

Al Larson Boat Shop Improvement Project

Final Environmental Impact Report



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1.1 Intended Use of the Final EIR Document

This Final Environmental Impact Report (EIR) for the Al Larson Boat Shop (ALBS) Improvement Project (the proposed Project) has been prepared in accordance with the California Environmental Quality Act (CEQA) of 1970, as amended. The Los Angeles Harbor Department (LAHD) is the local lead agency for the Project, and has prepared this Final EIR. This Final EIR is an informational document that will inform public agency decision-makers and the general public of the significant environmental effects of the proposed improvements to the ALBS, recommend ways to minimize the significant effects, and describe reasonable alternatives to the Project. The document fulfills the requirements of the CEQA (California Public Resources Code [PRC] 21000 et seq.), the State CEQA Guidelines (California Code of Regulations [CCR] 15000 et seq.). This Final EIR will support the permitting process of all agencies, including the Los Angeles Board of Harbor Commissioners (Harbor Commission), whose discretionary approvals must be obtained for particular elements of this Project.

1.2 Project Background

In June 2008, the ALBS submitted an application to the LAHD (through LAHD's Application for Discretionary Project process) for a 30-year lease renewal and a Coastal Development Permit to modernize and upgrade their existing boat shop. The proposed Project represents the first major upgrade to the facility since 1924. The proposed Project would redevelop the existing ALBS to modernize the facility, comply with the National Pollution Discharge Elimination System (NPDES) permit and Water Discharge Requirement (WDR), and to improve its ability to repair ships and vessels. Improvements would include replacing obsolete facilities with new facilities, improving site hydrology to address NPDES stormwater requirements, maintenance dredging to ensure adequate vessel access to the site, and constructing two Confined Disposal Facilities (CDFs) over two phases of the Project. A CDF is an engineered landfill designed to safely sequester sediment that has been deemed unsuitable for open water disposal such that the contaminated material is not in contact with the surrounding water. The proposed Project's CDFs would beneficially reuse contaminated dredge materials and result in approximately 0.9 acre of new land for increased vessel maintenance and repair, including use of the area by the proposed 600- and 100-ton boat hoists. Creation of this new land area would require an amendment to change the land use of this acreage from water to Maritime Support in the Port's Master Plan. A description of alternatives to the proposed Project is provided in Chapter 2 and Chapter 6 of the Draft EIR.

Construction would include demolishing and reconstructing a number of existing buildings, maintenance dredging to a depth of -22 feet mean lower-low water level (MLLW) plus an additional -2 feet overdredge¹ (for a total of approximately 19,000 cubic yards of sediment), creation of the CDFs containing cement-stabilized dredged materials, and installing new equipment (i.e., 600-and 100-ton boat hoists). In addition, the proposed Project would remove historical sediment and soil contamination. Refer to Section 1.5.1 below for a detailed description of the proposed Project elements.

The proposed Project would also require a permit from the United States Army Corp of Engineers (USACE) to demolish the existing wharfs, perform maintenance dredging, construct the two new piers (for use of the boat hoists), and to construct the CDFs. The USACE is conducting a separate analysis under the National Environmental Policy Act (NEPA) separately from this CEQA analysis. The USACE has made a preliminary determination that an Environmental Impact Statement (EIS) is not required for the proposed work and is currently in the process of completing an Environmental Assessment for the proposed Project. A Public Notice was circulated by the USACE in conjunction with the application for the dredge permit from October 9, 2009 through November 9, 2009.

1.3 Existing Conditions

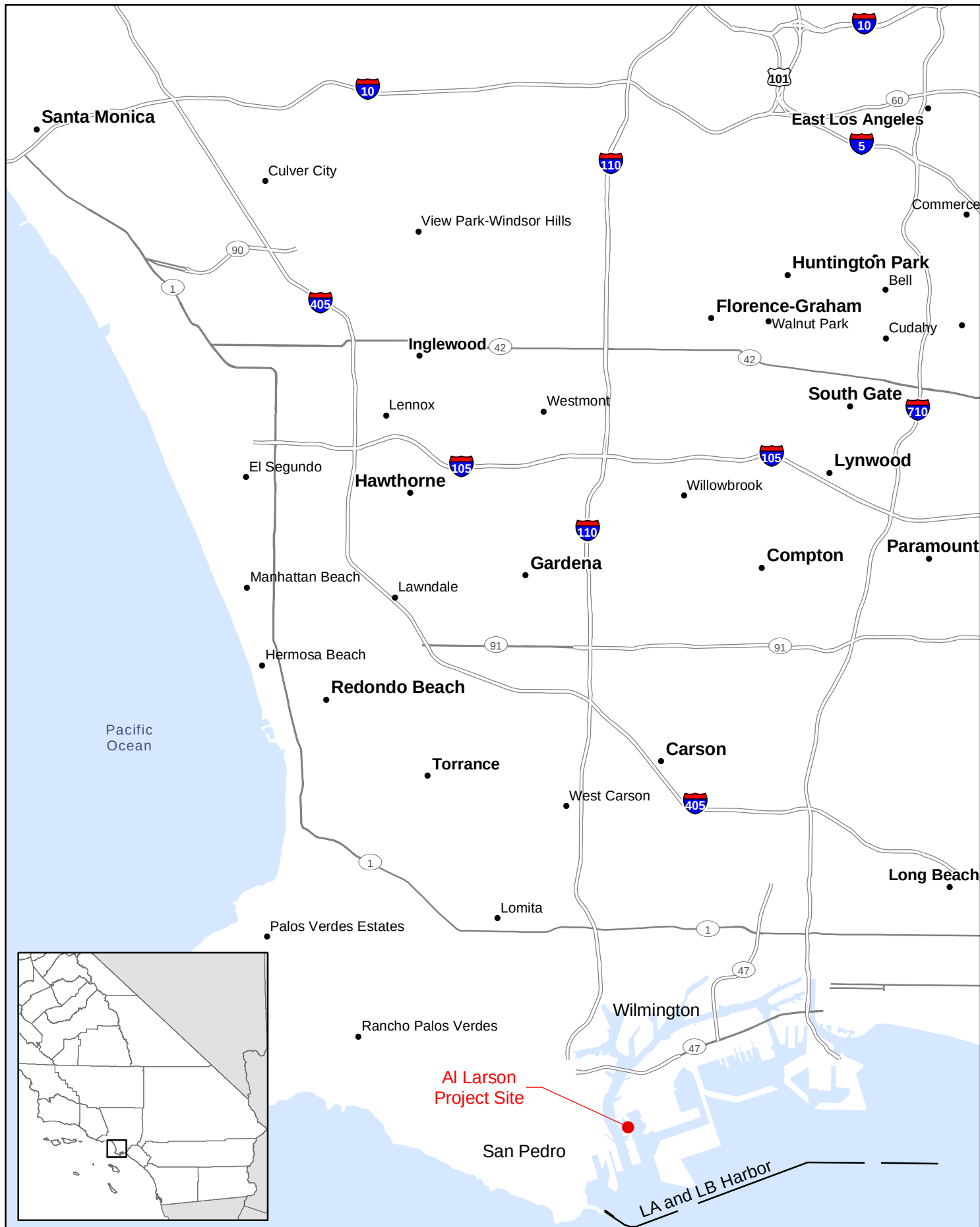
1.3.1 Regional Context

The San Pedro Bay Port Complex, located in the San Pedro Bay approximately 20 miles south of downtown Los Angeles, serves as one of the country's primary gateways for international trade. The Port consists of 28 miles of waterfront, approximately 300 commercial berths, and 7,500 acres of land and water. The Port is administered under the California Tidelands Trust Act of 1911 by the LAHD. The LAHD is chartered to develop and operate the Port to benefit maritime uses, and it functions as a property owner by leasing Port properties to more than 300 tenants. The Port contains 25 major terminals, including facilities to handle automobiles, containers, dry bulk products, liquid bulk products, and cruise ships, as well as extensive transportation infrastructure for cargo movement by truck and rail. The Port accommodates commercial fishing, canneries, shipyards, and boat repair yards; provides slips for 6,000 pleasure craft, sport fishing boats, and charter vessels; and supports community and educational facilities such as a public swimming beach, the Boy/Girl Scout Camp, the Cabrillo Marine Aquarium, and the Maritime Museum.

1.3.2 Project Site and Surrounding Uses

The Project site is located on Terminal Island, in an area of the Port known as Fish Harbor. The site is within the Port of Los Angeles Plan area of the City of Los Angeles, which is adjacent to the communities of San Pedro and Wilmington, and approximately 20 miles from downtown Los Angeles (see Figure 1-1).

¹ Overdredge refers to the amount of dredging that is allowed over what is stated in the dredging permit. Dredging is somewhat imprecise, and as a result, a certain amount of overdredge is allowed under the USACE Dredge Permit.



**Port of Los Angeles
Al Larson Boat Shop
Improvement Project
Regional Location Map
Figure 1-1**

The ALBS facility is located at 1046 Seaside Avenue, and the boat shop occupies Berth 258 at the entrance to Fish Harbor (see Figure 1-2). The ExxonMobil terminal and Southern California Ship Services are to the northwest, fisheries and canning facilities are to the north (across Fish Harbor) with the ExxonMobil/General Petroleum facility (a fuel depot) along the northern Project site boundary, Fish Harbor is to the east, the Southwest Marine Administration Building and former Southwest Marine Shipyard site are to the west and a boat marina (Al Larson Marina) and Reservation Point/Coast Guard Station Los Angeles/Federal Prison are to the south.

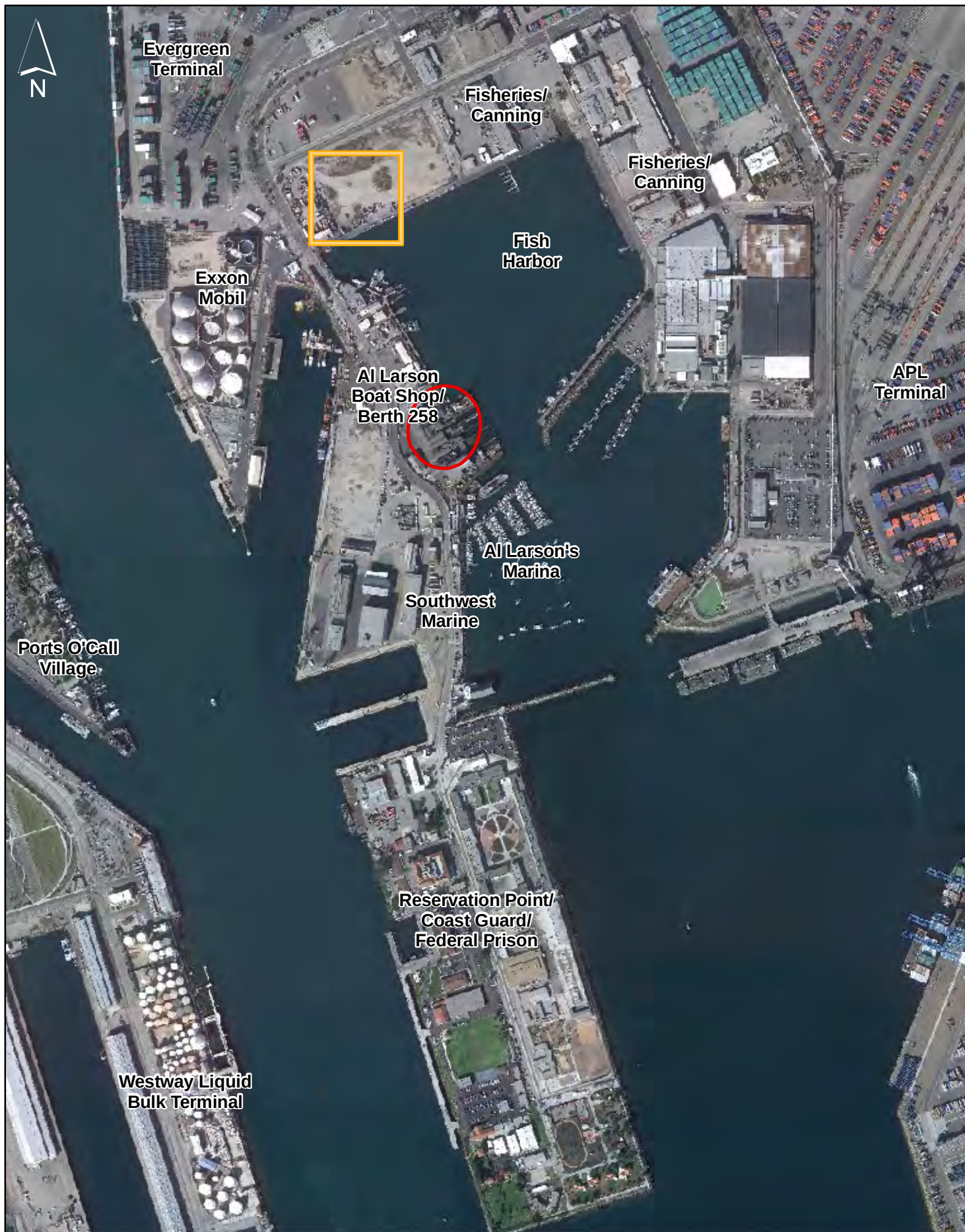
As shown on Figure 1-3, the redevelopment area of the Project site includes the following existing facilities (note that letter designations correspond to those in the legend of Figure 1-3):

