions Rating: Tier 2

**American Patriot:**

Engine Type: Alco 12 cylinder  
Model Number: Alco-12-251-C—2050Hp X2  
Fuel System: Individual injector pumps  
Intercoolers: Heat exchanger  
Emissions Rating: None

Respectfully,

*Maricela Guzman  
American Marine Corporation  
1500 S. Barracuda Street  
Terminal Island, CA 90731  
(310) 547-0919 Office  
(310) 547-0031 Fax  
(310) 345-8844 Mobile*



# C18 ACERT™

## MARINE PROPULSION

460 mhp (454  
bhp) 339 bkW

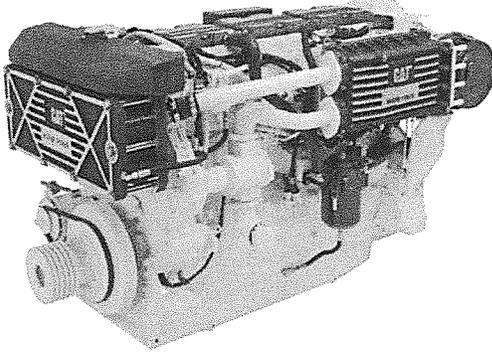


Image shown may not reflect actual Engine

### SPECIFICATIONS

#### I-6, 4-Stroke-Cycle-Diesel

Emissions.....	IMO/EPA Tier 2
Displacement.....	18.1 L (1106 cu in)
Rated Engine Speed.....	1800
Bore.....	145.0 mm (5.7 in)
Stroke.....	183.0 mm (7.2 in)
Aspiration.....	TA, TTA
Governor.....	Electronic
Cooling System.....	Heat Exchanger or Keel Cooled
Weight, Net Dry (approx.).....	1,497 kg (3,300 lb)
Refill Capacity	
Cooling System.....	45.8 L (12.1 Gal)
Lube Oil System.....	64 L (16.9 Gal)
Oil Change Interval.....	500 hrs
Caterpillar Diesel Engine Oil 10W30 or 15W40	
Rotation (from flywheel end).....	Counterclockwise
Flywheel and Flywheel Housing....	SAE No. 1 or SAE No. 0
Flywheel Teeth	
SAE No. 1.....	113
SAE No. 0.....	136
Maximum Exhaust Backpressure...	6.7 kPa (26.9 in. water)

### STANDARD ENGINE EQUIPMENT

#### Air Inlet System

Corrosion-resistant sea water aftercooled, air cleaner/fumes disposal (closed system), jacket water cooled turbocharger, turbocharger inlet OD straight connection

Corrosion-resistant sea water aftercooler, air cleaner/fumes disposal (closed system with service indicator), turbocharger air cleaner/fumes disposal (closed system)

#### Control System

Electronic governing (A4), programmable low idle, electronic diagnostics and fault logging, fuel/air ratio control, electronic throttle position sensor

#### Cooling System

Thermostat and housing, block heater (1500W, 120V AC current), gear-driven jacket water pump, self priming, gear-driven sea water pump with bronze impeller, titanium plate type heat exchanger

#### Exhaust System

Watercooled exhaust manifold and turbocharger, round flanged outlet

#### Fuel System

Fuel priming pump, fuel transfer pump, fuel filter - RH or LH service, flexible fuel lines

#### Instrumentation

Electronic service meter, instrument panel (24V), start/stop switch, emergency stop button, maintenance due light, diagnostic light, warning light, maintenance clear switch, start motor magnetic switch, 15 and 3A breakers

#### Lube System

Crankcase breather; oil cooler; spin-on oil filter, RH service on port, LH service on starboard; center sump deep oil pan; oil filler; dipstick, RH service on port, LH service on starboard; gear-driven oil pump

#### Mounting System

Front support - adjustable

#### Power Takeoffs

Hydraulic pump drive, SAE A, 11 tooth spline, 46 ft-lb max torque, counterclockwise as viewed from front of the engine looking into the drive and turns 1.41 x engine speed, 292 mm crankshaft pulley, 15.88 mm width

#### General

Vibration damper; lifting eyes, RH or LH service options; literature; variable engine wiring; upper rear-facing customer wiring connector and service tool connections

