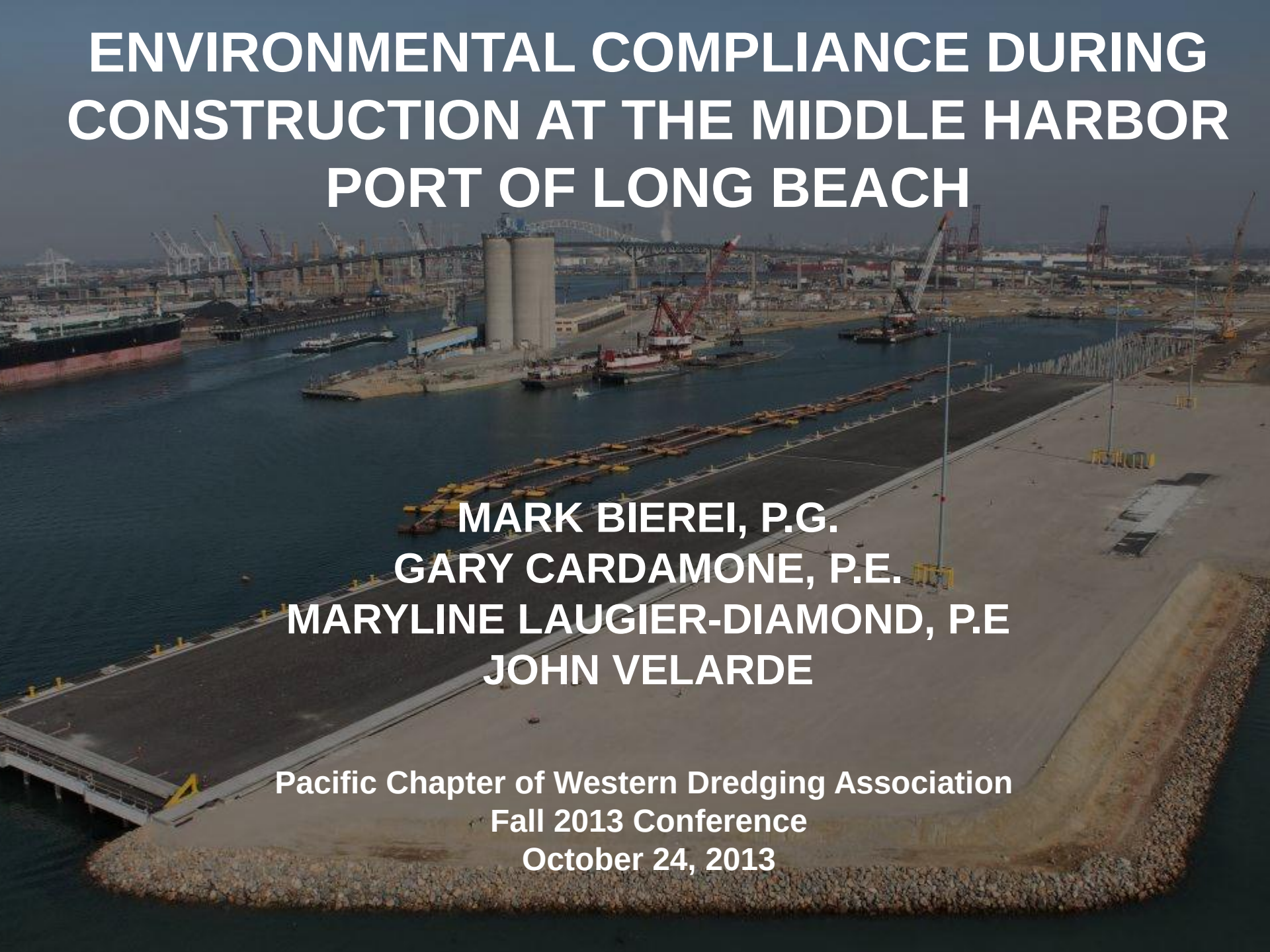
ENVIRONMENTAL COMPLIANCE DURING CONSTRUCTION AT THE MIDDLE HARBOR PORT OF LONG BEACH



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Presentation Outline

- Project Overview
- Construction Manager's Role – Program Objective
- Regulatory Framework
- Environmental Compliance Program
  - Environmental Compliance Matrix
  - Compliance Verification, Inspection, Documentation and Reporting
- Environmental Challenges & Solutions During Dredging
- Program Benefits & Lessons Learned