- A. Office and Workshop Complex (approximately 7,821 square feet) – Consists of three adjoining structures used as stock room and tool room (Building A1), offices, carpenter shop, winch houses and bathrooms Storage (Building A2) and storage (Building A3). The buildings are eligible for listing on the California Register of Historic Resources (CRHR) and may qualify for designation as City of Los Angeles Historic-Cultural Monuments (HCM);
- C. Machine Shop Complex (approximately 8,190 square feet) – Consists of two structures: the machine and electrical shops (Building C1) built in 1938 and welding shop and storage (Building C2) added between 1939 and 1947. The buildings are eligible for listing on the CRHR and may qualify for designation as HCM;
- D. Building No. 4 (approximately 3,440 square feet) – Built circa 1938-1947, this utilitarian building is used for storage and has been used by U.S. Navy;
- E. Docks, Piers, Walls, and existing Marine Railways;
- F. Floating Dry Dock and Pier; and
- H. Ancillary Storage Structures (H1, H2, and H3). Structure H1 is used as a salt water pump room, H2 is used for storage, and H3 is used as a sandblasting room and for storage.

The lease area of the Project site also includes the following, which are located outside of the redevelopment boundaries, and would not be modified as a part of the proposed Project:

- B. Paint Shed (approximately 12,226 square feet) – Built in 1938.

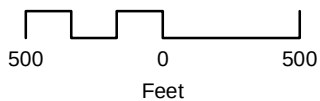
Roadway access to the property is available from Seaside Avenue, which is west of the site and was realigned adjacent to the Project site in 2009. Realignment of Seaside Avenue allowed the Marine Railway No. 4 to fully remove vessels out of the water for repairs, which is in compliance with the Regional Water Quality Control Board (RWQCB) direction (in accordance with the 2007 NPDES permit renewal). Removal of vessels completely from the water prevents vessels from over-handing or being in water during sandblasting or painting, thus protecting water quality.



Project Site



Proposed Site for Dredged
Material/Concrete Mixing

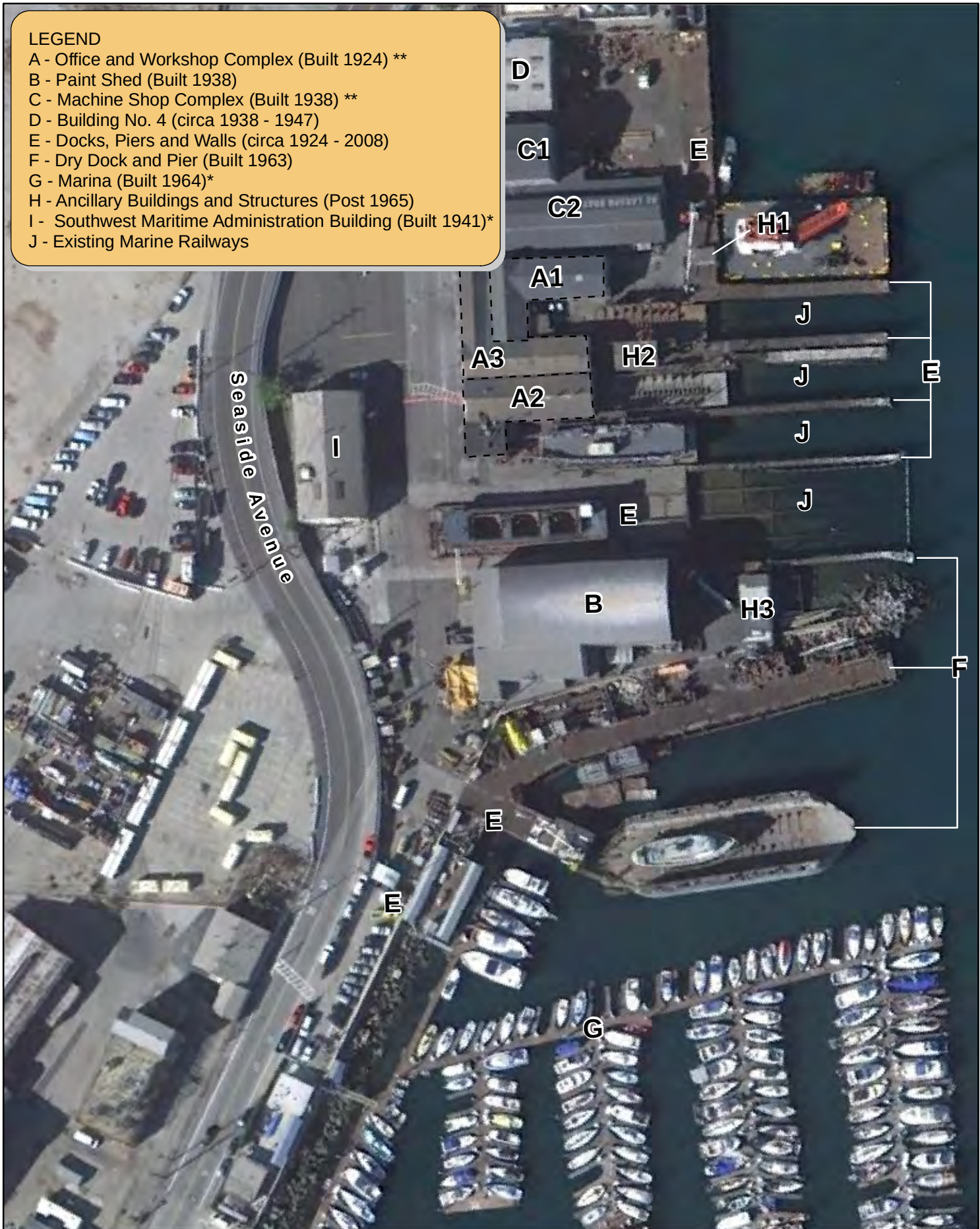


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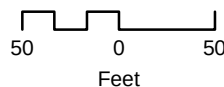
**Port of Los Angeles
Al Larson Boat Shop
Improvement Project
Project Site and Vicinity Map
Figure 1-2**

LEGEND

- A - Office and Workshop Complex (Built 1924) **
- B - Paint Shed (Built 1938)
- C - Machine Shop Complex (Built 1938) **
- D - Building No. 4 (circa 1938 - 1947)
- E - Docks, Piers and Walls (circa 1924 - 2008)
- F - Dry Dock and Pier (Built 1963)
- G - Marina (Built 1964)*
- H - Ancillary Buildings and Structures (Post 1965)
- I - Southwest Maritime Administration Building (Built 1941)*
- J - Existing Marine Railways



* Not part of the project.
 ** Potentially Historic Buildings.



Port of Los Angeles
 Al Larson Boat Shop
 Improvement Project
 Project Site - Existing Conditions
 Figure 1-3

1.3.3 Historic Use of the Project Site

The ALBS was established in the Port in 1903 and was originally located on Mormon Island in Wilmington, California; the original lease was with the Banning family. The operation was moved to its current location (1046 Seaside Avenue on Terminal Island, Berth 258) in 1924, and now occupies approximately 7.7 acres (2.35 acres of land and 5.35 acres of water) at Berth 258, under Revocable Permit No. 07-15. It is the last remaining large-capacity dry dock boat repair facility within the Port. Following is a summary of existing operations and capacity:

- ALBS is considered a mid-sized shipyard and can dry dock vessels up to 260 feet long.
- ALBS is a full-service shipyard that provides maintenance and repair of tugboats, government vessels, fireboats, ferries, barges, offshore oil equipment, research vessels, and yachts.
- Operations include normal maintenance and repair activities found at a boat yard such as water or sand blasting, and painting of vessels.
- The majority of vessels serviced by ALBS are from the Pacific Coast region, with approximately 60 percent of vessels serviced being local (within the Port Complex), but furthest being from Seattle, Washington (to the north) and Mexico (to the south).
- Currently the out of water (landside) vessel repair capacity at the ALBS accommodates five vessels through use of its four marine railways, one floating dry dock, and dock space for dockside repairs.
- The ALBS services on average 120 to 130 vessels per year and has between 70 to 100 employees on-site depending on workload. The hours of operation of the facility span two shifts, 7:45 a.m. to 4:15 p.m., and 3:30 p.m. to 11:00 p.m.
- Currently the vessel repair capacity at the ALBS is comprised of four marine railways, one floating dry dock for repair and maintenance, and dock space for dockside repairs. Operations include normal maintenance and repair activities found at a boat yard such as water or sand blasting, and painting of vessels.

1.4 Project Purpose and Need

The LAHD operates the Port under the legal mandates of the Port of Los Angeles Tidelands Trust (Los Angeles City Charter, Article VI, Section 601) and the California Coastal Act (PRC Division 20 Section 30700 *et seq.*), which identify the Port and its facilities as a primary economic and coastal resource of the State of California and an essential element of the national maritime industry for the promotion of commerce, navigation, fisheries, and Harbor operations. Activities should be water dependent and the LAHD must give highest priority to navigation, shipping, and necessary support and access facilities to accommodate the demands of foreign and domestic waterborne commerce. The LAHD is chartered to develop and operate the Port to benefit maritime uses, and it functions as a landlord by leasing Port properties to more than 300 tenants.

The basic purpose of the proposed Project is to improve the safety and efficiency of marine ship building and repair, expand the maintenance and repair capabilities of the operation, modernize the site in order to comply with existing and future water quality regulations, update the ALBS NPDES and WDR permits, and take advantage of the opportunity to remove legacy contaminated soils for disposal off-site and contaminated bottom sediment for use in the CDFs.

There are several critical needs for the proposed Project. First, because of the nature of ship repair and maintenance facilities and activities, there are a number of pathways by which pollutants and wastes from ALBS could be discharged to the Harbor. Contaminants generated during the repair and maintenance operations may enter Harbor waters, degrading both water and sediment quality. Stormwater discharges associated with industrial activity at ship repair and maintenance sites constitute one potentially significant pathway by which pollutants and wastes could be discharged to the Harbor. Three remaining marine railways and any disturbance/resuspension of the contaminated sediment are also a continual source of legacy contamination that affects Fish Harbor.

Second, the proposed Project also represents the first major upgrade to the facility since 1924. The existing infrastructure at ALBS is aging and dilapidated, and the trend in growing vessel size and tonnage capacity cannot be accommodated safely and efficiently at the existing facility. The layout of the facility is not conducive to an efficient operation; with only four marine railways and one floating dry dock, the facility is limited in the number of vessels that can be dry docked for repair and maintenance at one time, with the maximum being five.

Third, consistent with federal, state and regional goals and strategies for management of contaminated dredged material in the Los Angeles Region, development of a nearshore CDF to sequester contaminated sediment is needed to ensure protection of aquatic resources from the discharge of contaminated dredged materials into the water, as well as to provide the dredging community with greater certainty and predictability regarding the sediment testing results and the decision-making process concerning disposal options. A nearshore CDF involves placing contaminated dredged materials inside a diked nearshore area or island constructed with containment and control measures providing a location for permitted safe disposal and confinement for contaminated sediment.