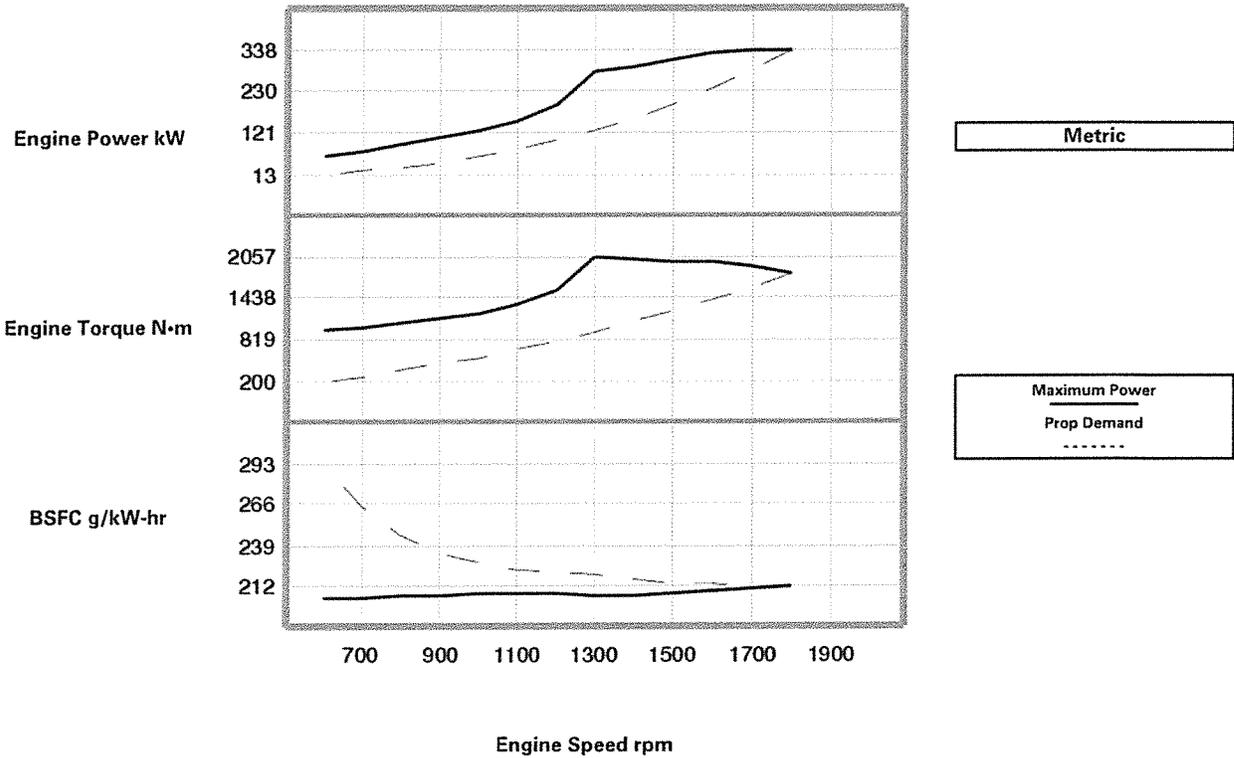
#### ISO Certification

Factory-designed systems built at Caterpillar ISO 9001:2000 certified facilities



PERFORMANCE CURVES

A-RATING - DM9574-00



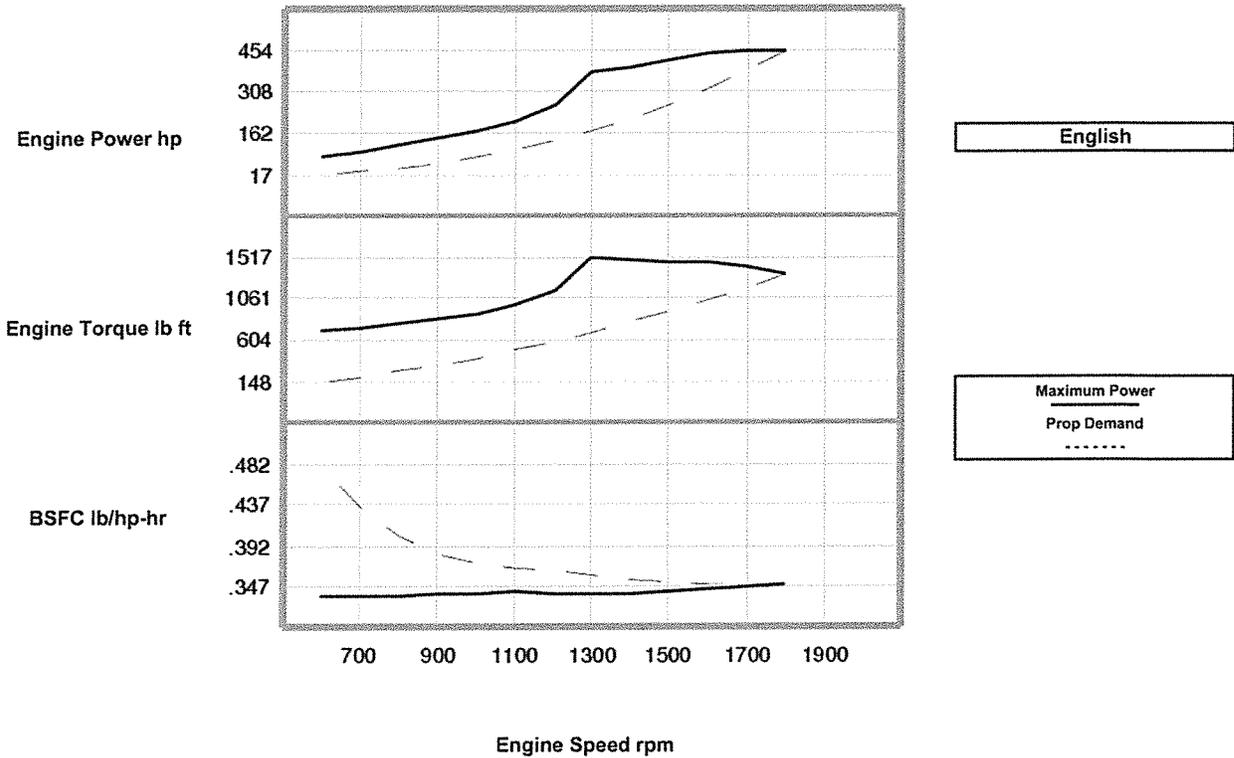
Engine Speed rpm	Maximum Power Data				Prop Demand Data				
	Engine Power kW	Engine Torque N·m	BSFC g/kW-hr	Fuel Rate L/hr	Engine Speed rpm	Engine Power kW	Engine Torque N·m	BSFC g/kW-hr	Fuel Rate L/hr
1800	339	1796	212.1	85.6	1800	338.5	1796	212.1	85.6
1700	339	1901	210.1	84.8	1700	285.2	1602	211.9	72.0
1600	333	1987	208.6	82.8	1600	237.7	1419	212.3	60.2
1500	313	1993	207	77.2	1500	195.9	1247	213.4	49.8
1400	295	2012	205.6	72.3	1400	159.3	1086	215.8	41.0
1300	280	2057	205.7	68.7	1300	127.5	937	218.5	33.2
1200	197	1568	206.3	48.4	1200	100.3	798	220.6	26.4
1100	154	1337	206.6	37.9	1100	77.3	671	222.6	20.5
1000	126	1203	206.3	31.0	1000	58	554	226.7	15.7
900	106	1125	205.7	26.0	900	42.3	449	234.5	11.8
800	90	1074	204.9	22.0	800	29.7	355	246.5	8.7
700	74	1009	204	18.0	700	19.9	272	265.3	6.3
600	61	971	203.4	14.8	600	12.5	200	293.1	4.4

NOTE: Prop demand data is a cubic prop demand curve with 3.0 exponent for displacement hulls only.



PERFORMANCE CURVES

A-RATING - DM9574-00



Engine Speed rpm	Maximum Power Data				Fuel Rate gph	Prop Demand Data				Fuel Rate gph
	Engine Power hp	Engine Torque lb ft	BSFC lb/hp-hr	Engine Speed rpm		Engine Power hp	Engine Torque lb ft	BSFC lb/hp-hr		
1800	454	1325	.349	1800	454	1325	.349	22.6		
1700	454	1402	.345	1700	382	1182	.348	19.0		
1600	447	1466	.343	1600	319	1047	.349	15.9		
1500	420	1470	.340	1500	263	920	.351	13.2		
1400	396	1484	.338	1400	214	801	.355	10.8		
1300	375	1517	.338	1300	171	691	.359	8.8		
1200	264	1156	.339	1200	135	589	.363	7.0		
1100	207	986	.340	1100	104	495	.366	5.4		
1000	169	887	.339	1000	78	409	.373	4.1		
900	142	830	.338	900	57	331	.386	3.1		
800	121	792	.337	800	40	262	.405	2.3		
700	99	744	.335	700	27	201	.436	1.7		
600	82	716	.334	600	17	148	.482	1.2		

NOTE: Prop demand data is a cubic prop demand curve with 3.0 exponent for displacement hulls only.



## RATING DEFINITIONS AND CONDITIONS

---

### **A Rating (Unrestricted Continuous) -**

% Load Factor: 80 to 100

% Time at Rated RPM: up to 80

Typical Time at Full Load: No Limit

Typical Hour/Year: 5000 to 8000

Typical Applications: For vessels operating at rated load and rated speed up to 100% of the time without interruption or load cycling (80% to 100% load factor).

Typical applications could include but are not limited to vessels such as freighters, tugboats, bottom drag trawlers, or deep river tugboats. Typical operation ranges from 5000 to 8000 hours per year.

### **Power**

at declared engine speed is in accordance with ISO3046-1:2002E. Caterpillar maintains ISO9001:1994/QS-9000 approved engine test facilities to assure calibration of test equipment. Electronically controlled engines are set at the factory at the advertised power corrected to standard ambient conditions. The published fuel consumption rates are in accordance with ISO3046-1.

### **Fuel rates**

are based on fuel oil of 35° API [16°C (60°F)] gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29°C (85°F) and weighing 838.9 g/L (7.001 lb/U.S. gal). Additional ratings may be available for specific customer requirements. Consult your Caterpillar representative for additional information.

Performance data is calculated in accordance with tolerances and conditions stated in this specification sheet and is only intended for purposes of comparison with other manufacturer's engines. Actual engine performance may vary according to the particular application of the engine and operating conditions beyond Caterpillar's control.

Power produced at the flywheel will be within standard tolerances up to 49° C (120° F) combustion air temperature measured at the air cleaner inlet, and fuel temperature up to 52° C (125°F) measured at the fuel filter base. Power rated in accordance with NMMA procedure as crankshaft power. Reduce crankshaft power by 3% for propeller shaft power.



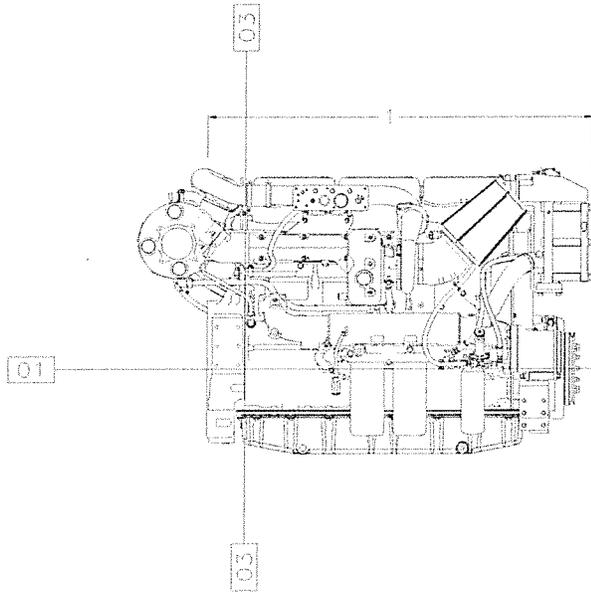
# C18 ACERT™

# MARINE PROPULSION

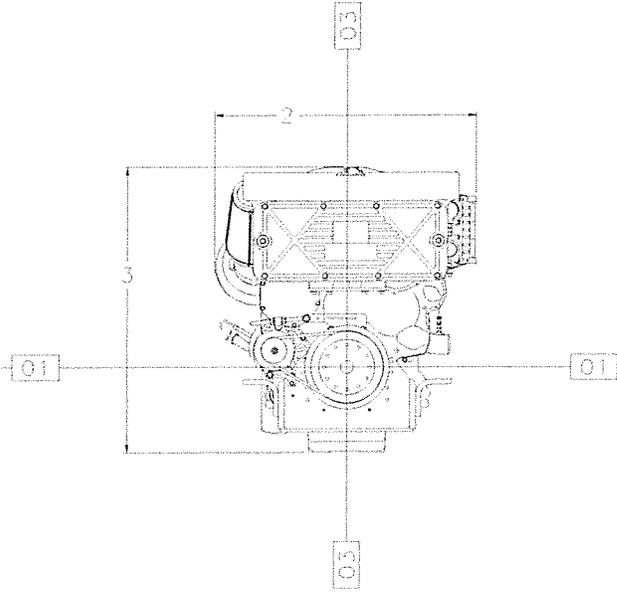
460 mhp (454 bhp) 339 kW

## DIMENSIONS

Right Side



Front



Engine Dimensions		
(1) Length to Flywheel Housing	1528.2 mm	60.17 in
(2) Width	1050.4 mm	41.35 in
(3) Height	1143.2 mm	45.01 in
Weight, Net Dry (approx)	1497 kg	3,300 lb

Note: Do not use for installation design. See general dimension drawings for detail (Drawing # 3524177 ).



C18 ACERT™

MARINE PROPULSION

460 mhp (454 bhp) 339 kW

---

Performance No.: DM9574-00

Feature Code: C18MD1A

U.S. Sourced

18087517

13 June 2011

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Materials and specifications are subject to change without notice.