Middle Harbor Under Construction

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Project Overview

- Nine-year, $1.2 billion program combining two aging terminals into one modern and fully automated terminal
- 1st POLB project to encompass the full complement of Environmental Mitigation Measures, Commitments and Standards resulting from the Port's Green Port Policy and Final EIR
- Enhancement of sustainable practices for Design and Construction by continual refinement of the Port's standard Specifications for construction contracts

Achieve Green Port Policy Goals

- Air – Reduce air emissions
- Water – Improve water quality
- Wildlife – Protect, maintain, restore habitat
- Soil/Sediment – Remove, treat, beneficial reuse
- Sustainability – Implement sustainable practices
- Community Engagement – Educate and inform

Partnering – Communication - Outreach

- Maintain Regulatory Agency and Community Confidence and Creditability
- Control and Influence Perception of the Community and Stakeholders
- Build a project in full Environmental Compliance

Key Program Elements

- Recycling of AC/Concrete
- Waste Diversion from Landfills
- Use of Recycled content materials
- LEED Buildings
- Electric powered dredging equipment
- Use of Tier 3 off-road equipment and Tier 2 marine equipment
- Cold Ironing
- Biological resource monitoring
- Water quality monitoring during dredging
- Pile driving “soft start” procedures
- Strict standards for import, export and reuse soils
- Incident response plans for oil releases et.al. events

CM Role and Program Objective

Develop a Comprehensive Environmental Compliance Program as a Critical Component of the Integrated Construction Management Team's Role to:

Provide a framework from which to implement a programmatic approach to Monitor, Track, Verify, and Report Environmental Program Compliance

The “Nuts and Bolts” of Environmental Compliance During Construction

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Regulatory Framework

- Mitigation Measures (MM) - Environmental Controls (EC)
- NPDES permit – Storm Water / SWPPP
- Air Quality Rules and Regs. (SCAQMD – CARB) and Port's Clean Air Action Plan
- Army Corps of Engineers Section 404.10 Permit
- State and Regional Water Resources Control Board WDRs for water quality during dredging
- Soil, Groundwater, and Waste Management
- Environmental Incident Response

Constructability Review Process

- Data-Gap Analysis - Comparing compliance elements with construction Specifications
- Translation for implementation
- Evaluate data-gaps and incorporate missing compliance elements into Specifications
- On-going review of Specifications to ensure requirements can be properly implemented by contractor – Reality Check

Example - Data-Gap Analysis

MM or EC	Description [Excerpt]	Spec Ref.	Comment
MM AQ-1: Additional Fugitive Dust Control	Control measures to reduce fugitive dust shall include, but are not limited to, the following: - Cover truck loads that haul dirt, sand, or gravel or maintain at least two feet of freeboard - Sweep all streets at least once a day	Section 01574, Environmental Protection, page TS-72, 3.05B	None
MM AQ-2: Emission Control for Non-road Construction Equipment	Construction equipment shall meet the EPA Tier 4 non-road engine standards, where feasible.	Section 01500, temporary Facilities and Controls, page TS-60, 2.02C	Only Tier 3 is required in the Specs – Tier 4 is not mentioned

Environmental Compliance Matrix

- Compliance Backbone for verification and documentation
- Lists of compliance elements in specific categories, e.g. Air Quality, Water Quality, Noise Mitigation…
  - Specific requirements or permit condition
  - Responsible Party
  - Actions required for compliance
  - Implementation and inspection/verification schedule
  - Compliance reporting - documentation
- Ongoing Integration – Program Betterments

Waste Discharge Requirements

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Phase		Permit Requirements	Frequency	Cont.	CM	EP	Permit Section
During Dredging and Disposal	1	Receive water sampling & photos	Weekly			P	MRP 9578 p1
	2	Submit monitoring reports	10 days after each weekly sampling			P	MRP 9578 p5
	3	Fill out water observations	Daily	S	P		MRP 9578 p4
	4	Notify RWQCB of monitoring schedule changes	As needed			P	--
	5	Provide continuous inspection during dredging and fill activities	Continuous		P		--
	6	Notify Water Sampling Contractor of activities	Daily		P	S	--

Environmental Control – Dredge Permit Monitoring

- Dredge operations to be conducted in accordance with USACE Permit and RWQCB Waste Discharge Requirements (WDR) and Monitoring Program.
- WDR-specified water quality data to be collected during dredge operations to ensure conformance with these requirements.