Lastly, legacy soil contamination exists within the landside portions of the site. A Remedial Action Plan has been developed for the ALBS site that recommends the excavation and off-site disposal of approximately 7,571 cubic yards of contaminated soil (mostly contained under the buildings proposed for demolition) as part of the proposed Project.

1.4.1 Project Objectives

A statement of the objectives sought by the proposed Project is required by CEQA Guidelines Section 15124(b) (Cal. Code Regs., tit. 14, Sections 15000 et seq). The definition of the Project objectives is important as it aids the lead agency in formulating a reasonable range of alternatives to the proposed Project that also can achieve, at least in part, the objectives of the proposed Project. The CEQA Guidelines also provide that the statement of objectives should include the underlying purpose of the Project. The objectives of the proposed Project, and how they would be met, are described below:

- **Place ALBS in compliance with its WDR and NPDES requirements by re-contouring the site, removing three existing marine railways and constructing a storm water collection and treatment system.**

One of the major components of the Project is the installation of facilities to change the direction of the flow of stormwater on the site. In 2007 ALBS renewed its NPDES permit and WDR from Los Angeles RWQCB (previously issued in 1997) for discharges from their operation (RWQCB, 2007). ALBS discharges the process water from various boat shop activities and harbor water to Fish Harbor through an on-site storm drain and media filtration system located on the platform outside the machine shop into Fish Harbor. Currently, stormwater runoff from Seaside Avenue is directed through a man-made trough located about 30 feet from the machine shop (Building C2) and discharges to Fish Harbor. Process water associated with hydroblasting is captured, treated and discharged to the sewer system.

To comply with the 2007 permit, the site would be re-contoured to drain stormwater away from harbor waters for treatment before discharge. Under the proposed Project, dikes would be used to redirect the flow of stormwater around the remaining buildings. A raised curb/step would be constructed around Buildings C2 and A1, with either trench drains and/or catch basins. A new storm drain system would be constructed in conjunction with the installation of an oil/water separator to capture the flow from the storm drains for treatment in the new oil/water separator facility prior to discharging into Fish Harbor or the sewer system.

In addition, as part of the proposed Project, an aboveground storage tank would be installed at the northwest corner of the Project site to temporarily hold process water prior to discharge into the sewer system.

Location and operation of the marine railways is a source of pollutant discharge. To comply with the 2007 NPDES permit, ALBS relocated Marine Railway No. 4 inland, to completely remove vessels away from harbor waters. The three other marine railways remain a potential source of pollutant discharge into harbor waters and are proposed for removal as part of the proposed Project.

- **Demolish existing wharfs, piers and buildings/structures to allow for the subsequent creation and use of two CDF cells, which will sequester contaminated sediment and expand use of the boat shop.**

The proposed Project would demolish the wharf, piers and four buildings and two structures. Each of the two CDF units would be conducted in different phase (referred to as the Phase 1 CDF and Phase 2 CDF). Removal of structure H1 and the wharf demolition would take place to make way for the Phase 1 CDF. Piers associated with the three marine railways (No. 1 through 3) and structure H2 would be demolished to accommodate construction of the Phase 2 CDF.

- **Dredge sediment to accommodate deeper draft vessels, remove contaminated sediment to improve water quality, and promote regional sediment management objectives by beneficially reusing dredged material to create two CDFs.**

The depth of the harbor approaches to ALBS has been reduced by sedimentation. Also, the area contains sediment contaminated with heavy metals and other hazardous compounds that have accumulated over the years. The proposed Project would dredge accumulated sediment from the area off-shore of ALBS to the documented design depth of -22 feet below MLLW (-22 feet below MLLW with an allowable overdredge an additional -2 feet, per the Master Dredge Permit²), allowing safe transit of larger vessels to the facility.

In 1997, California Senate Bill 673 (SB 673) required the California Coastal Commission (CCC) and the Los Angeles RWQCB to jointly establish and participate in the multiagency Los Angeles Basin Contaminated Sediments Task Force (CSTF) to develop, based on the recommendations of the task force, a long-term management plan for the management of contaminated dredge material in the Los Angeles Region. The CSTF developed a Long-Term Management Strategy (Strategy). This Strategy includes recommendations on regional sediment management efforts, including a proposed long-term goal of beneficially reusing all contaminated sediments. As part of the proposed Project, approximately 19,000 cubic yards of sediments would be dredged and treated using a cement slurry. Two CDFs would be constructed by pile driving sheet piles into the harbor bottom, creating sealed bulkheads rising to an elevation of 12 feet MLLW then backfilling the two CDFs with treated dredge material. This would sequester the contaminated sediment away from Fish Harbor water and provide a beneficial reuse of this material, while improving water quality.

- **Remove buildings/structures in order to modernize and reconfigure the facility, to optimize and expand the existing boat shop operation at the present location and continue to meet a regional need for marine vessel repair.**

Currently, ALBS can simultaneously remove five vessels from the water via the four existing marine railways and floating dry dock. This is the limit of the capacity of the current operation. The proposed Project would create the Phase 1 CDF in conjunction with constructing new piers to support the installation of 600- and 100-ton boat hoists. Once installed, the boat hoists would provide flexibility to ALBS' operation, as operations would no longer be limited by the number of railways and dry docks. Now redundant, the three marine railways (No. 1 through 3) would be removed to provide space for construction of the Phase 2 CDF. The large railway (No. 4) and the floating dry dock would remain.

² Dredging is imprecise and while the target depth is -22 feet MLLW, the USACE dredge permit allows a two foot overdredge without violating the permit's conditions.

Buildings D, C1, A2 and A3 would need to be demolished to create additional open space and improved layout for ALBS operations and allow the boat hoists access to the Phase 2 CDF. Installation of the 600-ton capacity boat hoist would enable ALBS to accommodate the building and repair of deeper draft vessels. In order to operate the proposed 600- and 100-ton boat hoists, four buildings (Buildings D, C1, A2 and A3) and two structures (H1 and H2) would need to be demolished. When fully operational, the boat hoists would be able to bring boats completely landside where they can be safely worked on out of harbor waters (which lessens likelihood of discharges to Fish Harbor).

- **Replace aging infrastructure and construct a new building to support improved operations.**

The proposed Project would require installation of new electrical utilities, water lines, utility protection, yard lighting, security lighting, as well as construction of a new two-story, 2,400 square foot office to support the new operation.

- **Clean-up site legacy contaminants from the historical use of the site as a boat shop, including contaminants located beneath existing pavement and buildings.**

To redevelop the site, demolition of four buildings (Buildings D, C1, A2 and A3) and two structures (H1 and H2) and removal of existing asphalt/concrete paving is necessary. With the buildings and pavement removed, the site could be reconfigured and re-contoured, which requires excavation and relocation of soil. At this time, soil would be tested on-site and if it is contaminated at levels above the regulatory thresholds for hazardous waste, it would be disposed of off-site at an approved disposal facility. Clean soil would be imported, if necessary, to bring the site to designed elevations. It is estimated that approximately 7,600 cubic yards of soil and 2,471 cubic yards of asphalt would be removed to an off-site location. The resulting removal of this legacy landside contaminated soil would also result in removing a source of potential public exposure and discharge into Fish Harbor.

- **Enter a 30-year lease renewal between ALBS and LAHD changing the facility's leasehold from 7.7 acres (2.35 acres of land and 5.35 acres of water) to 7.3 acres (4.1 acres of land and 3.2 acres of water)**

ALBS has applied for a thirty year renewal of their existing leasehold with expansion of the premises by 9,304 square feet of land and 43,368 square feet of water. Additionally, from the existing leasehold, 0.9 acres would be converted from water to land by the creation of the two CDFs. This would require an amendment to the Port Master Plan (PMP). While the new lease reduces the overall facility size from 7.7 to 7.3 acres, it adds an additional 1.7 acres of land to the boat yard.

1.5 Proposed Project

1.5.1 Project Elements

To minimize operational impacts to the facility during construction, the proposed Project would be constructed in three phases (Figure 1-4). The basic elements of the three phases are as follows, along with a description of the phasing:

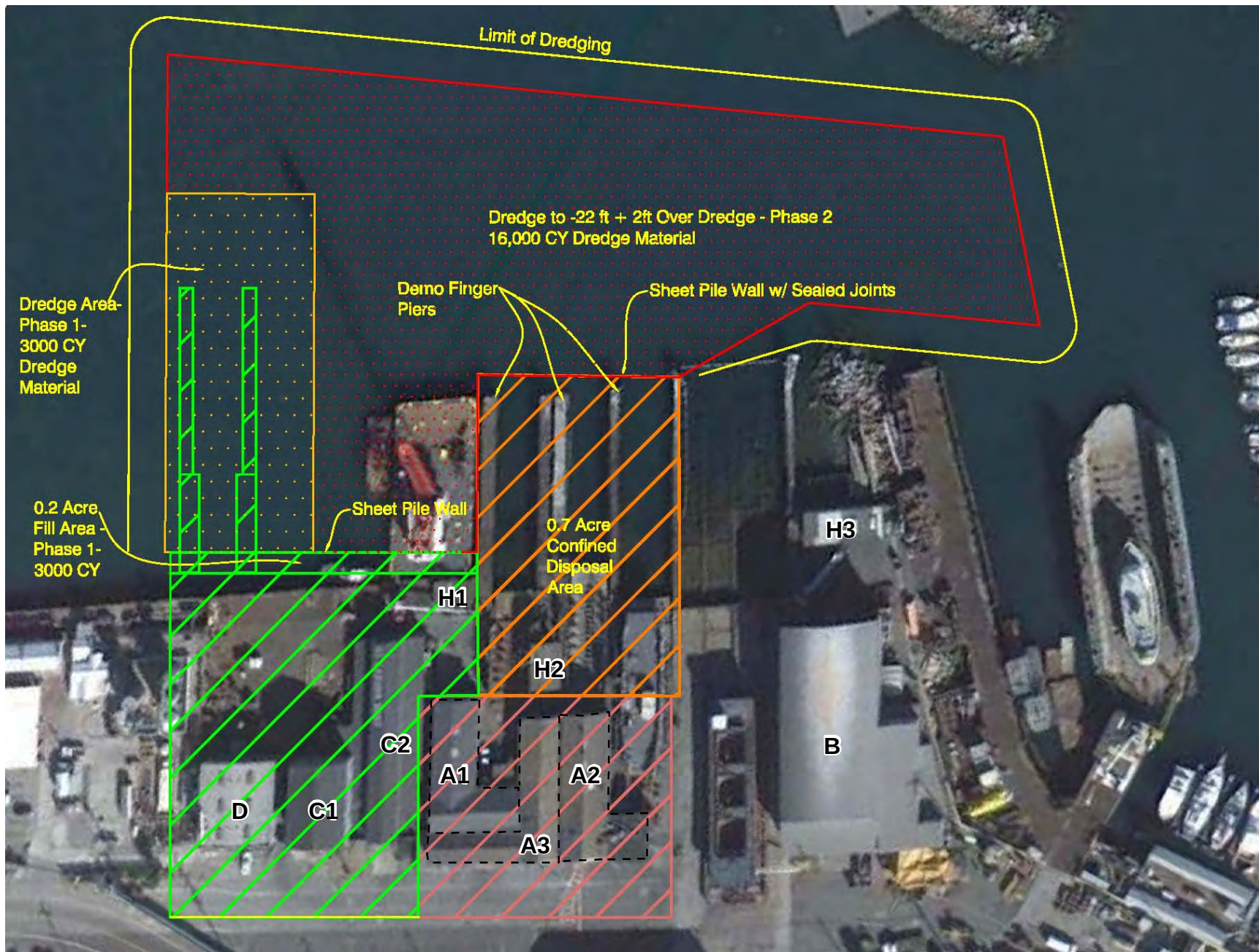
Phase 1

- Demolish the existing 200-foot creosote-treated timber wharf and piles within the Phase 1 footprint.
- Demolish Buildings D, C1, and structure H1 in the Phase 1 footprint.
- Construct a sealed steel sheet pile bulkhead to form the perimeter of the CDF cell.
- Dredge approximately 3,000 cubic yards within the Phase 1 footprint to a depth of -22 feet MLLW, plus an additional 2-foot overdredge allowance. The dredged material would be treated and placed in the CDF cell.
- Install two concrete finger piers supported by 62 (24-inch) octagonal concrete piles for each pier (126 total) to support new 600- and 100-ton boat hoists.
- Install new 600- and 100-ton boat hoists on the new piers along the north end of the Project site.
- Install facilities consistent with the Standard Urban Stormwater Mitigation Plan (SUSMP) requirements (RWQCB, 2001), including new storm drain system within the Phase 1 footprint and the installation of an oil/water separator.
- Construct a raised curb/step around Buildings C2 and A1.
- Remove pavement, excavate (from open area and building footprints) and export for disposal approximately 2,000 cubic yards of contaminated landside contaminated soil from Phase 1 area followed by import of approximately 2,000 cubic yards of clean soil to approximately the same elevation of the Phase 1 CDF (12 feet MLLW).
- Grading, high-strength paving, and lighting improvements within the Phase 1 footprint.