The International System of Units (SI) is used in this publication.

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Christine White

**From:** Megan Shahnazarian [Megan@amarinecorp.com]  
**Sent:** Friday, May 27, 2011 8:50 AM  
**To:** Christine White; Maricela Guzman; jmacklin@helixesg.com  
**Cc:** aweber@helixesg.com; George Wittich  
**Subject:** RE: DCOR / American Marine Tug Specifics  
**Attachments:** 9151 EPA Certs.pdf

Hello Christine,

I have attached the EPA Cert for the SPIRIT generators along with the information from her invoice. This should have everything that you need on it. Please let me know if you need any additional information.

Thanks!

Megan

# INVOICE



## Generator Joe<sup>®</sup>



4016 Quartz Drive, Santa Rosa, CA 95405 - Voice: 707 539-9003 - Fax: 707 539-5212  
 Cage 1USV7 - TIN/EIN #943026355 - Duns #054590203 - GSA GS-07F-5964R

**Order Information** Order No: 9151      **Order Date:** 10/15/2009 9:11:23 AM      **Last Upd:**  
**Status:** Pending      **Tracking Number:**      **PO Numt**

**Order Notes:**

Our Bank Information is as follows: Exchange Bank P.O. Box 403 1300 Guerneville Road Santa Rosa, Ca 9 Inc. 4016 Quartz Drive Santa Rosa, CA 95405 707-539-9003 Acct. #1100028743 ABA Routing # 12110198 upon receipt. Thank You From Generator Joe and Power Pixie !!!

**Customer Information**

**IP Address:** 70.231.141.103  
**Customer Name:** Robert Shahnazarian  
**Company Name:** American Marine Corporation  
**Phone:** 310-547-0919  
**Email:** [Megan@amarinecorp.com](mailto:Megan@amarinecorp.com)

**CC Email:****Billing Information**

**Address:** 1500 S. Barracuda St.  
 Terminal Island, CA 90731  
 US

**Payment Information****Payment Type:****Shipping Information****Shipping Type:**

Shipping Address Same As Billing Address

Residential Delivery: No    Lift Gate Required: No

**Items****Product**

1. Mariner "I"™ Series, 21 kW (21 kVA) 60 Hz, 1 Phase, SKU GJMI-021D124, Model 21 MI, (Open, No Enclosure) (21 MI)
2. Five year, 5,000 hour warranty, Standard, no charge. (5yr5k)

**Shipping Details****Shipped Product Description**

Mariner "I"™ Series, 21 kW (21 kVA) 60 Hz, or 17.5 kW (17.5 kVA) 50 Hz. SKU GJMI-021D124, Model 21 MI (Open, No Enclosure)

5/27/2011



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
OFFICE OF TRANSPORTATION AND AIR QUALITY  
WASHINGTON, DC 20460



CERTIFICATE OF CONFORMITY  
2009 MODEL YEAR

Manufacturer: **ISUZU MOTORS LIMITED**  
Engine Family: **9SZXL02.2VNC**  
Certificate Number: **SZX-NRCI-09-18**  
Intended Service Class: **NR 3 (19-37)**  
Fuel Type: **DIESEL**  
FELs: **NMHC+NOx: N/A      NOx: N/A      PM: N/A**  
Effective Date: **8/18/2008**  
Date Issued: **8/18/2008**

Karl J. Simon, Director  
Compliance and Innovative Strategies Division  
Office of Transportation and Air Quality

Pursuant to Section 213 of the Clean Air Act (42 U.S.C. section 7547) and 40 CFR Part 1039, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following nonroad engines, by engine family, more fully described in the documentation required by 40 CFR 1039 and produced in the stated model year.

This certificate of conformity covers only those nonroad compression-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 1039 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 1039.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR Part 1068 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to a revocation or suspension of this certificate for reasons specified in 40 CFR Part 1039. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void ab initio for other reasons specified in 40 CFR Part 1039.

This certificate does not cover nonroad engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

Richard Deadwyler, 8/7/08	7/30/2008
Stage 1 Review PERSON & DATE	Date Received
Open field	8/18/2008
Jason Gumbs	Certificate Status
Reviewer	Printed to AA
Email to processor	
SZX-NRCI-09-18	
CERT.#	

# Public Version

## Large Engine



UNITED  
OF

Manufacturer	Isuzu Motors Limited
Engine category:	Nonroad CI
Cert contact:	Isuzu Manufacturing Services
	<input type="checkbox"/> Change of Address
1. Model Year:	2009
2. Carryover:	Yes
If yes, list the previous family:	8SZXL02.2VNC
3. Process Code:	New Submission
4. EPA Engine Family:	9SZXL02.2VNC
Date EPA Fee Paid:	6/19/2008
5. Mfr's Family Name:	NA
6. Engine Cycle:	Diesel
7. Displace.(s) (cid Or Lit.)	2.2 Liters
8. Engine Configuration:	I-4
9. Emission Control System:	<input type="checkbox"/> Electronic control <input type="checkbox"/> NOx adsorber <input checked="" type="checkbox"/> Engine Modification <input type="checkbox"/> Lean NOx <input type="checkbox"/> 3WCatalyst <input type="checkbox"/> SCR <input type="checkbox"/> Catalyst <input type="checkbox"/> DOC <input type="checkbox"/> Smoke Puff Limiter <input type="checkbox"/> None <input type="checkbox"/> Passive DPF <input checked="" type="checkbox"/> Other <input type="checkbox"/> Active DPF <input type="checkbox"/> Other... <input type="checkbox"/> EGR
If Other Describe:	IDI
10. Fuel Type:	Diesel
11. Fuel System Type:	Indirect Diesel Injection
12. Method of Aspiration:	Naturally
Turbocharger Type	None
Aftercooling	None
13. Useful life Period:	7 years / 5,000 hours
14. Deterioration Factor Type:	
A. Gaseous Exhaust:	Additive
B. Smoke:	NA
15. INTENDED SERVICE CLASS (Please Check One Box Only.)	NR 3 (19-37)

### Applicable Regulations

- Part 89 } Nonroad CI
- Part 1039 } Nonroad CI
- Part 60 only certified to requirements of Part 1039 } Stationary only
- Part 60 only certified to requirements of Part 89 } Stationary only
- Part 60 and Part 1039 } Stationary-Nonroad CI
- Part 60 and Part 89 } Stationary-Nonroad CI

18. Sales Area:  Fed  Cal  50 Sta

If CFF, Select which category:

21. Program Information:

Note: The AVE or B&T fields must be checked to produce an ABT certificate.

22. Family Emission Limits:

PM  
 NOx  
 NMHC + NOx  
 Units:

NCPs	AVE	B&T
<input type="checkbox"/> In the split family	<input type="checkbox"/> PM	<input type="checkbox"/> In the split family program
<input type="checkbox"/> PM	<input type="checkbox"/> NOx	<input type="checkbox"/> PM
<input type="checkbox"/> NOx	<input type="checkbox"/> NMHC+NOx	<input type="checkbox"/> NOx
<input type="checkbox"/> NMHC+NOx	<input checked="" type="checkbox"/> None	<input type="checkbox"/> NMHC+NOx
<input checked="" type="checkbox"/> None	<input type="checkbox"/> NA	<input checked="" type="checkbox"/> None
<input type="checkbox"/> NA		<input checked="" type="checkbox"/> NA

23. Nonroad Engine Equipment Types:

<input type="checkbox"/> Crane	<input type="checkbox"/> Dozer	<input checked="" type="checkbox"/> Generator Set
<input type="checkbox"/> Loaders	<input type="checkbox"/> Pump	<input type="checkbox"/> NA
<input type="checkbox"/> Tractor	<input type="checkbox"/> Compressor	<input type="checkbox"/> Other...