Dredge Monitoring Verification Process

- **Field Verification:** Water quality at the compliance point observed daily during dredging activities by CM inspectors.

Middle Harbor Terminal Redevelopment (Phase 1)
Fill Monitoring Daily Observation Form

Week of: September 9, thru September 14, 2013

Date	Time	Tide Stage	Weather Conditions	Wind Speed/ Direction	Trash, Oil, Odors?	Active Fill Activities? (Y/N)	Visible Plume? (Y/N)	Fill Site Location	Source of Fill Material
9/9 – M	14:16	+4.2	Clear	5 to 10 mph	N	Y	N	Slip No. 1	Middle Harbor
9/10 – T	13:13	+5.1	Clear	5 to 10 mph	N	Y	N	Slip No. 1	Middle Harbor
9/11 – W	10:11	+3.6	Overcast	0 to 5 mph	N	Y	N	Slip No. 1	Middle Harbor
9/12 – T	12:40	+3.7	Clear	5 to 10 mph	N	Y	N	Slip No. 1	Middle Harbor
9/13 – F	11:35	+3.1	Clear	5 to 10 mph	N	Y	N	Slip No. 1	Middle Harbor
9/14 - S	08:40	+3.4	Foggy	0 to 5 mph	N	Y	N	Slip No. 1	Middle Harbor

Mitigation Measures and Environmental Controls during Dredging

- Established by the Final EIR and 2006/2010 San Pedro Bay Ports Clean Air Action Plan
- All tugboats to meet EPA Tier 2 non-road engine standards, if feasible use construction tugs that meet the EPA Tier 3 marine engine standards
- Portable equipment with engines of ≥ 50 hp require CARB Portable Equipment Registration Program (PERP) or equivalent
- As required depending on contractor construction activities and equipment usage on-site

Compliance Verification and Inspection

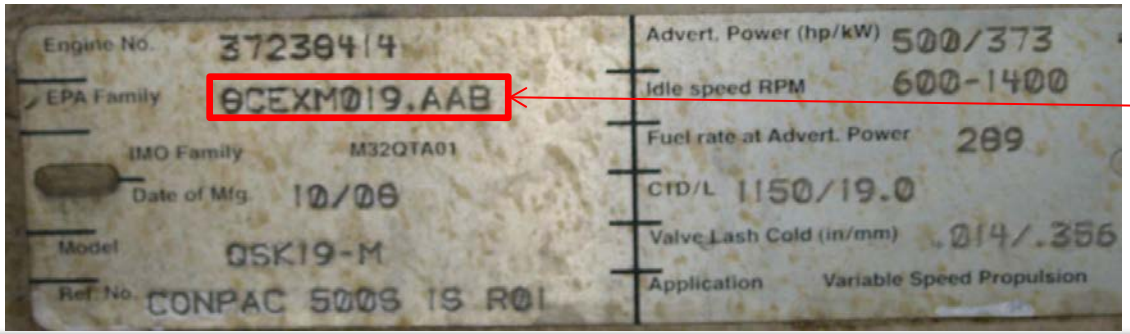
- Provide real-time compliance status for each component of the Program – Critical for Success
- Identify future project work tasks and required environmental compliance elements
- CM Team inspection required to ensure compliance
- Provide variance procedures for exceptions

Equipment Verification Process

- **Paperwork Verification: Prior to the equipment delivered to site** - Helps identify non-compliant equipment prior to arriving to site
- **Field Verification:** CM Team verifies Engine Family Name to determine engine Tier.
- **Documentation:** Achieved by taking photographs of engine tag. If tag is not visible, Engine Serial Number is used to verify compliance
- **Reporting:** Information is compiled in a table for record and summarized in text form. Photographs are attached. Electronic copies and hard-copy binders are available.