During Phase 1, an existing 200-foot creosote-treated timber wharf, piles and structure H1, would be demolished and the waste would be transported to an appropriate landfill;³ however, the existing riprap revetment⁴ under the wharf would remain. A boom would be placed around the perimeter of the work area to contain floating debris that may be generated during the removal process. The creosote debris, which is not suitable for disposal in a municipal landfill, would be transported to a disposal facility which accepts creosote wood waste. Once the timber wharf has been removed, a sealed steel sheet pile

³ Five landfills within Los Angeles County, one within Orange County, and two within Riverside County accept treated wood waste (TWW).

⁴ Rock or other material used to armor shorelines, and other shoreline structures, to protect against erosion.



- A - Office and Workshop Complex
- B - Paint and Shed
- C - Machine Shop Complex
- D - Building No. 4
- H - Ancillary Buildings and Structures

LEGEND:

- PHASE 1
- PHASE 2
- PHASE 3



Port of Los Angeles
Al Larson Boat Shop
Improvement Project

Improvement Element of Proposed Project

Figure 1-4

bulkhead⁵ would be constructed in approximately the same outline as the wharf, with a 10-foot offset from the face of the wharf to form the perimeter of the CDF cell located within the footprint of Phase 1. The sheet pile would be driven into the harbor bottom to a minimum depth of -47 feet MLLW.

The CDF cell would be approximately 200 foot wide and would be up to 32 feet in length. Prior to dredging, a continuous, floating silt curtain would be installed that would completely encompass the area being dredged. Then, working from a barge, a clamshell bucket and crane would dredge approximately 3,000 cubic yards within the Phase 1 footprint to a depth of -22 feet MLLW, plus an additional a 2-foot overdredge allowance. The dredged material would be placed in a scow and a binder would be added to the sediment and mechanically mixed prior to permanent placement in the CDF cell. Cement stabilization, an immobilization technology, stabilizes and solidifies contaminated dredged material. This process involves stabilization and solidification of contaminated dredged material with cement-based additive mixes to bind contaminants in the material into the least soluble, mobile, or toxic form and enhances the physical properties of the material. Cement stabilization is very successful in immobilizing contaminants (such as polychlorinated biphenyl [PCBs]) generally not mobile through air, soil, and water (Wiles and Barth, 1992). Cement stabilization binds soluble constituents, reduces chloride mobility, and significantly reduces compaction times.

There is no access for a cement truck at the ALBS wharf; therefore, scows would be tugged to an accessible area approximately 0.23 mile north from the dredge location (dredge location is shown in the area labeled Phase 1 on Figure 1-4, and the proposed location for dredge material storage and concrete mixing is shown on Figure 1-2). Two scows would be used for this process. The material would be allowed to stabilize in the scow (approximately 1 to 2 days) and would be returned to ALBS and placed behind the sheet pile bulkhead and into the CDF using the clamshell bucket. There is no bulking factor in regards to filling the CDF; the stabilized material is placed in the CDF cell, and hardens within a 24-hour period.

The first phase of the Project would also include the construction of two concrete finger piers and the installation of 600- and 100-ton boat hoists on the new piers at the north end of the Project site to increase ALBS's ability to handle larger and heavier ships in dry dock (Figure 1-4). By constructing the new finger piers as part of Phase 1, this would allow the existing marine railways to continue operating during construction. Two concrete finger piers supported by 62 (24-inch) octagonal concrete piles for each pier (126 total) would be constructed to support the new 600- and 100-ton boat hoists.

The final stage of Phase 1 would consist of completing upland improvements within the footprint of Phase 1. Buildings C1 (potentially historic), and Building D would be demolished to provide access for the 600- and 100-ton boat hoists from the new piers into the backland where vessel repair would occur. Existing pavement within the Phase 1 footprint would also be demolished, contaminated soil would be removed (disposal of approximately 2,000 cubic yards of contaminated soil followed by import of approximately 2,000 cubic yards of clean soil), the area would be graded, and the areas within the Phase 1 footprint would be paved with new high strength pavement, including

⁵ Interlocking sheets of steel placed in the ground to contain the contaminated soil material.

the new surface area created by construction of the CDF to support operation of the boat hoists. In addition, best management practices (BMPs) including storm drains and an oil/water separator would be installed. The new pavement elevations would be designed to drain stormwater away from Fish Harbor waters to be collected by the storm drain system for treatment in the proposed oil/water separator facility prior to discharge into Fish Harbor.

A raised curb/step would be constructed around Buildings C2 and A1 (in the Phase 2 area), and a combination of either trench drains and/or catch basins to capture the flow and direct it away from the buildings and to into the new oil/water separator unit(s). Along the north side of the remaining buildings, a small retaining structure would be constructed to allow the grades for Phase 1 to be raised. On the south side of the wall, a concrete curb and trench drain would be constructed to capture any drainage from the Phase 1 area would be required.

Phase 2

- Removal of the piers associated with the existing marine railways for the existing boat hoist (the rails associated with the existing lift system would remain because this area would be contained within the second CDF).
- Demolish structure H2.
- Construction of a second sealed sheet pile bulkhead for the second CDF
- Dredge approximately 16,000 cubic yards of material to -22 feet MLLW (plus an additional 2-foot overdredge allowance) to provide navigation for the upgraded facilities. The dredged material would be treated and placed in the CDF cell.
- Excavate approximately 2,800 cubic yards of contaminated landside soil for disposal followed by import of approximately 2,800 cubic yards of clean material to bring the upland area to approximately the same elevation as the Phase 2 CDF (approximately 12 feet MLLW).
- Install facilities consistent with the SUSMP provisions, including new storm drain system within the Phase 2 footprint that directs storm water to the oil/water separator installed in Phase 1.
- Grading, high strength pavement, and lighting improvements within the Phase 2 footprint.

To begin Phase 2, the piers for the existing boat hoist railway and structure H2 would be removed to construct the second CDF. The rails associated with the existing railway system would remain, being covered with treated dredge material and contained within the Phase 2 CDF. Asphalt in open areas would also be removed. In addition, excavation of approximately 2,800 cubic yards of contaminated landside soil for disposal would occur followed by import of approximately 2,800 cubic yards of clean material. Prior to dredging, a continuous, floating silt curtain would be installed that would completely encompass the area being dredged. The second cell of the CDF would be constructed by installing sealed sheet pile bulkhead.

In Phase 2, approximately 16,000 cubic yards of material would be dredged to -22 feet MLLW (plus an additional 2-foot over-dredge allowance) to improve navigation for the upgraded facilities. As in Phase 1, the dredged material would be stored on a scow and treated by the cement stabilization method. As the treatment process is completed, the

material would be placed in a newly constructed CDF cell within the footprint of Phase 2. The CDF cell would be approximately 145 feet wide and would be up to 140 feet in length. Clean material would be imported to fill in any remaining space in the CDF, if necessary, bringing the upland area to the same elevation as the sealed steel sheet pile bulkhead/wall (12 feet MLLW). As in Phase 1, the sheet pile would be driven into the harbor bottom to a minimum depth of -47 feet MLLW.

The final stage of Phase 2 consists of paving the remaining areas within the Phase 2 footprint with high strength pavement (required to support operation of the boat hoists). The pavement would cover the entire Phase 2 footprint, including the new surface area created by the CDF.

Phase 2 would also include a new storm drain system that directs storm water to the oil/water separator installed in Phase 1. The final elevation of the material inside the CDF would be approximately 5 feet higher than the existing wharf to ensure the new surface is the same elevation as the upland area so the water would be able to drain inland into the oil/water separator before discharge into the harbor, complying with the requirements of the ALBS NPDES permit and WDR. The joints of the sheet piles would be sealed to prevent an exchange of water between the cement stabilized sediments inside the CDF cells and the marine environment.

Phase 3

- Demolish Buildings A2 and A3, landside of the Phase 2 CDF.
- Remove asphalt, excavate approximately 2,800 cubic yards of contaminated landside soil from the Phase 3 footprint area, including from the footprints of the demolished buildings, export the contaminated soil for disposal and import of approximately 2,800 cubic yards of clean fill.
- Implement landside improvements including grading, paving, existing utility protection, electrical relocations, yard lighting, shop air and installation of new storm drain system.
- Construct a new 2,400 square foot, two-story office building on the reconfigured site to replace Buildings A2, A3, C1, and D that were demolished in Phases 1 and 2.

Phase 3 would consist of the demolition of the remaining buildings landside of the second CDF (Buildings A2 and A3, both potentially historic). Landside improvements would include removal of contaminated soil, grading, pavement, existing utility protection, electrical relocations, yard lighting, installation of new storm drain lines, installation of high strength pavement (required to support the operation of the boat hoists) and construction of a new office building. Upon project completion, lighting improvements would consist of 40-foot perimeter lightpoles, with fixtures directed toward the interior to accommodate nighttime operations. The lights would emit five footcandles of light. Additional security lighting would be provided in the employee parking area and at the property perimeter as necessary.

Subsequent to the completion of the new CDF's, an amendment to the PMP would be required to incorporate the land created by the CDF units.

1.5.2 Construction Schedule

Construction of the proposed Project is anticipated to commence in 2012 and last for approximately three years. The proposed Project would be constructed in three phases to allow ALBS to continue operating during the three year construction period. See Figure 1-4 for proposed Project components and phasing.

Phase 1 would last approximately one year, employing approximately 30 people. Phase 2 would last approximately six to ten months and would employ 30 people. Phase 3 would last approximately six months and would employ 20 people. Construction would take place on the site Monday through Friday (with some Saturdays) from 7:00 a.m. until 3:30 p.m.

1.5.3 Project Operations

Operation of the proposed Project would occur under a new 30-year lease. The new lease term would begin in 2012. The new lease involves the entire ALBS facility. Refer to Figure 1-5, for proposed Project boundary in relation to the existing and proposed (future) lease.

The proposed Project would replace three of the marine railways systems with the 600- and 100-ton boat hoists. The removal of the three marine railway systems in Phase 2 would lead to more flexible scheduling of vessel repairs, allowing ALBS to remove more vessels from the water and accommodate the repair and maintenance of those vessels at any one time, thus maximizing the efficiency of the operation. In addition, with the introduction of the boat hoists, there would no longer be the need to solely depend upon the use of the existing railways, which require the tides to be high enough to launch the vessel safely, and are limited to four simultaneous vessel removals for maintenance and repair. With the new hoist operations, ALBS would be able to launch vessels without these tidal delays and increase ALBS's capacity for simultaneous servicing to as many as 12; thereby optimizing the operation. Also, after building demolition, the boat hoists would allow for better utilization of available space at the facility by allowing the backlands to be accessed for use for dry docking (placement on land) of vessels for maintenance and repair. Elimination of the marine railways together with site re-contouring, installation of a new storm water drainage system and water treatment system (oil/water separator) would reduce discharge of stormwater pollutants into harbor waters.