Does AECD result in reducing effectiveness of emission control device(s):

24. Auxiliary Emission Control Devices:

AECD	Sensed	PARAMETER	Controlled	VMT	TONS/ENGINE	
NA						Yes
						Yes
						Yes
						Yes
						Yes
						Yes
						Yes
						Yes
						Yes
						Yes

25. Adjustable Parameters:

Parameter	Adjustable Range (or N/a)	Tamper Resistance Method (or N/a)
Governed Speed	NA	By Special Bolt
Fuel Injection	NA	By Special Bolt

26. OBD

OBD Approval date:  
 OBD Approval Method:

27. Maintenance Interval

Alternate Maintenance Int.?  Yes  
 If yes, describe

28. Is this engine family using the Delegated Assembly flexibility described in 85.1713?

Yes  No

<b>Richard Deadwyler, 8/7/08</b>	<b>7/30/2008</b>
Stage 1 Review PERSON & DATE	Date Received
	<b>8/18/2008</b>
Open field	Certificate Status
<b>Jason Gumbs</b>	<b>8/18/2008</b>
Reviewer	Printed to AA
Email to processor	
<b>SZX-NRCI-09-18</b>	
CERT #	

**Large Engine**

**Test Info**

Isuzu Motors Limited | 2009 | 9SZXL02.2VNC | New Submission

3. TEST DATA SET:	<input type="text" value="1"/>	10. WAIVERS:	CO	PM	SMOKE	IDLE	CO
4. Engine Code:	<input type="text" value="4LE1NCVFA-01"/>		<input type="text" value="NA"/>	<input type="text" value="NA"/>	<input type="text" value="NA"/>	<input type="text" value="NA"/>	<input type="text" value="NA"/>
5. Engine Model:	<input type="text" value="BV-4LE1"/>						
6. Displacement(s) (cid Or Liters):	<input type="text" value="2.2Liters"/>	11. COLD START:	<input type="text" value="NA"/>				
7. Engine I.d. Number:	<input type="text" value="4LE1-215197"/>	12. Certification Fuel:	<input type="text" value="Other (must specify in compliance)"/>				
8. Rated HP @ Rated RPM:	<input type="text" value="35.3"/> <input type="text" value="1800"/>	13. Special Test Device	<input type="checkbox"/> Yes				
9. Torque (ft-lb) @ Engine RPM:	<input type="text" value="NA"/> <input type="text" value="NA"/>	14 Test Procedure:	<input type="text" value="Nonroad, D2 (Special Procedure)"/>				

15. Crankcase emissions (CCEs)

- CCEs routed into the air inlet system
- CCEs routed into the exhaust upstream of aftertreatment
- CCEs measured separately from exhaust emissions

If the CCEs are measured separately list them in the tech. description (item 13) and account for them in the test results listed below.

16. Official Results

Date:

	Test 1	Test 2	Test 3
HC/OMHCE	0.12		
NMHC/OMNMHCE			
HC + NOx	6.14		
CARBON MONOXIDE	0.78		
OXIDE OF NITROGEN	6.02		
PARTICULATE	0.092		
FORMALDEHYDE			
ACCEL (%opacity)			
LUG (Gen) (%opacity)			
PEAK (%opacity)			
IDLE CO %			
CO2	829		

17. Deterioration Factors

<input type="text" value="0.010"/>
<input type="text" value="0.010"/>
<input type="text" value="0.000"/>
<input type="text" value="0.000"/>
<input type="text" value="0.009"/>
<input type="text" value=""/>
<input type="text" value=""/>

NOx Adsorber, etc

Strategy

18. Adjustment Factors

**DPF**

	EFL	EFH	UAF	DAF
HC/OMHCE				
CARBON MONOXIDE				
OXIDE OF NITROGEN				
PARTICULATE				

Frequency Factor

	EFL	EFH	UAF	DAF

Frequency Factor

19. Certification Levels  
(Rounded Test Results)

Units-- g/kW-hr --Units

STDs FELs

g/BHP-hr g/kW-hr

HC/OMHCE	0.1			<Table	<Tabl	
NMHC/OMNMHCE				<Table	<Tabl	
HC + NOx	6.1			<Table	<Tabl	
CARBON MONOXIDE	0.8			<Table	<Tabl	
OXIDE OF NITROGEN	6.0			<Table	<Tabl	
PARTICULATE	0.10			<Table	<Tabl	
FORMALDEHYDE				<Table	<Tabl	
ACCEL (%opacity)					<Table	
LUG (Gen) (%opacity)					<Table	
PEAK (%opacity)					<Table	
IDLE CO%					<Table	

APPENDIX E

DCOR LLC Pipeline Replacement Project  
Table 1: Equipment Description

ID	Task Description	Days	Vessel	Equipment	HP	Hours Used	Load Factor	BSFC (gal/bhp-hr)	Controls / Emission Factors	SBCAPCD Project Emissions?	Note	
44	Phase 1, Mobilization	1.0	Intrepid	Wartsila 8L26A, #1	3326	6	0.65	0.055	4	Yes		
			Intrepid	Wartsila 8L26A, #2	3326	6	0.65	0.055	4	Yes		
			Intrepid	Wartsila 8L26A, #3	3326	6	0.65	0.055	4	Yes		
			Intrepid	Wartsila 8L26A, #4	3326	0	0.65	0.055	4	Yes		
	Phase 2, Pipelay B to A 8" Gas and Oil Lines	3.0	Intrepid	Wartsila 8L26A, #1	3326	24	0.25	0.055	4	Yes		
			Intrepid	Wartsila 8L26A, #2	3326	24	0.25	0.055	4	Yes		
			Intrepid	Wartsila 8L26A, #3	3326	24	0.25	0.055	4	Yes		
			Intrepid	Wartsila 8L26A, #4	3326	0	0.25	0.055	4	Yes		
			Intrepid	Emergency Auxiliary Generator, CAT 3412	665	0	0.85	0.055	3	Yes		
			Alan T	Mains Underway, Scania DI16 M	567	1	0.65	0.055	2	N	Currently Under DCOR Permit	
			Alan T	Mains Underway, Scania DI16 M	567	1	0.65	0.055	2	N	Currently Under DCOR Permit	
			Alan T	Mains Underway, Scania DI16 M Generators, (2) Alaska Diesel N. Lights (2)	567	1	0.65	0.055	2	N	Currently Under DCOR Permit	
45	Phase 3, Pipelay Hillhouse to A 6" Gas Line	1.0	Intrepid	Wartsila 8L26A, #1	3326	24	0.25	0.055	4	Yes		
			Intrepid	Wartsila 8L26A, #2	3326	24	0.25	0.055	4	Yes		
			Intrepid	Wartsila 8L26A, #3	3326	24	0.25	0.055	4	Yes		
			Intrepid	Wartsila 8L26A, #4	3326	0	0.25	0.055	4	Yes		
			Intrepid	Emergency Auxiliary Generator, CAT 3412	665	0	0.85	0.055	3	Yes		
			Alan T	Mains Underway, Scania DI16 M	567	1	0.65	0.055	2	N	Currently Under DCOR Permit	
			Alan T	Mains Underway, Scania DI16 M	567	1	0.65	0.055	2	N	Currently Under DCOR Permit	
			Alan T	Mains Underway, Scania DI16 M Generators, (2) Alaska Diesel N. Lights	567	1	0.65	0.055	2	N	Currently Under DCOR Permit	
			Alan T	Mains Underway, two (2) CAT C-18, 450 bhp each	80	1	0.50	0.055	5	N	Currently Under DCOR Permit	
			American Spirit Mobilization	Mains Underway, two (2) CAT C-18, 450 bhp each	900	6	0.65	0.055	1	Yes		
			American Spirit Mobilization	GenSet, Mariner "I" Series, 21 kW	28.2	6	0.50	0.055	1	Yes		
			46	Phase 4, Pipelay A to ROSF 12" Oil and Gas Lines	11	Intrepid	Wartsila 8L26A, #1	3326	24	0.25	0.055	4
Intrepid	Wartsila 8L26A, #2	3326				24	0.25	0.055	4	Yes		
Intrepid	Wartsila 8L26A, #3	3326				24	0.25	0.055	4	Yes		
Intrepid	Wartsila 8L26A, #4	3326				0	0.25	0.055	4	Yes		
Intrepid	Emergency Auxiliary Generator, CAT 3412	665				0	0.85	0.055	3	Yes		
American Spirit	Mains Underway, two (2) CAT C-18, 450 bhp each	900				1	0.65	0.055	1	Yes		
American Spirit	Mains Standby, two (2) CAT C-18, 450 bhp each	900				23	0	0.055	1	Yes		
American Spirit	GenSet, Mariner "I" Series, 21 kW	28.2				24	0.50	0.055	1	Yes		
American Spirit	Mains Underway, two (2) CAT C-18, 450 bhp each	900				6	0.65	0.055	1	Yes		
American Spirit	GenSet, Mariner "I" Series, 21 kW	28.2				6	0.50	0.055	1	Yes		
American Spirit	GenSet, Mariner "I" Series, 21 kW	28.2				6	0.50	0.055	1	Yes		