Example – Tugboat Propulsion Engine

Name	Make Model	Engine Family Name	Model Year	Tier	Date Verified
Tugboat	Cummins/QSK19	8CEXM019.AAB	2008	II	11/15/2011



Engine Family Name

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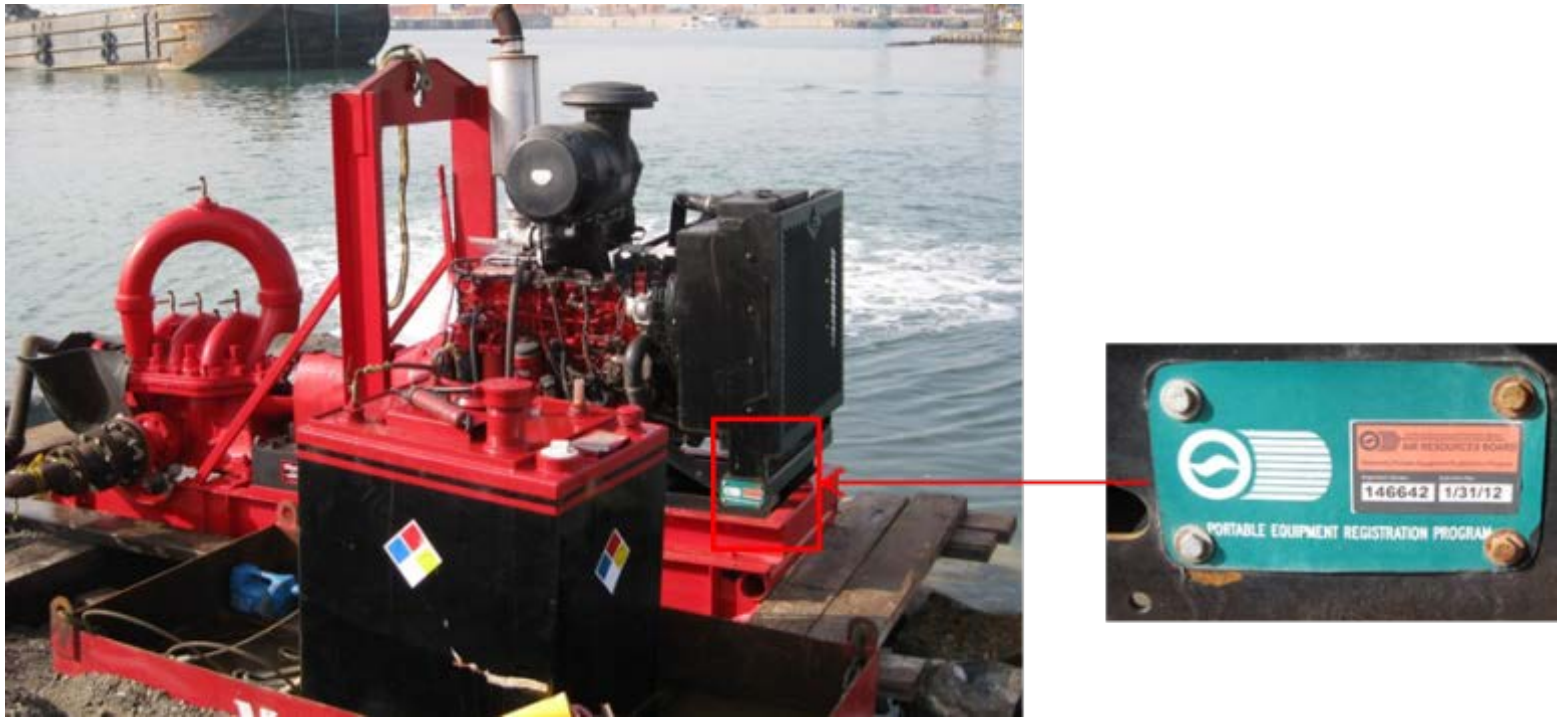
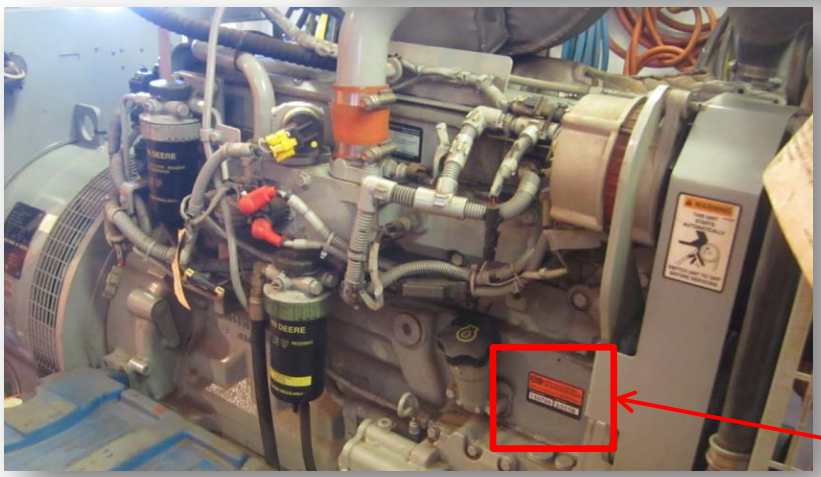
PERP Equipment Verification