Upon completion of the proposed Project, hours of operation would remain the same and work would continue to occur in two shifts (7:45 a.m. to 4:15 p.m. and 3:30 p.m. to 11:00 p.m.). The number of employees on-site would increase from between 70 and 100 to between 90 and 130, depending on work load. More employees would be on-site during the morning shift, with approximately 80 employees, while approximately 15 employees would be on-site during the evening shift. In addition, the number of vessels served by ALBS during a year is projected to increase under the proposed Project from between 120 and 130 to between 240 and 304.



 Existing Lease	 Buildings to be demolished
 Area to be added to lease	 Buildings to remain
 Excluded	 Redevelopment Area
 Project Boundary - Facility Improvements and Future Leasehold	

Port of Los Angeles
Al Larson Boat Shop Improvement Project
Project Boundary and Lease Renewal
Element of Proposed Project
Figure 1-5

1.5.4 CEQA Baseline

CEQA provides for an EIR to assess the significance of a project's impacts in comparison with a baseline that consists of the physical environmental conditions at and near the project site as they exist prior to a final decision whether to approve the project. Baseline conditions are normally, but not always, measured at the time of commencement of environmental review of the proposed project. CEQA Guidelines, Section 15125, subdivision (a), provides:

An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant.

By providing that existing conditions at the time environmental analysis commences will “normally” constitute the CEQA baseline, the Guidelines recognize that lead agencies have discretion to formulate a different baseline in appropriate situations (e.g., *Save Our Peninsula Comm. v. Monterey County Bd. of Supervisors*, 87 Cal. App. 4th 99, 126 (2001).

To determine significance, impacts resulting from implementation of the proposed Project and alternatives are compared to a baseline condition. The difference between the Project and the baseline impact levels is then compared to a threshold to determine if the difference between the two is significant. The CEQA baseline is the set of conditions that prevailed at the time the Notice of Preparation (NOP). The NOP was published in September 2010. For purposes of the EIR, the CEQA baseline will include the ALBS configuration and operational activity for the 12-month period preceding the NOP date (September 2009 to August 2010). This information is considered representative of the physical conditions at the time the NOP was published.

1.6 Port of Los Angeles Environmental Initiatives

The LAHD is committed to managing resources and conducting Port developments and operations in an environmentally and fiscally responsible manner. The LAHD strives to improve the quality of life and minimize the impacts of its development and operations on the environment and surrounding communities. This is done through the continuous improvement of its environmental performance and the implementation of pollution-prevention measures, in a feasible and cost-effective manner that is consistent with the overall mission and goals associated with the Port and with those of its customers and the community. The following discussion includes details on a number of the programs and their goals.

1.6.1 Port Environmental Management Policy

The LAHD's Port Environmental Management Policy was approved by the Harbor Commission on August 27, 2003. The purposes of the Environmental Management Policy are to provide an introspective, organized approach to environmental management; further incorporate environmental considerations into day-to-day Port operations; and achieve continual environmental improvement. The Environmental Management Policy includes existing environmental initiatives for the Port and its

customers, such as the voluntary Vessel Speed Reduction Program (VSRP), Source Control Program, Least Tern Nesting Site Agreement, Hazardous Materials Management Policy, and the Clean Engines and Fuels Policy. In addition, the Policy will encompass new initiatives such as the development of an Environmental Management System (EMS) with the Construction and Maintenance Division of the Port, and a Clean Marina Program. These programs are Portwide initiatives to reduce environmental pollution.

To ensure this policy is successfully implemented, the LAHD will develop and maintain an Environmental Management Program that will:

- Ensure that environmental policy is communicated to LAHD staff, its customers, and the community
- Ensure compliance with all applicable environmental laws and regulations
- Ensure that environmental considerations include feasible and cost-effective options for exceeding applicable regulatory requirements
- Define and establish environmental objectives, targets, and BMPs, and monitor performance
- Ensure that a Customer Outreach Program be maintained to address common environmental issues
- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations through environmental awareness and communication with employees, customers, regulatory agencies, and neighboring communities

1.6.2 Environmental Plans and Programs

The LAHD has implemented a variety of plans and programs to reduce the environmental effects associated with operations at the Port. These programs include the San Pedro Bay Ports Clean Air Action Plan (CAAP), the Water Resources Action Plan (WRAP), deepening the channels of the Port to accommodate larger and more efficient ships, converting the Port's fleet to electric, hybrid and alternative-fuel vehicles, and technology advancement program grants and incentives to demonstrate and encourage use of emissions reduction technology in port-related goods movement. All of these efforts ultimately reduce environmental effects.

The LAHD is committed to the spirit and intent of this policy and the laws, rules, and regulations, which give it foundation.

1.6.2.1 Clean Air Action Plan/Clean Air Action Plan Update

On November 26, 2006, the Harbor Commission, in conjunction with the Port of Long Beach Harbor Commission, approved the CAAP, a comprehensive strategy to cut air pollution and reduce health risks from Port-related air emissions. Through the CAAP, the San Pedro Bay Ports have established uniform air quality standards for the San Pedro Bay Port Complex. On November 22, 2010, the harbor commissioners from the Ports of Los Angeles and Long Beach approved the 2010 Clean Air Action Plan Update (CAAP Update). The CAAP Update essentially replaced the original CAAP, although the areas of focus for emission reductions remain the same. The CAAP Update includes information on the ports' overall progress in implementing the original CAAP strategies, as well as updates based on changes in federal and state regulations. The most significant

addition to the CAAP Update is the San Pedro Bay Standards, which establish long-term goals for emissions and health-risk reductions for the ports. Also, the CAAP Update identifies milestone dates and forecasts potential emissions and reductions for the next five years, through the end of 2014. Finally, the CAAP Update is consistent with the Ports' pledge in the original CAAP that the plan would be updated periodically to make sure it remains current and forward-thinking. The San Pedro Bay Standards for 2014 include cutting port-related diesel particulate matter (DPM) emissions by 72 percent, NOx emissions by 22 percent, and SOx emissions by 93 percent below 2005 levels. By 2020, the San Pedro Bay Standards will reduce the population-weighted residential cancer risk of port-related DPM emissions by 85 percent in highly-impacted communities located near port sources. Finally, by 2023, the San Pedro Bay Standards require emission reductions of 77 percent for DPM, 59 percent for NOx, and 93 percent for SOx below 2005 levels.

The following list highlights some of the achievements that have been made as of the 2010 Update:

- Approximately 8,874 trucks in the Drayage Truck Registry (DTR) meet 2007 emission standards for both ports.
- 93 percent of truck trips are considered “clean” for both ports.
- There are approximately 853 natural gas fueled trucks in the DTR, nearly 8 percent of the container trips.
- Participation rates for the Clean Truck Program have exceeded the goals set forth in the original plan.
- As of August 2010, Port of Long Beach compliance with the Vessel Speed Reduction Incentive Program is 96 percent at 20 nautical miles and 74 percent at 40 nautical miles; Port of Los Angeles compliance is 91 percent at 20 nautical miles and 63 percent at 40 nautical miles.
- All diesel-powered Class 1 switcher and helper locomotives entering port facilities began using ultra-low sulfur diesel fuels after January 1, 2007.
- In 2008, 30 percent of cargo handling equipment (CHE) at the ports of Long Beach and Los Angeles were equipped with on-road engines which emit significantly less pollution compared to similar off-road engines.

Specific control measures directly relevant to the proposed Project are outlined below.

- Ocean Going Vehicles (OGV) Vessel Speed Reduction
- Reduction of At-Berth OGV Emissions
- OGV low sulfur fuel for auxiliary engines and auxiliary boilers
- OGV low sulfur fuel for main engines
- Cleaner OGV engines
- OGV engine emissions reduction technology improvements
- Performance standards for harbor craft
- Emissions inventory improvements

- Operational efficiency improvements initiatives

1.6.2.2 Water Resources Action Plan (WRAP)

Both the LAHD and Port of Long Beach face ongoing challenges from contaminants that remain in Port sediments, flow into the harbor from port land, and flow from upstream sources in the watershed, well beyond the ports' boundaries. Therefore, the ports undertook a collaborative, scientific effort to address existing and potential sources of water and sediment pollution. Building on the collaborative model developed by the CAAP, the Port Complex under the WRAP will continue to work together and with other stakeholders to achieve further progress in water and sediment quality improvement. The WRAP establishes a program of water quality improvement measures necessary to achieve the goals and targets that will be established by the Los Angeles RWQCB in upcoming regulations. The WRAP targets the four basic types of potential sources of pollutants to harbor waters (land use discharges, on-water discharges, sediments and watershed discharges) and includes control measures zeroing in on known and potential sources of water and sediment contamination in the harbor area.

Provisions of the WRAP applicable to the proposed Project include the following:

Clean Marinas Program. To help protect water and air quality in the Harbor, the Port is developing a Clean Marinas Program. The program advocates that marina operators and boaters use BMPs - environmentally friendly alternatives to some common boating activities that could cause pollution or contaminate the environment. The program also includes several innovative clean water measures unique to the Port. The Clean Marinas Program features voluntary components and measures required through Port leases, CEQA mitigation requirements, or established federal, state, and local regulations.

Water Quality Monitoring. The Port has been monitoring water quality at 31 established stations in San Pedro Bay since 1967, and the water quality today at the Port is among the best of any industrialized port in the world. Samples are tested on a monthly basis for dissolved oxygen (DO), biological oxygen demand (BOD), and temperature. Other observations are noted, such as odor and color, as well as the presence of oil, grease, and floating solids. The overall results of this long-term monitoring initiative show the tremendous improvement in harbor water quality that has occurred over the last four decades.

Cabrillo Beach Water Quality Improvements. The Port is one of the few industrial ports in the world that also has a swimming beach. Inner Cabrillo Beach provides still water for families with small children. However, bacteria in shoreline waters frequently exceed water quality standards. LAHD has invested several million dollars in water circulation/quality models and studies to investigate and remediate the problem. Recently, LAHD repaired storm drains and sewer lines in this area and replaced the beach sand as part of its commitment to make sure that Cabrillo Beach continues to be an important regional recreational asset.

1.6.2.3 Port of Los Angeles Sustainable Construction Guidelines

The Port of Los Angeles Sustainable Construction Guidelines was adopted in February 2008. The guidelines will be used to establish air emission criteria for inclusion in bid specifications for construction. The guidelines will reinforce and require sustainability

measures during performance of the contracts, balancing the need to protect the environment, be socially responsible, and provide for the economic development of the Port. Future resolutions are anticipated to expand the guidelines to cover other aspects of construction, as well as planning and design. These guidelines support the forthcoming Port Sustainability Program.

The intent of the Guidelines is to facilitate the integration of sustainable concepts and practices into all capital projects at the Port and to phase in the implementation of these procedures in a practical, yet aggressive, manner. These guidelines will be made a part of all construction specifications advertised for bids, and in the case of the proposed Project, made part of engineering permit conditions.

Significant features of these Guidelines include, but are not limited to:

- All ships and barges used primarily to deliver construction-related materials for LAHD construction contracts shall comply with the VSRP and use low-sulfur fuel within 40 nautical miles of Point Fermin.
- Harbor craft shall meet U.S. Environmental Protection Agency (USEPA) Tier-2 engine emission standards, and the requirement will be raised to USEPA Tier-3 engine emission standards by January 1, 2011.
- All dredging equipment shall be electric.
- On-road heavy-duty trucks shall comply with USEPA 2004 on-road emission standards for PM₁₀ and NO_x and shall be equipped with a California Air Resources Board (CARB)-verified Level 3 device. Emission standards will be raised to USEPA 2007 on-road emission standards for PM₁₀ and NO_x by January 1, 2012.
- Construction equipment (excluding on-road trucks, derrick barges, and harbor craft) shall meet Tier 2 emission off-road standards. The requirement will be raised to Tier 3 by January 1, 2012, and to Tier 4 by January 1, 2015. In addition, construction equipment shall be retrofitted with a CARB-certified Level 3 diesel emissions control device.
- Comply with South Coast Air Quality Management District (SCAQMD) Rule 403 regarding fugitive dust, and other fugitive dust control measures.
- Additional BMPs, based largely on Best Available Control Technology (BACT), will be required on construction equipment (including on-road trucks) to reduce air emissions further.