DCOR LLC Pipeline Replacement Project  
Table 1: Equipment Description

ID	Task Description	Days	Vessel	Equipment	HP	Hours Used	Load Factor	BSFC (gal/Bhp-hr)	Controls / Emission Factors	SBCAPCD Project Emissions?	Note		
47	Phase 5, Subsea Tie-in B to A 8" Gas and Oil Lines	4.0	Intrepid	Wartsila 8L26A, #1	3326	24	0.25	0.055	4	Yes			
			Intrepid	Wartsila 8L26A, #2	3326	24	0.25	0.055	4	Yes			
			Intrepid	Wartsila 8L26A, #3	3326	24	0.25	0.055	4	Yes			
			Intrepid	Wartsila 8L26A, #4	3326	0	0.25	0.055	4	Yes			
			Intrepid	Emergency Auxiliary Generator, CAT 3412	665	0	0.85	0.055	3	Yes			
49	Phase 6, Subsea Tie-in 12" Gas Line (to be Oil)	5.0	Alan T	Mains Underway, Scania DI16 M	567	1	0.65	0.055	2	N	Currently Under DCOR Permit		
			Alan T	Mains Underway, Scania DI16 M	567	1	0.65	0.055	2	N	Currently Under DCOR Permit		
			Alan T	Mains Underway, Scania DI16 M	567	1	0.65	0.055	2	N	Currently Under DCOR Permit		
			Alan T	Generators, (2) Alaska Diesel N. Lights	80	1	0.50	0.055	5	N	Currently Under DCOR Permit		
			Intrepid	Wartsila 8L26A, #1	3326	24	0.25	0.055	4	Yes			
			Intrepid	Wartsila 8L26A, #2	3326	24	0.25	0.055	4	Yes			
			Intrepid	Wartsila 8L26A, #3	3326	24	0.25	0.055	4	Yes			
			Intrepid	Wartsila 8L26A, #4	3326	0	0.25	0.055	4	Yes			
			Intrepid	Emergency Auxiliary Generator, CAT 3412	665	0	0.85	0.055	3	Yes			
			Alan T	Mains Underway, Scania DI16 M	567	1	0.65	0.055	2	N	Currently Under DCOR Permit		
55	Phase 7, Subsea Tie-in A to ROSF	5.0	Alan T	Mains Underway, Scania DI16 M	567	1	0.65	0.055	2	N	Currently Under DCOR Permit		
			Alan T	Mains Underway, Scania DI16 M	567	1	0.65	0.055	2	N	Currently Under DCOR Permit		
			Alan T	Mains Underway, Scania DI16 M	567	1	0.65	0.055	2	N	Currently Under DCOR Permit		
			Alan T	Generators, (2) Alaska Diesel N. Lights	80	1	0.50	0.055	5	N	Currently Under DCOR Permit		
			Intrepid	Wartsila 8L26A, #1	3326	24	0.25	0.055	4	Yes			
			Intrepid	Wartsila 8L26A, #2	3326	24	0.25	0.055	4	Yes			
			Intrepid	Wartsila 8L26A, #3	3326	24	0.25	0.055	4	Yes			
			Intrepid	Wartsila 8L26A, #4	3326	0	0.25	0.055	4	Yes			
			Intrepid	Emergency Auxiliary Generator, CAT 3412	665	0	0.85	0.055	3	Yes			
			Alan T	Mains Underway, Scania DI16 M	567	1	0.65	0.055	2	N	Currently Under DCOR Permit		
59	Phase 8, Subsea Tie-in and Topside Platform Work HH to A	2.0	Alan T	Mains Underway, Scania DI16 M	567	1	0.65	0.055	2	N	Currently Under DCOR Permit		
			Alan T	Mains Underway, Scania DI16 M	567	1	0.65	0.055	2	N	Currently Under DCOR Permit		
			Alan T	Generators, (2) Alaska Diesel N. Lights	80	1	0.50	0.055	5	N	Currently Under DCOR Permit		
			Intrepid	Wartsila 8L26A, #1	3326	24	0.25	0.055	4	Yes			
			Intrepid	Wartsila 8L26A, #2	3326	24	0.25	0.055	4	Yes			
			Intrepid	Wartsila 8L26A, #3	3326	24	0.25	0.055	4	Yes			
			Intrepid	Wartsila 8L26A, #4	3326	0	0.25	0.055	4	Yes			
			Intrepid	Emergency Auxiliary Generator, CAT 3412	665	0	0.85	0.055	3	Yes			
			N/A	South Crane Platform Hillhouse, Detroit 3-71	109	1						N	Currently Under DCOR Permit
			N/A	South Crane Platform A, Detroit 3-71	109	1						N	Currently Under DCOR Permit
Alan T	Mains Underway, Scania DI16 M	567	1	0.65	0.055	2	N	Currently Under DCOR Permit					
Alan T	Mains Underway, Scania DI16 M	567	1	0.65	0.055	2	N	Currently Under DCOR Permit					
Alan T	Mains Underway, Scania DI16 M	567	1	0.65	0.055	2	N	Currently Under DCOR Permit					
Alan T	Generators, (2) Alaska Diesel N. Lights	80	1	0.50	0.055	5	N	Currently Under DCOR Permit					

DCOR LLC Pipeline Replacement Project

Table 1: Equipment Description

ID	Task Description	Days	Vessel	Equipment	HP	Hours Used	Load Factor	BSFC (gal/Bhp-hr)	Controls / Emission Factors	SBCAPCD Project Emissions?	Note
	Phase 9, De-mob	1.0	Intrepid	Wartsila 8L26A, #1	3326	6	0.65	0.055	4	Yes	
			Intrepid	Wartsila 8L26A, #2	3326	6	0.65	0.055	4	Yes	
			Intrepid	Wartsila 8L26A, #3	3326	6	0.65	0.055	4	Yes	
			Intrepid	Wartsila 8L26A, #4	3326	0	0.65	0.055	4	Yes	

Total Project Duration 33.0

Additional Electric Equipment to be Utilized:  
 Jet Pump - Electric\*  
 Feeder Pump - Electric\*  
 Hot Water Unit #1 - Electric\*  
 Hot Water Unit #2 - Electric\*

DCOR LLC Pipeline Replacement Project  
 Table 2: Project Emissions in Santa Barbara County

Task Description	Vessel	Equipment	Estimated Emissions (pounds)						
			NOx	ROC	CO	SOx	PM	PM10	
Phase 1, Mobilization	Intrepid	Wartsila 8L26A, #1	245.2	12.0	55.9	0.2	23.5	22.6	
	Intrepid	Wartsila 8L26A, #2	245.2	12.0	55.9	0.2	23.5	22.6	
	Intrepid	Wartsila 8L26A, #3	245.2	12.0	55.9	0.2	23.5	22.6	
	Intrepid	Wartsila 8L26A, #4	0.0	0.0	0.0	0.0	0.0	0.0	
Phase 2, Pipelay B to A 8" Gas and Oil Lines	Intrepid	Wartsila 8L26A, #1	1131.9	55.3	257.8	0.7	108.7	104.3	
	Intrepid	Wartsila 8L26A, #2	1131.9	55.3	257.8	0.7	108.7	104.3	
	Intrepid	Wartsila 8L26A, #3	1131.9	55.3	257.8	0.7	108.7	104.3	
	Intrepid	Wartsila 8L26A, #4	0.0	0.0	0.0	0.0	0.0	0.0	
	Intrepid	Emergency Auxiliary Generator, CAT 3412	0.0	0.0	0.0	0.0	0.0	0.0	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	-	-	-	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	-	-	-	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	-	-	-	
	Alan T	Generators, (2) Alaska Diesel N. Lights (2)	-	-	-	-	-	-	
	Alan T	Generators, (2) Alaska Diesel N. Lights	-	-	-	-	-	-	
Phase 3, Pipelay Hillhouse to A 6" Gas Line	Intrepid	Wartsila 8L26A, #1	377.3	18.4	85.9	0.2	36.2	34.8	
	Intrepid	Wartsila 8L26A, #2	377.3	18.4	85.9	0.2	36.2	34.8	
	Intrepid	Wartsila 8L26A, #3	377.3	18.4	85.9	0.2	36.2	34.8	
	Intrepid	Wartsila 8L26A, #4	0.0	0.0	0.0	0.0	0.0	0.0	
	Intrepid	Emergency Auxiliary Generator, CAT 3412	0.0	0.0	0.0	0.0	0.0	0.0	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	-	-	-	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	-	-	-	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	-	-	-	
	Alan T	Generators, (2) Alaska Diesel N. Lights	-	-	-	-	-	-	
	American Spirit Mobilization	Mains Underway, two (2) CAT C-18, 450 bhp each	37.5	3.2	28.6	0.0	6.4	6.4	
	American Spirit Mobilization	GenSet, Mariner "I" Series, 21 kW	0.9	0.1	0.7	0.0	0.2	0.2	

DCOR LLC Pipeline Replacement Project  
 Table 2: Project Emissions in Santa Barbara County