Portable Equipment ≥ 50 hp must be registered through the California Air Resources Board's Statewide Portable Equipment Registration Program

Example - PERP Equipment Verification

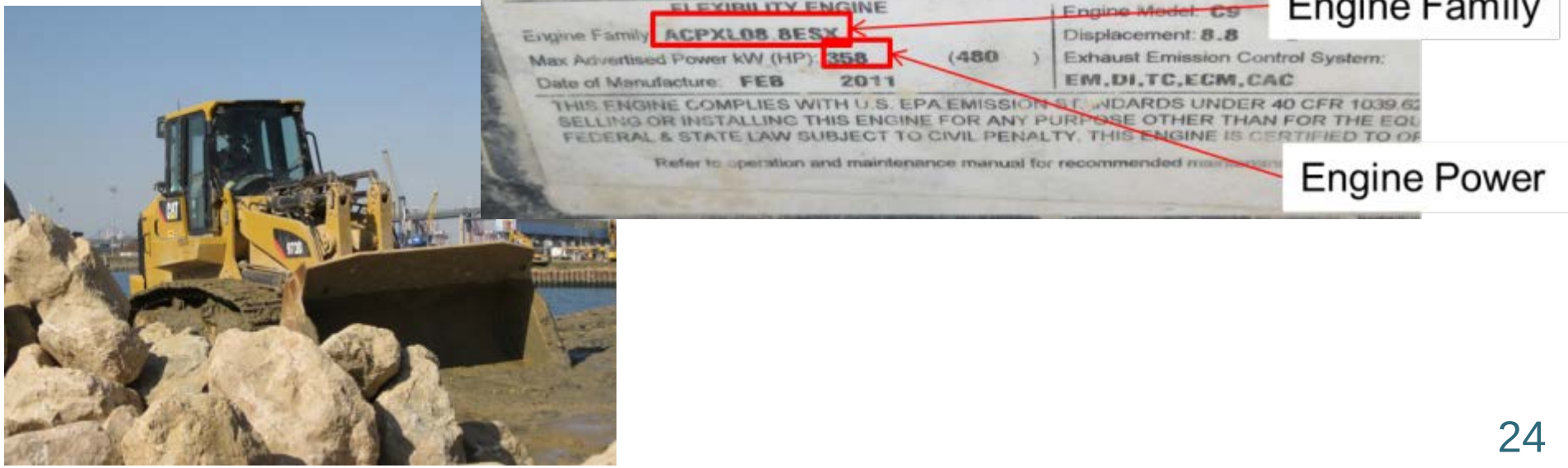


PERP Registration

Generator abroad Derrick Barge

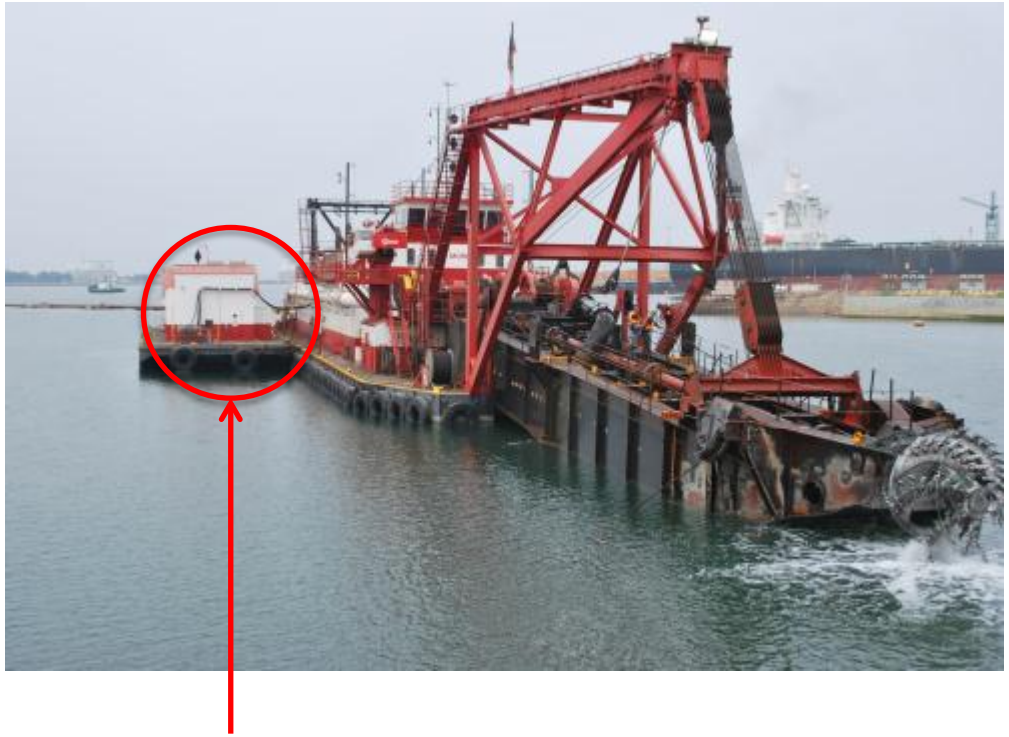
Example – Landside Equipment Verification

Name	Make Model	Engine Serial Number	Engine Family Name	HP	Model Year	Tier	Date Verified
Loader	CAT 973/C9	B04350	ACPXL08.8SK	480	2010	IV	11/15/2011



Environmental Control – Electrification of Dredge Equipment

- Contractors to use dredge equipment with shore-side electricity to during construction
- An existing Port substation is used to provide power.



Electrical cable connected to dredge

Environmental Dredging Challenges & Solutions

Oily Sediment Dredging BMPs

- Hydrocarbon impacted soils encountered during dredging
- Legacy oil field operations and subsidence
- USCG engaged to develop BMP procedures
- Allowed dredging to continue based on blanket notification and continuous BMP placement.

Continuous BMP Placement During Dredging

Floating Mud Debris and Foam

- Produced during hydraulic dredging
- Off-shore Santa Ana wind conditions pushed debris and foam directly downwind of the site
- Silt curtain and debris booms deployed to contain floating materials

Expect the Unexpected!

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Incident Response Plan

- Dolphin entrapped in partially dredged sheet pile cell after high tide.
- Implementation of Environmental Incident Response procedures to safely assist the dolphin back to sea
- Mobilization of team of Port staff and marine mammal animal rescue experts and work closely with Contractor to open egress in the sheet-pile

Project Benefits & Lessons Learned

Project Benefit - Equipment Verification Process

- Prevents delivery of non-compliant equipment
- Provides 100% field verification