1.6.2.4 Other Environmental Programs

1.6.2.4.1 Air Quality

Greenhouse Gas Reduction. Under a December 2007 agreement with the Attorney General's office, the LAHD will conduct a comprehensive inventory of port-related greenhouse gas (GHG) emissions, tracking these emissions from their foreign sources to domestic distribution points throughout the United States. The LAHD will report this data annually to the California Climate Action Registry. The annual report will include emissions of all ships bound to and from the Port terminals, encompassing points of origin and destination; emissions of all rail transit to and from Port terminals, encompassing major rail cargo destination and distribution points in the United States;

and emissions of all truck transit to and from Port terminals, encompassing major truck destinations and distribution points. The Port-wide inventory will be conducted annually until Assembly Bill (AB) 32 regulations become effective.⁶ Under the agreement, the LAHD will also construct at the Port a 10-megawatt photovoltaic solar system to offset approximately 17,000 metric tons of carbon dioxide equivalent annually. In addition to the agreement with the Attorney General, many of the environmental programs described in this section such as the Green Terminal Program, the Recycling Program, the Green Ports Program, and all of the air quality improvement programs described above, will serve to reduce GHG emissions.

1.6.2.4.2 Habitat Management and Endangered Species

California Least Tern Site Management. Reproductive success is evident with the number of nesting pairs and fledglings increasing over the last decade. In recent years, the Port has had the second largest colony in the state, with more than 1,000 nests.

Interagency Biomitigation Team. As part the development of mitigation for the Deep-Draft Navigation Improvements, including the Pier 400 Landfill, the San Pedro Bay Port Complex helped establish an interagency mitigation team to evaluate and provide solutions for impacts of landfill and terminal construction on marine resources in the ports. The primary agencies involved include the USACE, the U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), and the CDFG. A number of mitigation agreements have been established through this coordination, and it continues to meet as necessary to address environmental issues associated with Port development and operations.

1.6.2.4.3 General Port Environmental Programs

Green Terminal Program. LAHD is developing a green terminal program that would be applied to the long-term development of Port container facilities. The program would embrace all aspects of terminal construction and operation and include guidance on a suite of environmental measures to minimize the effects of cargo handling on air, water, and land resources.

Channel Deepening. By deepening the main and ancillary channels, the Port can accommodate larger ships. Larger ships would result in fewer ship visits to bring in the same amount of goods, and fewer ships would result in fewer emissions.

Green Ports Program. LAHD and Shanghai have signed a historic agreement to share technology aimed at improving air quality, improving water quality, and mitigating environmental impacts on the operations of the ports.

Recycling. The LAHD incorporates a variety of innovative environmental ideas into the Ports construction projects. For example, when building an on-dock rail facility, the LAHD saved nearly \$1 million and thousands of cubic yards of landfill space by recycling existing asphalt pavement instead of purchasing new pavement. The LAHD

⁶ The California Global Warming Solutions Act of 2006, also known as AB 32, requires CARB to adopt regulations to require the reporting and verification of statewide GHG emissions and to monitor and enforce compliance with the program. In general, the bill requires CARB to reduce statewide GHG emissions to the equivalent of those in 1990 by 2020.

also maintains an annual contract to crush and recycle broken concrete and asphalt. In addition, the LAHD has successfully used recycled plastic products, such as fender piles and protective front-row piles, in many wharf construction projects.

1.6.3 Port of Los Angeles Leasing Policy

On February 1, 2006, the Harbor Commission approved a comprehensive Leasing Policy for the Port that not only establishes a formalized, transparent process for tenant selection but also includes environmental requirements as a provision in Port leases. As required by the Port of Los Angeles Leasing Policy Directive Number 2, leases are required to include applicable Port environmental requirements that include but are not limited to: air emission controls; water, stormwater and sediment quality, trash management and recycling, lighting and noise control and facility appearance, hazardous material management requirements, facility restoration and decommissioning requirements, and CEQA mitigation measures and reporting requirements. Additional tenants are required to develop and Environmental Facilities Plan and environmental training requirements.

Specific emission-reducing provisions contained in the Leasing Policy are:

- Compliance with the VSRP;
- Use of clean Alternative Maritime Power (AMP - or cold-ironing technology), plugging into shore-side electric power while at dock, where appropriate;
- Use of low sulfur fuel in main and auxiliary engines while sailing within the South Coast Air Basin boundaries;
- For all Cargo Handling Equipment purchases, adherence to one of the following performance standards:
 - Cleanest available NOx alternative-fueled engine, meeting 0.01 gram/brake horsepower-hour (g/bhp-hr) particulate matter (PM), available at time of purchase;
 - Cleanest available NOx diesel-fueled engine, meeting 0.01 g/chp-hr PM, available at time of purchase; or
 - If no engines meet 0.01 g/bhp-hr PM, then cleanest available engine (either fuel type) and installation of cleanest Verified Diesel Emissions Controls (more commonly known as VDEC) available; and
 - Use of clean low-emission truck within terminal facilities.

Tenants may propose alternative measures as long as they have equivalent emission reductions.

1.6.4 Port Community Advisory Committee

The Port Community Advisory Committee (PCAC) was established in 2001 as a standing committee of the Harbor Commission. The purposes of the PCAC are to:

- Assess the impacts of Port developments on the Harbor area communities and recommend suitable mitigation measures to the Harbor Commission for such impacts;

- Review past, present, and future environmental documents in an open public process and make recommendations to the Harbor Commission to ensure that impacts to the communities are mitigated appropriately in accordance with federal and California law; and
- Provide a public forum and make recommendations to the Harbor Commission to assist the LAHD in taking a leadership role in creating balanced communities in Wilmington, Harbor City, and San Pedro so that the quality of life is maintained and enhanced by the presence of the Port.

The role of the PCAC in Port environmental documents is described in Appendix B of the Draft EIR.

1.7 Changes to the Draft EIR

This section of the Final EIR discusses general changes and modifications that have been made to the Draft EIR. Actual changes to the text, organized by Draft EIR chapters and sections, can be found in Chapter 3, “Modifications to the Draft EIR,” of this Final EIR. The changes to the Draft EIR are primarily editorial in nature and have been made for the purpose of correcting and clarifying information contained within the Draft EIR based on comments received from the public.

Changes noted in Chapter 3 are identified by text strikeout and underline. These changes are referenced in Chapter 2, “Responses to Comments,” of this Final EIR, where applicable. The project description is presented above and summarized in the Executive Summary, incorporating the editorial changes noted in the Responses to Comments and other minor corrections.

The changes and clarifications presented in Chapter 3 were reviewed to determine whether or not they warranted recirculation of the Draft EIR prior to certification of the EIR according to Section 15088.5 (b) of the CEQA Guidelines. The changes would not result in any new significant environmental impacts or a substantial increase in the severity of an existing environmental effect. In response to public comments, changes and clarifications have been made throughout the Draft EIR.

This Final EIR provides the substantial evidence in the record to support the decision not to recirculate the Draft EIR. The above changes are consistent with the findings contained in the environmental impact categories in Chapter 3, “Environmental Analysis,” of the Draft EIR, as amended. There would be no new or increased significant effects on the environment due to the proposed project changes, and no new alternatives have been identified that would reduce significant effects of the proposed Project. Therefore, the Draft EIR does not need to be recirculated, and the EIR can be certified without additional public review, consistent with PRC Section 21092.1 and CEQA Guidelines Section 15088.5.

1.8 References

1.8.1 Printed References

LAHD. 2006. *Port of Los Angeles Real Estate Leasing Policy*. Available at http://www.portoflosangeles.org/Publications/POLA_Leasing_Policy_020106.pdf. Last accessed September 2011.

Regional Water Quality Control Board (RWQCB), Los Angeles Region. 2001. National Pollutant Discharge Elimination System Permit and Waste Discharge Requirements for Municipal Storm Water And Urban Runoff Discharges Within the County of Los Angeles, and the Incorporated Cities Therein, Except The City of Long Beach. Order No. 01-182, NPDES Permit No. CAS004001. December 13.

_____. 2007. National Pollutant Discharge Elimination System Permit and Waste Discharge Requirements for Al Larson Boat Shop. Order No. R4-2007-0030. NPDES Permit No. CA0061051.

Wiles C.C. and E. Barth. 1992. "Solidification/Stabilization: Is it Always Appropriate?" *Stabilization and Solidification of Hazardous, Radioactive, and Mixed Wastes*, 2nd Volume, ASTM STP 1123, T.M. Gilliam and C.C. Wiles, Eds. American Society for Testing and Materials, Philadelphia, pp. 18–32.

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Chapter 2

Response to Comments

2.1 Distribution of the Draft EIR

The Draft EIR prepared for the LAHD was distributed to the public and regulatory agencies on January 20, 2012, for a 45-day review period. Approximately 183 hard copies and CDs of the Draft EIR were distributed to various government agencies, organizations, individuals, and Port tenants. LAHD conducted a public hearing regarding the Draft EIR on February 15, 2012, to provide an overview of the proposed Project and alternatives and to accept public comments on the proposed Project, alternatives, and environmental document.

The Draft EIR was available for review at the following locations:

- Los Angeles Harbor Department, 425 South Palos Verdes Street, San Pedro, CA, 90731
- Los Angeles Public Library - Central Branch, 630 West 5th Street, Los Angeles, CA 90071
- Los Angeles Public Library - San Pedro Branch, 931 South Gaffey Street, San Pedro, CA 90731
- Los Angeles Public Library - Wilmington Branch, 1300 North Avalon, Wilmington, CA 90744

In addition to printed copies of the Draft EIR, electronic versions were made available. Due to the size of the document, the electronic versions have been prepared as a series of PDF files to facilitate downloading and printing. Members of the public can request a CD containing the EIR. The Draft EIR was available in its entirety on the LAHD web site at <http://www.portoflosangeles.org/environmental/publicnotice.htm>. Electronic copies of the Draft EIR on CD were available free of charge to interested parties.

2.2 Comments on the Draft EIR

The public comment and response component of the CEQA process serves an essential role. It allows the respective lead agencies to assess the impacts of a project based on the analysis of other responsible, concerned, or adjacent agencies and interested parties, and it provides an opportunity to amplify and better explain the analyses that the lead agencies have undertaken to determine the potential environmental impacts of a project. To that extent, responses to comments are intended to provide complete and thorough explanations to commenting agencies and individuals, and to improve the overall understanding of the Project for the decision-making bodies. The LAHD received seven

comment letters and two comments through the public hearing transcript on the Draft EIR during the public review period. Table 2-1 presents a list of those agencies, organizations, and individuals who commented on the Draft EIR.

Table 2-1: Public Comments Received on the Draft EIR

Letter Code	Date	Individual/Organization	Page
State Government			
NAHC	01/23/12	Native American Heritage Commission	2-3 to 2-9
DTSC	03/01/12	Department of Toxic Substances Control	2-10 to 2-19
Regional Government			
SCAQMD	03/02/12	South Coast Air Quality Management District	2-20 to 2-23
SCAG	02/28/12	Southern California Association of Governments	2-24 to 2-30
Local Government			
BOS	02/28/12	City of Los Angeles, Bureau of Sanitation, Wastewater Engineering Services Division	2-31 to 2-34
Organizations			
LAC	03/05/12	Los Angeles Conservancy	2-35 to 2-50
SPBHS	03/05/12	San Pedro Bay Historical Society	2-51 to 2-52
Draft EIR Public Hearing			
ALBSPH	02/15/12	Draft EIR Public Hearing Transcript	2-53 to 2-72

2.3 Responses to Comments

In accordance with CEQA (Guidelines Section 15088), the LAHD has evaluated the comments on environmental issues received from agencies and other interested parties and have prepared written responses to each comment pertinent to the adequacy of the environmental analyses contained in the Draft EIR. In implementing specific compliance with CEQA Guidelines Section 15088(b), the written responses address the environmental issues raised. In addition, where appropriate, the basis for incorporating or not incorporating specific suggestions into the proposed Project is provided. In each case, the LAHD has expended a good faith effort, supported by reasoned analysis, to respond to comments. This section includes responses not only to the written comments received during the 45-day public review period of the Draft EIR, but also verbal comments made at the public hearing for the Draft EIR. Some comments have prompted revisions to the text of the Draft EIR, which are referenced and shown in Chapter 3, Modifications to the Draft EIR. A copy of each comment letter is provided, and responses to each comment letter immediately follow.