Task Description	Vessel	Equipment	Estimated Emissions (pounds)						
			NOx	ROC	CO	SOx	PM	PM10	
Phase 4, Pipelay A to ROSF 12" Oil and Gas Lines	Intrepid	Wartsila 8L26A, #1	4150.1	202.8	945.3	2.6	398.4	382.5	
	Intrepid	Wartsila 8L26A, #2	4150.1	202.8	945.3	2.6	398.4	382.5	
	Intrepid	Wartsila 8L26A, #3	4150.1	202.8	945.3	2.6	398.4	382.5	
	Intrepid	Wartsila 8L26A, #4	0.0	0.0	0.0	0.0	0.0	0.0	
	Intrepid	Emergency Auxiliary Generator, CAT 3412	0.0	0.0	0.0	0.0	0.0	0.0	
	American Spirit	Mains Underway, two (2) CAT C-18, 450 bhp each	68.7	5.9	52.5	0.1	11.7	11.7	
	American Spirit	Mains Standby, two (2) CAT C-18, 450 bhp each	0.0	0.0	0.0	0.0	0.0	0.0	
	American Spirit	GenSet, Mariner "I" Series, 21 kW	39.7	3.4	30.4	0.0	6.8	6.8	
	American Spirit	Mains Underway, two (2) CAT C-18, 450 bhp each	37.5	3.2	28.6	0.0	6.4	6.4	
	American Spirit	GenSet, Mariner "I" Series, 21 kW	0.9	0.1	0.7	0.0	0.2	0.2	
Phase 5, Subsea Tie-in B to A 8" Gas and Oil Lines	Intrepid	Wartsila 8L26A, #1	1509.1	73.8	343.8	0.9	144.9	139.1	
	Intrepid	Wartsila 8L26A, #2	1509.1	73.8	343.8	0.9	144.9	139.1	
	Intrepid	Wartsila 8L26A, #3	1509.1	73.8	343.8	0.9	144.9	139.1	
	Intrepid	Wartsila 8L26A, #4	0.0	0.0	0.0	0.0	0.0	0.0	
	Intrepid	Emergency Auxiliary Generator, CAT 3412	0.0	0.0	0.0	0.0	0.0	0.0	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	-	-	-	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	-	-	-	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	-	-	-	
Phase 6, Subsea Tie-in 12" Gas Line (to be Oil)	Intrepid	Wartsila 8L26A, #1	1886.4	92.2	429.7	1.2	181.1	173.9	
	Intrepid	Wartsila 8L26A, #2	1886.4	92.2	429.7	1.2	181.1	173.9	
	Intrepid	Wartsila 8L26A, #3	1886.4	92.2	429.7	1.2	181.1	173.9	
	Intrepid	Wartsila 8L26A, #4	0.0	0.0	0.0	0.0	0.0	0.0	
	Intrepid	Emergency Auxiliary Generator, CAT 3412	0.0	0.0	0.0	0.0	0.0	0.0	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	-	-	-	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	-	-	-	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	-	-	-	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	-	-	-	
	Alan T	Generators, (2) Alaska Diesel N. Lights	-	-	-	-	-	-	

DCOR LLC Pipeline Replacement Project  
 Table 2: Project Emissions in Santa Barbara County

Task Description	Vessel	Equipment	Estimated Emissions (pounds)						
			NOx	ROC	CO	SOx	PM	PM10	
Phase 7, Subsea Tie-in A to ROSF	Intrepid	Wartsila 8L26A, #1	1886.4	92.2	429.7	1.2	181.1	173.9	
	Intrepid	Wartsila 8L26A, #2	1886.4	92.2	429.7	1.2	181.1	173.9	
	Intrepid	Wartsila 8L26A, #3	1886.4	92.2	429.7	1.2	181.1	173.9	
	Intrepid	Wartsila 8L26A, #4	0.0	0.0	0.0	0.0	0.0	0.0	
	Intrepid	Emergency Auxiliary Generator, CAT 3412	0.0	0.0	0.0	0.0	0.0	0.0	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	-	-	-	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	-	-	-	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	-	-	-	
	Alan T	Generators, (2) Alaska Diesel N. Lights	-	-	-	-	-	-	
	Phase 8, Subsea Tie-in and Topside Platform Work HH to A	Intrepid	Wartsila 8L26A, #1	754.6	36.9	171.9	0.5	72.4	69.5
Intrepid		Wartsila 8L26A, #2	754.6	36.9	171.9	0.5	72.4	69.5	
Intrepid		Wartsila 8L26A, #3	754.6	36.9	171.9	0.5	72.4	69.5	
Intrepid		Wartsila 8L26A, #4	0.0	0.0	0.0	0.0	0.0	0.0	
Intrepid		Emergency Auxiliary Generator, CAT 3412	0.0	0.0	0.0	0.0	0.0	0.0	
N/A		South Crane Platform Hillhouse, Detroit 3-71	-	-	-	-	-	-	
N/A		South Crane Platform A, Detroit 3-71	-	-	-	-	-	-	
Alan T		Mains Underway, Scania DI16 M	-	-	-	-	-	-	
Alan T		Mains Underway, Scania DI16 M	-	-	-	-	-	-	
Alan T		Mains Underway, Scania DI16 M	-	-	-	-	-	-	
Phase 9, De-mob	Intrepid	Wartsila 8L26A, #1	245.2	12.0	55.9	0.2	23.5	22.6	
	Intrepid	Wartsila 8L26A, #2	245.2	12.0	55.9	0.2	23.5	22.6	
	Intrepid	Wartsila 8L26A, #3	245.2	12.0	55.9	0.2	23.5	22.6	
	Intrepid	Wartsila 8L26A, #4	0.0	0.0	0.0	0.0	0.0	0.0	
<b>Total Emissions Pounds</b>			<b>36744</b>	<b>1803</b>	<b>8469</b>	<b>23</b>	<b>3541</b>	<b>3401</b>	
<b>Total Emissions Tons</b>			<b>18.4</b>	<b>0.9</b>	<b>4.2</b>	<b>0.0</b>	<b>1.8</b>	<b>1.7</b>	

## DCOR LLC Pipeline Replacement Project

Table 3: Emission Factors

		Emission Factors										
Equipment Category	Emission Controls		NOx	ROC	CO	SOx	PM	PM10	Units	References		
	Type	Description										
Combustion - Engines	1	Harborcraft Tier 2	194	16.8	148	0	33	33	lb/1000 gal	Harborcraft Table 2		
Combustion - Engines	2	Alan T Mains	194	20.9	148	0	6	6	lb/1000 gal	ATC 13616		
Combustion - Engines	3	Intrepid Aux	337	16.8	78	28	33	32	lb/1000 gal			
Combustion - Engines	4	Wartsila Generators	344	16.8	78	0	33	32	lb/1000 gal	Manuf Data (NOx) & AP-42 Vol. II (Table 3.3)		
Combustion - Engines	5	Alan T Generator Engines	115.7	12.9	12.0	0.2	4.5	4.5	lb/1000 gal	USEPA Marine Standards Tier 3		

DCOR LLC Pipeline Replacement Project  
 Table 4: Project Greenhouse Gas Emissions in Santa Barbara County

Task Description	Vessel	Equipment	Estimated Emissions (Metric Tons)			
			CO2	CH4	N2O	
Phase 1, Mobilization	Intrepid	Wartsila 8L26A, #1	7.2	0.000	0.000	
	Intrepid	Wartsila 8L26A, #2	7.2	0.000	0.000	
	Intrepid	Wartsila 8L26A, #3	7.2	0.000	0.000	
	Intrepid	Wartsila 8L26A, #4	0.0	0.000	0.000	
Phase 2, Pipelay B to A 8" Gas and Oil Lines	Intrepid	Wartsila 8L26A, #1	33.4	0.001	0.000	
	Intrepid	Wartsila 8L26A, #2	33.4	0.001	0.000	
	Intrepid	Wartsila 8L26A, #3	33.4	0.001	0.000	
	Intrepid	Wartsila 8L26A, #4	0.0	0.000	0.000	
	Intrepid	Emergency Auxiliary Generator, CAT 3412	0.0	0.000	0.000	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	
	Alan T	Generators, (2) Alaska Diesel N. Lights (2)	-	-	-	
Phase 3, Pipelay Hillhouse to A 6" Gas Line	Intrepid	Wartsila 8L26A, #1	11.1	0.000	0.000	
	Intrepid	Wartsila 8L26A, #2	11.1	0.000	0.000	
	Intrepid	Wartsila 8L26A, #3	11.1	0.000	0.000	
	Intrepid	Wartsila 8L26A, #4	0.0	0.000	0.000	
	Intrepid	Emergency Auxiliary Generator, CAT 3412	0.0	0.000	0.000	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	
	Alan T	Generators, (2) Alaska Diesel N. Lights	-	-	-	
	American Spirit	Mains Underway, two (2) CAT C-18, 450 bhp each	2.0	0.000	0.000	
	Mobilization					
	American Spirit					
	Mobilization	GenSet, Mariner "I" Series, 21 kW	0.0	0.000	0.000	

DCOR LLC Pipeline Replacement Project  
 Table 4: Project Greenhouse Gas Emissions in Santa Barbara County