- Understanding equipment availability to meet project requirements
- Educates contractors on EPA Tier engine requirements and PERP Permitting
- Achieving up to 98% compliance. Limited usage of lower-tiered equipment tracked and off-set by equipment exceeding current emission standards (e.g. Tier 4 Super-Clean Power Units)

Be Kind to Your Web-Footed Friends

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Biological Monitoring Program

- Water-side pile-driving halted if a marine mammal observed within 100 yards of pile location
- Significant marine population in harbor generated significant delays in pile driving due to constant sea lion presence
- Successfully showed that pile driving had little or no effect on sea lions and petitioned the ACOE to modify the permit condition to allow to continue pile driving already initiated.
- Reduction in delays from 1-2 hours per day to 5-10 minutes saving time and money.

Umbrella SWPPP Program

- Stormwater Permit and SWPPP Compliance can be challenging with 5 to 7 contractors on-site
- Regional Water Resources Control Board approved the concept of an "**Umbrella" SWPPP** requiring only one SWPPP for the entire Program
- Contractor responsible to develop and maintain SWPPP for respective project covered under "Umbrella"
- Ensures more consistent compliance, added security to intellectual property, and reduce time and resource commitment of CM and Port staff

Lessons Learned

- Identify and integrate environmental compliance early in Design and Constructability Review Process
- Conduct regulatory Data Gap Analysis
- Develop Compliance Matrix at project planning stage and refine throughout project
- Document and update compliance verification throughout project
- Develop and communicate Environmental Incident Response procedures for each compliance point
- Conduct regular internal compliance checks/audits

Thank You

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