NATIVE AMERICAN HERITAGE COMMISSION

915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
Web Site www.nahc.ca.gov
ds_nahc@pacbell.net



January 23, 2012

Mr. Dennis Hagner

City of Los Angeles Harbor Department

425 South Palos Verdes Street
San Pedro, CA 90731



Re: SCH#2010091041 CEQA Notice of Completion; draft Environmental Impact Report (DEIR) for the "Al Larson Boat Shop Improvmenet Project," located in the Harbor /San Pedro Area; Los Angeles County, California

Dear Mr. Hagner:

The Native American Heritage Commission (NAHC) is the State of California 'Trustee Agency' for the protection and preservation of Native American cultural resources pursuant to California Public Resources Code §21070 and affirmed by the Third Appellate Court in the case of EPIC v. Johnson (1985: 170 Cal App. 3rd 604). The court held that the NAHC has jurisdiction and special expertise, as a state agency, over affected Native American resources, impacted by proposed projects including archaeological, places of religious significance to Native Americans and burial sites. The NAHC wishes to comment on the proposed project.

This letter includes state and federal statutes relating to Native American historic properties of religious and cultural significance to American Indian tribes and interested Native American individuals as 'consulting parties' under both state and federal law. State law also addresses the freedom of Native American Religious Expression in Public Resources Code §5097.9.

The California Environmental Quality Act (CEQA – CA Public Resources Code 21000-21177, amendments effective 3/18/2010) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archaeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR) per the CEQA Guidelines defines a significant impact on the environment as 'a substantial, or potentially substantial, adverse change in any of physical conditions within an area affected by the proposed project, including ... objects of historic or aesthetic significance.' In order to comply with this provision, the lead agency is required to assess whether the project will have an adverse impact on these resources within the 'area of potential effect (APE), and if so, to mitigate that effect.

The NAHC Sacred Lands File (SLF) search resulted as follows: **Native American cultural resources were not identified** within the project area identified. This area is known to the NAHC to be very culturally sensitive. Also, the absence of archaeological resources does not preclude their existence. . California Public Resources Code §§5097.94 (a) and 5097.96 authorize the NAHC to establish a Sacred Land Inventory to record Native American sacred sites and burial sites. These records are exempt from the provisions of the California Public Records Act pursuant to. California Government Code §6254 (r). The purpose of this code is to protect such sites from vandalism, theft and destruction. The NAHC "Sacred Sites," as defined by the Native American Heritage Commission and the California Legislature in California Public

NAHC-1

Resources Code §§5097.94(a) and 5097.96. Items in the NAHC Sacred Lands Inventory are confidential and exempt from the Public Records Act pursuant to California Government Code §6254 (r).

NAHC-1
Cont'd

Early consultation with Native American tribes in your area is the best way to avoid unanticipated discoveries of cultural resources or burial sites once a project is underway. Culturally affiliated tribes and individuals may have knowledge of the religious and cultural significance of the historic properties in the project area (e.g. APE). We strongly urge that you make contact with the list of Native American Contacts on the list of Native American contacts, to see if your proposed project might impact Native American cultural resources and to obtain their recommendations concerning the proposed project. Special reference is made to the *Tribal Consultation* requirements of the California 2006 Senate Bill 1059: enabling legislation to the federal Energy Policy Act of 2005 (P.L. 109-58), mandates consultation with Native American tribes (both federally recognized and non federally recognized) where electrically transmission lines are proposed. This is codified in the California Public Resources Code, Chapter 4.3 and §25330 to Division 15.

NAHC-2

Furthermore, pursuant to CA Public Resources Code § 5097.95, the NAHC requests that the Native American consulting parties be provided pertinent project information. Consultation with Native American communities is also a matter of environmental justice as defined by California Government Code §65040.12(e). Pursuant to CA Public Resources Code §5097.95, the NAHC requests that pertinent project information be provided consulting tribal parties pursuant to CA Public Resources Code §5097.95. The NAHC recommends *avoidance* as defined by CEQA Guidelines §15370(a) to pursuing a project that would damage or destroy Native American cultural resources and Section 2183.2 that requires documentation, data recovery of cultural resources.

NAHC-3

Consultation with tribes and interested Native American consulting parties, on the NAHC list, if the project is under federal jurisdiction, should be conducted in compliance with the requirements of federal NEPA and Section 106 and 4(f) of federal NHPA (16 U.S.C. 470 *et seq*), 36 CFR Part 800.3 (f) (2) & .5, the President's Council on Environmental Quality (CSQ, 42 U.S.C 4371 *et seq.* and NAGPRA (25 U.S.C. 3001-3013) as appropriate. The 1992 *Secretary of the Interiors Standards for the Treatment of Historic Properties* were revised so that they could be applied to all historic resource types included in the National Register of Historic Places and including cultural landscapes. Also, federal Executive Orders Nos. 11593 (preservation of cultural environment), 13175 (coordination & consultation) and 13007 (Sacred Sites) are helpful, supportive guides for Section 106 consultation. The aforementioned Secretary of the Interior's *Standards* include recommendations for all 'lead agencies' to consider the historic context of proposed projects and to "research" the cultural landscape that might include the 'area of potential effect.'

NAHC-4

Confidentiality of "historic properties of religious and cultural significance" should also be considered as protected by California Government Code §6254(r) and may also be protected under Section 304 of the NHPA or at the Secretary of the Interior discretion if not eligible for listing on the National Register of Historic Places. The Secretary may also be advised by the federal Indian Religious Freedom Act (cf. 42 U.S.C., 1996) in issuing a decision on whether or not to disclose items of religious and/or cultural significance identified in or near the APEs and possibility threatened by proposed project activity.

NAHC-5

Furthermore, Public Resources Code Section 5097.98, California Government Code §27491 and Health & Safety Code Section 7050.5 provide for provisions for accidentally discovered archeological resources during construction and mandate the processes to be

NAHC-6

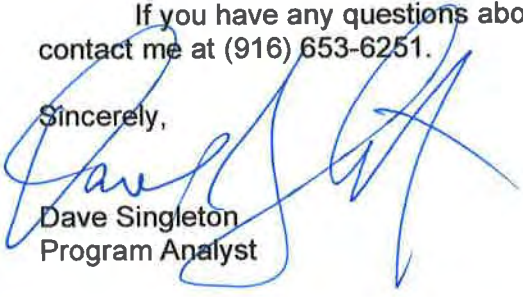
followed in the event of an accidental discovery of any human remains in a project location other than a 'dedicated cemetery'.

NAHC-6
Cont'd

To be effective, consultation on specific projects must be the result of an ongoing relationship between Native American tribes and lead agencies, project proponents and their contractors, in the opinion of the NAHC. Regarding tribal consultation, a relationship built around regular meetings and informal involvement with local tribes will lead to more qualitative consultation tribal input on specific projects.

If you have any questions about this response to your request, please do not hesitate to contact me at (916) 653-6251.

Sincerely,



Dave Singleton
Program Analyst

Cc: State Clearinghouse

Attachment: Native American Contact List

California Native American Contacts

Los Angeles County

January 23, 2012

LA City/County Native American Indian Comm
Ron Andrade, Director

3175 West 6th St, Rm. 403

Los Angeles , CA 90020

randrade@css.lacounty.gov

(213) 351-5324

(213) 386-3995 FAX

Ti'At Society/Inter-Tribal Council of Pimu

Cindi M. Alvitre, Chairwoman-Manisar

3098 Mace Avenue, Aapt. D Gabrielino

Costa Mesa, , CA 92626

calvitre@yahoo.com

(714) 504-2468 Cell

Tongva Ancestral Territorial Tribal Nation

John Tommy Rosas, Tribal Admin.

Private Address

Gabrielino Tongva

tattnlaw@gmail.com

310-570-6567

Gabrielino/Tongva San Gabriel Band of Mission
Anthony Morales, Chairperson

PO Box 693

Gabrielino Tongva

San Gabriel , CA 91778

GTTribalcouncil@aol.com

(626) 286-1632

(626) 286-1758 - Home

(626) 286-1262 -FAX

Gabrielino Tongva Nation

Sam Dunlap, Chairperson

P.O. Box 86908

Gabrielino Tongva

Los Angeles , CA 90086

samdunlap@earthlink.net

(909) 262-9351 - cell

Gabrielino Tongva Indians of California Tribal Council

Robert F. Dorame, Tribal Chair/Cultural Resources

P.O. Box 490

Gabrielino Tongva

Bellflower , CA 90707

gtongva@verizon.net

562-761-6417 - voice

562-761-6417- fax

Gabrielino-Tongva Tribe

Bernie Acuna

1875 Century Pk East #1500 Gabrielino

Los Angeles , CA 90067

(619) 294-6660-work

(310) 428-5690 - cell

(310) 587-0170 - FAX

bacuna1@gabrieinotribe.org

Gabrielino-Tongva Tribe

Linda Candelaria, Chairwoman

1875 Century Park East,

Suite 1500

Los Angeles , CA 90067

Gabrielino

lcandelaria1@gabrielinoTribe.org

626-676-1184- cell

(310) 587-0170 - FAX

760-904-6533-home

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is applicable for contacting local Native Americans with regard to cultural resources for the proposed SCH#2010091041; CEQA Notice of Completion; draft Environmental Impact Report (DEIR) for the Al Larson Boat Shop Improvement Project; located in the Harbor-San Pedro area; Los Angeles County, California.

California Native American Contacts
Los Angeles County
January 23, 2012

Gabrieleno Band of Mission Indians
Andrew Salas, Chairperson
P.O. Box 393 Gabirelino
Covina , CA 91723
(626) 926-4131
gabrielenoindians@yahoo.
com

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is applicable for contacting local Native Americans with regard to cultural resources for the proposed SCH#2010091041; CEQA Notice of Completion; draft Environmental Impact Report (DEIR) for the Al Larson Boat Shop Improvement Project; located in the Harbor-San Pedro area; Los Angeles County, California.

2.3.1 State Government

Native American Heritage Commission (NAHC)

Response to Comment NAHC-1

Thank you for your review and comment on the Draft EIR. As described in Section 3.4.2.4.2 and Appendix D of the Draft EIS/EIR, in October 2009, the Native American Heritage Commission (NAHC) was contacted to request a review of the Sacred Lands File and to obtain a list of Native American groups or individuals listed by the NAHC for Los Angeles County. Consultation under Section 106 of the National Historic Preservation Act was also initiated by the U.S. Army Corps of Engineers as the federal lead agency for compliance with the National Environmental Policy Act. A response was received from the NAHC on October 15, 2009, stating that the search failed to identify the presence of Native American sacred lands or traditional cultural properties within the Project's Area of Potential Effect (APE). Consultation letters to each of the nine NAHC-listed contacts were sent on November 16, 2009. Follow-up phone calls were made on December 16, 2009.

As stated in your response letter, the record search of the Sacred Lands file failed to indicate the presence of Native American cultural resources in the immediate Project area. As you noted, the absence of archaeological resources does not preclude their existence; therefore, as detailed in Section 3.4.4 of the Draft EIR, although the potential for impacts on unknown archaeological resources is remote, the following mitigation measure (**MM CUL-1**) is provided consistent with the guidance of California Code of Regulations, Title 14, Section 15064.5(f) and PRC Section 21083.2(i):

MM CUL-1: Archaeological and Ethnographic Resources

An archaeological monitor shall be present during all initial grading and excavation activities at the proposed Project site. In the event any cultural resources are encountered during earthmoving activities, the construction contractor shall cease activity in the affected area until the discovery can be evaluated by a qualified archaeologist in accordance with the provisions of CEQA Section 15064.5. The archaeologist shall complete any requirements for the mitigation of adverse effects on any resources determined to be significant and implement appropriate treatment measures. The treatment plan may include methods for: (1) subsurface testing after demolition of existing buildings, (2) data recovery of archaeological or ethnographic deposits, and (3) post-construction documentation. A detailed historic context that clearly demonstrates the themes under which any identified subsurface deposits would be determined significant would be included in the treatment plan, as well as anticipated artifact types, artifact analysis, report writing, repatriation of human remains and associated grave goods, and curation.