Task Description	Vessel	Equipment	Estimated Emissions (Metric Tons)			
			CO2	CH4	N2O	
Phase 4, Pipelay A to ROSF 12" Oil and Gas Lines	Intrepid	Wartsila 8L26A, #1	122.4	0.005	0.001	
	Intrepid	Wartsila 8L26A, #2	122.4	0.005	0.001	
	Intrepid	Wartsila 8L26A, #3	122.4	0.005	0.001	
	Intrepid	Wartsila 8L26A, #4	0.0	0.000	0.000	
	Intrepid	Emergency Auxiliary Generator, CAT 3412	0.0	0.000	0.000	
	American Spirit	Mains Underway, two (2) CAT C-18, 450 bhp each	3.6	0.000	0.000	
	American Spirit	Mains Standby, two (2) CAT C-18, 450 bhp each	0.0	0.000	0.000	
	American Spirit	GenSet, Mariner "I" Series, 21 kW	2.1	0.000	0.000	
	American Spirit	Mains Underway, two (2) CAT C-18, 450 bhp each	2.0	0.000	0.000	
	American Spirit	GenSet, Mariner "I" Series, 21 kW	0.0	0.000	0.000	
Phase 5, Subsea Tie-in B to A 8" Gas and Oil Lines	Intrepid	Wartsila 8L26A, #1	44.5	0.002	0.000	
	Intrepid	Wartsila 8L26A, #2	44.5	0.002	0.000	
	Intrepid	Wartsila 8L26A, #3	44.5	0.002	0.000	
	Intrepid	Wartsila 8L26A, #4	0.0	0.000	0.000	
	Intrepid	Emergency Auxiliary Generator, CAT 3412	0.0	0.000	0.000	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	
	Alan T	Generators, (2) Alaska Diesel N. Lights	-	-	-	
	Intrepid	Wartsila 8L26A, #1	55.6	0.002	0.000	
Phase 6, Subsea Tie-in 12" Gas Line (to be Oil)	Intrepid	Wartsila 8L26A, #2	55.6	0.002	0.000	
	Intrepid	Wartsila 8L26A, #3	55.6	0.002	0.000	
	Intrepid	Wartsila 8L26A, #4	0.0	0.000	0.000	
	Intrepid	Emergency Auxiliary Generator, CAT 3412	0.0	0.000	0.000	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	
	Alan T	Generators, (2) Alaska Diesel N. Lights	-	-	-	
	Alan T	Wartsila 8L26A, #1	55.6	0.002	0.000	
	Alan T	Wartsila 8L26A, #2	55.6	0.002	0.000	

DCOR LLC Pipeline Replacement Project  
 Table 4: Project Greenhouse Gas Emissions in Santa Barbara County

Task Description	Vessel	Equipment	Estimated Emissions (Metric Tons)			
			CO2	CH4	N2O	
Phase 7, Subsea Tie-in A to ROSF	Intrepid	Wartsila 8L26A, #1	55.6	0.002	0.000	
	Intrepid	Wartsila 8L26A, #2	55.6	0.002	0.000	
	Intrepid	Wartsila 8L26A, #3	55.6	0.002	0.000	
	Intrepid	Wartsila 8L26A, #4	0.0	0.000	0.000	
	Intrepid	Emergency Auxiliary Generator, CAT 3412	0.0	0.000	0.000	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	
	Alan T	Mains Underway, Scania DI16 M Generators, (2) Alaska Diesel N. Lights	-	-	-	
Phase 8, Subsea Tie-in and Topside Platform Work HH to A	Intrepid	Wartsila 8L26A, #1	22.3	0.001	0.000	
	Intrepid	Wartsila 8L26A, #2	22.3	0.001	0.000	
	Intrepid	Wartsila 8L26A, #3	22.3	0.001	0.000	
	Intrepid	Wartsila 8L26A, #4	0.0	0.000	0.000	
	Intrepid	Emergency Auxiliary Generator, CAT 3412	0.0	0.000	0.000	
	N/A	South Crane Platform Hillhouse, Detroit 3-71	-	-	-	
	N/A	South Crane Platform A, Detroit 3-71	-	-	-	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	
	Alan T	Mains Underway, Scania DI16 M	-	-	-	
	Alan T	Mains Underway, Scania DI16 M Generators, (2) Alaska Diesel N. Lights	-	-	-	
Phase 9, De-mob	Intrepid	Wartsila 8L26A, #1	7.2	0.000	0.000	
	Intrepid	Wartsila 8L26A, #2	7.2	0.000	0.000	
	Intrepid	Wartsila 8L26A, #3	7.2	0.000	0.000	
	Intrepid	Wartsila 8L26A, #4	0.0	0.000	0.000	

Total Metric Tons					
CO2	CH4	N2O	CO2-e		
1087.9	0.0446	0.0089	1088		

# DCOR LLC Pipeline Replacement Project

Table 4: Greenhouse Gas Emission Factors

Fuel Type	CO2 emission factor	73.1	kg/MMBtu	References
Diesel	CO2 emission factor	3	g/MMBtu	17 CCR, Sections 95100 to 95133, Appendix A-6, Table 4
Diesel	CH4 emission factor	0.6	g/MMBtu	17 CCR, Sections 95100 to 95133, Appendix A-7, Table 6
Diesel	N2O emission factor	5.825	MMBtu/BBL	17 CCR, Sections 95100 to 95133, Appendix A-7, Table 6
Diesel	High Heating Value			17 CCR, Sections 95100 to 95133, Appendix A-6, Table 4

Diesel	CO2 emission factor	10.138	MT/kgal
Diesel	CH4 emission factor	0.00042	MT/kgal
Diesel	N2O emission factor	0.00008	MT/kgal

### Global Warming Potential

CO2	1
CH4	21
N2O	310

APPENDIX F



**DCOR, LLC**

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**Fuel Measurement Plan  
Pipeline Replacement Project**

**Platforms A, B, and Hillhouse**

**June 22, 2011**

**Submitted to:**

**Santa Barbara County  
Air Pollution Control District  
260 N. San Antonio Road, Suite A  
Santa Barbara, CA 93110**

**Submitted by:**

**DCOR, LLC  
290 Maple Court, Suite 290  
Ventura, CA 93003**

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## 1.0 INTRODUCTION

DCOR, LLC, (DCOR) will temporarily use a special vessel, the MSV Intrepid, along with a support vessel the MV American Spirit for a undersea pipeline replacement project that will be conducted at Platforms A, B, and Hillhouse. All other equipment and vessels used in this project are already permitted and operating under current SBCAPCD Permits. The pipeline replacement project is expected to take approximately one month to complete.

This plan discusses the fuel measurement approaches to be implemented during the pipeline repair activities. Vessel diagram for the Intrepid indicating the location of the fuel tanks as well as the fuel piping between the tanks and the engines is included in Appendix A.

## 2.0 MSV INTREPID (MULTI-SERVICE VESSEL)

The engines that are present on the MSV Intrepid and may be used during the pipeline replacement project are summarized below.

Equipment Type	Description	Emission Controls <sup>(1)</sup>	Operational Status for Project
Main Engine #1	Wartsila Model: 8SL26 Serial No.: 26567	TC, IAC, HPI	In Use
Main Engine #2	Wartsila Model: 8L26 Serial No.: 26568	TC, IAC, HPI	In Use
Main Engine #3	Wartsila Model: 8L26 Serial No.: 26569	TC, IAC, HPI	In Use (As required)
Main Engine #4	Wartsila Model: 8L26 Serial No.: 26570	TC, IAC, HPI	Alternate <sup>(2)</sup>
Emergency Auxiliary Generator	CAT 3412	TC, AC	Emergency Use Only

<sup>1</sup> TC = Turbocharged, IAC = Enhanced After-cooled, HPI =High Pressure Injectors

<sup>2</sup> No more than three main engines will be operated at any time except in case of an emergency; the fourth engine will be available to replace one of the operating engines.

### 2.1.1 Fuel Storage

There are four main fuel storage tanks onboard the vessel. All fuel used for the project will be California ultra low sulfur (<15 ppm) diesel fuel. No. 1 port and No.1 starboard tanks have a capacity of 96,500 gallons and No. 3 port and No. 3 starboard tanks have a capacity of 96,700 gallons each. There are two settling tanks, one located on the port side and the other on the starboard side of the vessel, each with a capacity of 6,600 gallons. There are also two day tanks, one located on the port side and the other on the starboard side of the vessel, each with a capacity of 4,100 gallons. The vessel contains a fuel manifold system that allows fuel from any of the main fuel storage tanks to be transferred to either of the day tanks.

There are two fuel separators (centrifuges) located respectively in the port and the starboard side engine room. The separators are used to clean the fuel going from the settling tanks into the day tanks on a

continuous 24 hour/day basis. As a result of this, the day tanks remain essentially full all the time. The settling tank volume will decrease as the engines consume fuel. The fuel from the day tanks are used to supply the main engines as well as the on-deck fueling stations. Fuel will be transferred once a day at approximately the same time from the main fuel storage tanks to each settling/day tank system.

If there are any IC engines used on deck, the engines separate fuel tanks will be filled from one of the on-deck fueling stations. The volume of fuel transferred will be logged.

### **2.1.2 Inventory Check**

The sum of the daily total fuel measurements for each engine will be used to determine the quantity of fuel used during the pipeline replacement project. As a check on the measured fuel used, the vessel will also determine the inventory change between the start and end of the project. The determination will involve the following factors: 1) beginning inventory in fuel tanks at start of work; 2) fuel purchased or added to fuel tanks; 3) fuel transferred out of fuel tanks to other storage tanks and not consumed; 4) ending inventory in fuel tanks at end of work; and 5) fuel used for non-maintenance activities (i.e., outside of Santa Barbara County). The above information, including supporting documentation will be maintained in written form and provided by Helix to DCOR.

The check calculation will be as follows:

[Pipeline Replacement Project fuel usage = Beginning inventory – Ending inventory + Purchased or added – Transferred – Non-project activities use]

If the difference between the sum of the measured daily values for all of the engines while in Santa Barbara County waters (within 25 miles of project location) and the vessel inventory check is substantially different (>15%), the inventory check total will be used to determine fuel consumption by adjusting the daily measurements to compensate for the difference. This process involves multiplying the percentage difference times each of the total measured value to obtain an adjusted value that will be used to determine emissions.

### **2.1.3 Fuel Measurement- General**

Daily fuel consumption measurements will be made on each of the fuel tanks. The difference between daily measurements will determine the amount of fuel consumed. This fuel volume will then be allocated to the various engines.

At the start and end of the project activities, the fuel level in each of the fuel storage tanks will be measured and recorded in a log. During the project, fuel used by each engine will be determined on a daily basis and recorded in a log. In addition, the time each engine operates will also be determined on a daily basis and recorded in a log. Finally, the vessel engineers will record the daily electrical power output of each of the main generators that are in service.

The following sections explain the methodology for determining fuel consumption for each engine used on board the vessel during the pipeline replacement project activities.

### **2.1.4 Fuel Storage Tank Fuel Consumption Measurement**

Ship engineers will measure the height of the fuel in each fuel storage tank, settling tank, day tank and on-deck engine tank at approximately the same time each day. The measurement will be made using a sounding tape, gauge glass, calibrated dip stick, or other appropriate means. The end of the gauging

tape/stick will be lowered to the tank bottom and then recovered with the point where the tape/stick becomes wetted defining the height of the fuel in the tank. The difference in height between the two daily measurements, multiplied by a factor dependent on the storage tank dimensions, will determine fuel consumption by all of the ship engines for the day.

On a daily basis, the total vessel onboard fuel inventory will be obtained by summing the amount of fuel in each storage tank (soundings of each storage tank converted to volume using the respective tank tables), the amount of fuel in each settling and day tank (gauge glass readings converted to volume using the respective tank table) and the amount of fuel in each on-deck engine tank (calibrated dip stick reading converted to volume using the respective tank table).

**2.1.5 Fuel Consumption by the Main Ship Engine-Generators**

The main ship engine-generators work in an equilibrated condition with each of the operating generators running at approximately the same load. This is achieved through a control device that changes the generators working conditions to have all of them operating at the same load level. Therefore, since the four engines are exactly the same, the fuel consumption for each of the engine-generators will be calculated by dividing the total fuel allocated to these main engine-generators by the number engine-generators in service (adjusted for hours of operation).

The daily fuel allocated to the main ship engine-generators will be determined by the change in height in the port and starboard day/settling tanks minus the fuel distributed to the on-deck fueling stations used by the support/auxiliary engines.

**3.0 MV AMERICAN SPIRIT**

The engines on the American Spirit, a tug boat that will bring a barge into and out of the project location and stand by for approximately 11 days during the pipeline replacement project, are summarized below.

Equipment Type	Description	Emission Controls	Operational Status for Project
Main Engine #1	CAT C-18, SSN T2POO379	Tier 2	In Use
Main Engine #2	CAT C-18, SSN T2POO381	Tier 2	In Use
GenSet	Mariner "I" Series 21 kW	Tier 2	In Use

**3.1.1 Fuel Storage**

The MV American Spirit has four fuel storage tanks with total combined capacity of 7,000 gallons. All four tanks will contain California ultra low sulfur (<15 ppm) diesel fuel.

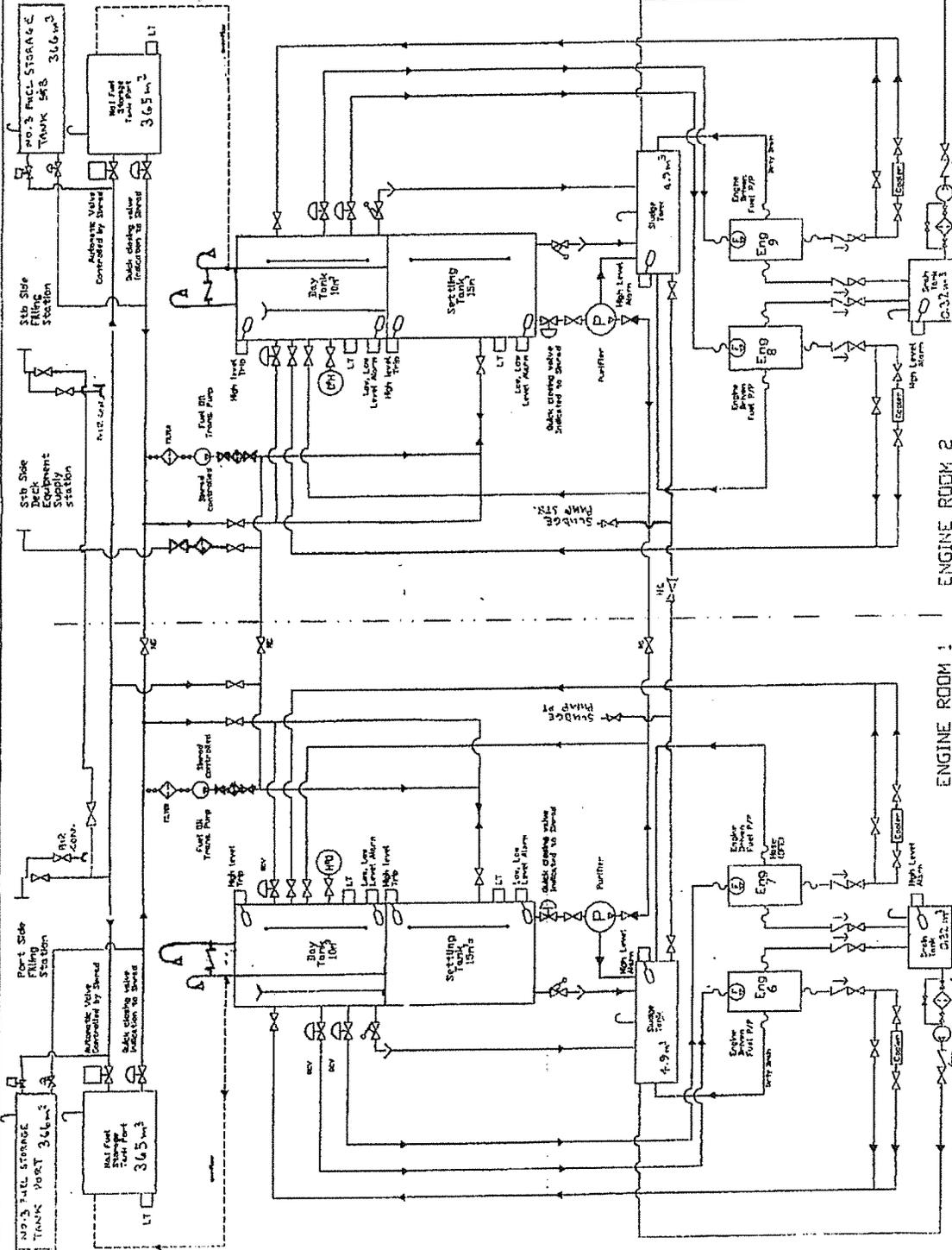
**3.1.2 Fuel Measurement**

The MV American Spirit engines are equipped with a Caterpillar Electronic Control Unit (ECU) meter that is inherent to the engine. This meter totals daily fuel use. In addition, the vessel operator will take daily readings of fuel volume by sight glass. The sight tubes run vertical attached to each fuel tank. Tank volumes are read at the beginning of a work day and at the end of a day with measured amount documented on the Vessel Daily Master Log with the fuel consumption calculated.

#### **4.0 RECORD KEEPING AND REPORTING REQUIREMENTS**

Helix (vessel operator) will maintain records of fuel loadings, transfers and operating levels in each fuel storage tanks on the MSV Intrepid a daily basis. In addition, Helix and any subcontractors will maintain records, on a daily basis, of the fuel use and hours of operation of each engine for which they are responsible. American Marine Corporation (vessel operator) will maintain records of daily fuel use and operating levels in fuel storage tanks on the MV American Spirit. The records for both vessels will clearly show when they are in Santa Barbara County waters. The records will be provided to DCOR to use in determining project fuel use and emissions.

## Appendix A



	Pneumatic valve remotely controlled by Shoread
	Level Transducer Indicating back to Shoread
	Hydraulic remotely operated shutdown valve indicating back to Shoread
	Tank vent to main deck
	Manual screw down valve
	Water detection instrument indicating back to Shoread
	Float switch indicating back to Shoread
	Purifier
	Filter
	Direction of flow
	Spring return manual Sludge drain valve
	Open tundish
	Fuel oil Transfer pump
	Flexible Hose (Owner furnished equipment)
	Sea Water Cooler (Owner furnished equipment)
	Non return valve Flap type
	Non return valve Manual Screw down type
	Fuel Meter
	Engine Driven Fuel pump
	Gauge Glass
	SHOREAD FITTING

BRACING NO.	PH-55-70-01	SHEET NO.	TOTAL SHEETS	REV.	1
Drawn By	C. Jones	DATE 9th Nov 03	Scale	MTS	Size
Approved By		DATE			Ledger

TITLE INTREPID Fuel Oil System Schematic

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