A preconstruction information and safety meeting shall be held to make construction personnel aware of archaeological monitoring procedures and the types of archaeological resources that might be encountered. All construction equipment operators shall attend a pre-construction meeting presented by a professional archaeologist retained by LAHD that shall review types of cultural resources and artifacts that would be considered potentially significant, to ensure operator recognition of these materials during construction.

Response to Comment NAHC-2

The 2009 letter received from the NAHC contained a list of nine Native American tribes and individual contacts for consulting on development projects. As detailed in Section 3.4.2.4.2 and Appendix D of the

Draft EIR, the consultation letters to each of the nine NAHC-listed contacts were sent on November 16, 2009. Follow-up phone calls were made on December 16, 2009. Four responses were received. Of those contacted, none provided information about known traditional cultural properties in the proposed Project area, but most suggested caution during ground disturbing activities during construction. In addition, mitigation measure **MM CUL-1** for the proposed Project (above), would provide a mechanism to ensure operator recognition of archaeological resources that might be encountered during construction and procedures to follow should these resources be encountered. In addition, an archaeological monitor shall be present during all initial grading and excavation activities at the proposed Project site.

Response to Comment NAHC-3

As described in Response to Comments NAHC-1 and NADC-2, and detailed in Appendix D of the Draft EIR, in October 2009, Native American coordination was initiated for the proposed Project in compliance with Section 106 of the National Historic Preservation Act. Letters were sent to the nine Native American contacts requesting information regarding potential cultural resources that may be located within the Project vicinity. The letters included pertinent project information, such as location maps and a description of the proposed Project and its related Area of Potential Effect. Follow-up phone calls and emails were sent in December 2009, and subsequent follow-ups via telephone or email, or both, were made as necessary. Of those contacted, none provided information about known traditional cultural properties in the proposed Project area, but most suggested caution during ground disturbing activities during construction. The results of the Native American coordination and the letters describing the proposed Project are in Attachment A of Appendix D of the Draft EIR. Regarding the recommendation of avoiding cultural resources, the comment is noted.

Response to Comment NAHC-4

Thank you for your comment. As described in Response to Comment NAHC-3 above, consultation with tribes and interested Native American consulting parties on the NAHC list has occurred in compliance with the National Environmental Policy Act and Section 106.

Response to Comment NAHC-5

The LAHD understands that the confidentiality of “historic properties of religious and cultural significance” should be considered. Thank you for your comment.

Response to Comment NAHC-6

Thank you for your comment. As detailed in Response to Comment NAHC-1 above, the proposed Project includes a mitigation measure (**MM CUL-1**) that provides for the accidental discovery of archaeological resources during construction (i.e., surface disturbing activities).



Department of Toxic Substances Control



Matthew Rodriguez
Secretary for
Environmental Protection

Deborah O. Raphael, Director
5796 Corporate Avenue
Cypress, California 90630

Edmund G. Brown Jr.
Governor

March 1, 2012

Mr. Christopher Cannon
Port of Los Angeles
425 South Palos Verdes Street
San Pedro, California 90731



DRAFT ENVIRONMENTAL IMPACT REPORT (EIR) FOR AL LARSON BOAT SHOP IMPROVEMENT PROJECT (SCH# 2010091041)

Dear Mr. Cannon:

The Department of Toxic Substances Control (DTSC) has received your draft Environmental Impact Report for the above-mentioned project. The following project description is stated in your document: "The proposed project involves redeveloping the existing Al Larson Boat Shop to modernize the facility and to improve its ability to build and repair ships and vessels. Improvements would include maintenance dredging to ensure adequate vessel access to the site, beneficially reuse dredged material by constructing two confined disposal facilities which would result in 1 acre of new land for increased vessel maintenance and repair demolition of some existing buildings, and construction of new office building, constructing new wharves, and installing a new travel lift boat hoist. In addition, the proposed project would improve the site runoff and remediate historical sediment and soil contamination".

DTSC sent you comments on the Notice of Preparation Report for the above-mentioned project on 10/14/2010, which should be addressed. Based on the review of the submitted document DTSC has no further comments.

DTSC-1

If you have any questions regarding this letter, please contact me at ashami@dtsc.ca.gov, or by phone at (714) 484-5472.

Sincerely,

Al Shami
Project Manager
Brownfields and Environmental Restoration Program

Mr. Christopher Cannon
March 1, 2012
Page 2

cc: Governor's Office of Planning and Research
State Clearinghouse
P.O. Box 3044
Sacramento, California 95812-3044
state.clearinghouse@opr.ca.gov

CEQA Tracking Center
Department of Toxic Substances Control
Office of Environmental Planning and Analysis
P.O. Box 806
Sacramento, California 95812
nritter@dtsc.ca.gov

CEQA # 3461



Linda S. Adams
Secretary for
Environmental Protection



Department of Toxic Substances Control

Maziar Movassaghi
Acting Director
5796 Corporate Avenue
Cypress, California 90630



Arnold Schwarzenegger
Governor



October 14, 2010

Ms. Dennis Hagner
Port of Los Angeles
425 South Palos Verdes Street
San Pedro, California 90731

NOTICE OF PREPARATION (NOP) FOR AL LARSON BOAT SHOP IMPROVEMENT PROJECT (SCH# 2010091041)

Dear Ms. Hagner:

The Department of Toxic Substances Control (DTSC) has received your submitted Notice of Preparation of the Environmental Impact Report for the above-mentioned project. The following project description is stated in your document: "The proposed project involves redeveloping the existing Al Larson Boat Shop to modernize the facility and to improve its ability to build and repair ships and vessels. Improvements would include maintenance dredging to ensure adequate vessel access to the site, beneficially reuse dredged material by constructing two confined disposal facilities which would result in 1 acre of new land for increased vessel maintenance and repair demolition of some existing buildings, and construction of new office building, constructing new wharves, and installing a new travel lift boat hoist. In addition, the proposed project would improve the site runoff and remediate historical sediment and soil contamination".

Based on the review of the submitted document DTSC has the following comments:

- 1) The EIR should evaluate whether conditions within the project area may pose a threat to human health or the environment. Following are the databases of some of the regulatory agencies:
 - National Priorities List (NPL): A list maintained by the United States Environmental Protection Agency (U.S.EPA).

DTSC-1a

• Envirostor (formerly CalSites): A Database primarily used by the California Department of Toxic Substances Control, accessible through DTSC's website (see below). • Resource Conservation and Recovery Information System (RCRIS): A database of RCRA facilities that is maintained by U.S. EPA. • Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS): A database of CERCLA sites that is maintained by U.S.EPA. • Solid Waste Information System (SWIS): A database provided by the California Integrated Waste Management Board which consists of both open as well as closed and inactive solid waste disposal facilities and transfer stations. • GeoTracker: A List that is maintained by Regional Water Quality Control Boards. • Local Counties and Cities maintain lists for hazardous substances cleanup sites and leaking underground storage tanks. • The United States Army Corps of Engineers, 911 Wilshire Boulevard, Los Angeles, California, 90017, (213) 452-3908, maintains a list of Formerly Used Defense Sites (FUDS).	DTSC-1a cont'd
2) The EIR should identify the mechanism to initiate any required investigation and/or remediation for any site that may be contaminated, and the government agency to provide appropriate regulatory oversight. If necessary, DTSC would require an oversight agreement in order to review such documents.	DTSC-1b
3) Any environmental investigations, sampling and/or remediation for a site should be conducted under a Workplan approved and overseen by a regulatory agency that has jurisdiction to oversee hazardous substance cleanup. The findings of any investigations, including any Phase I or II Environmental Site Assessment Investigations should be summarized in the document. All sampling results in which hazardous substances were found above regulatory standards should be clearly summarized in a table. All closure, certification or remediation approval reports by regulatory agencies should be included in the EIR.	DTSC-1c

5)	If buildings, other structures, asphalt or concrete-paved surface areas are being planned to be demolished, an investigation should also be conducted for the presence of other hazardous chemicals, mercury, and asbestos containing materials (ACMs). If other hazardous chemicals, lead-based paints (LPB) or products, mercury or ACMs are identified, proper precautions should be taken during demolition activities. Additionally, the contaminants should be remediated in compliance with California environmental regulations and policies.	DTSC-1d
6)	Future project construction may require soil excavation or filling in certain areas. Sampling may be required. If soil is contaminated, it must be properly disposed and not simply placed in another location onsite. Land Disposal Restrictions (LDRs) may be applicable to such soils. Also, if the project proposes to import soil to backfill the areas excavated, sampling should be conducted to ensure that the imported soil is free of contamination.	DTSC-1e
7)	Human health and the environment of sensitive receptors should be protected during any construction or demolition activities. If necessary, a health risk assessment overseen and approved by the appropriate government agency should be conducted by a qualified health risk assessor to determine if there are, have been, or will be, any releases of hazardous materials that may pose a risk to human health or the environment.	DTSC-1f
8)	If it is determined that hazardous wastes are, or will be, generated by the proposed operations, the wastes must be managed in accordance with the California Hazardous Waste Control Law (California Health and Safety Code, Division 20, Chapter 6.5) and the Hazardous Waste Control Regulations (California Code of Regulations, Title 22, Division 4.5). If it is determined that hazardous wastes will be generated, the facility should also obtain a United States Environmental Protection Agency Identification Number by contacting (800) 618-6942. Certain hazardous waste treatment processes or hazardous materials, handling, storage or uses may require authorization from the local Certified Unified Program Agency (CUPA). Information about the requirement for authorization can be obtained by contacting your local CUPA.	DTSC-1g
9)	DTSC can provide cleanup oversight through an Environmental Oversight Agreement (EOA) for government agencies that are not responsible parties, or a Voluntary Cleanup Agreement (VCA) for private parties. For additional information on the EOA or VCA, please see www.dtsc.ca.gov/SiteCleanup/Brownfields , or contact Ms. Maryam Tasnif-Abbasi, DTSC's Voluntary Cleanup Coordinator, at (714) 484-5489.	DTSC-1h

Ms. Dennis Hagner
October 14, 2010
Page 4

If you have any questions regarding this letter, please contact me at ashami@dtsc.ca.gov or by phone at (714) 484-5472.

Sincerely,



Al Shami
Project Manager
Brownfields and Environmental Restoration Program

cc: Governor's Office of Planning and Research
State Clearinghouse
P.O. Box 3044
Sacramento, California 95812-3044
state.clearinghouse@opr.ca.gov

CEQA Tracking Center
Department of Toxic Substances Control
Office of Environmental Planning and Analysis
P.O. Box 806
Sacramento, California 95812
ADelacr1@dtsc.ca.gov

CEQA # 3023

California Department of Toxic Substances Control (DTSC)

Response to Comment DTSC-1

Thank you for your comment on the Draft EIR. As stated in your letter, the LAHD did receive your October 14, 2010 comment letter on the Notice of Preparation (NOP) for the proposed Project. Following is a response to the items listed in your NOP comment letter (DTSC-1a through DTSC-1h):

Response to Comment DTSC-1a

Your NOP comment letter listed several databases that could provide information for the EIR to evaluate whether conditions within the Project area may pose a threat to human health and the environment. Section 3.7.2.2 and Appendix E of the Draft EIR includes the results of the database search conducted by Environmental Data Resources Inc. (EDR) for the Project site and vicinity. The EDR search included approximately 15 standard and 38 additional environmental records associated with federal, state and local databases, including the National Priority List (NPL), Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS), two Resource Conservation and Recovery Act (RCRA) databases, the Cortese list (the DTSC compiled list pursuant to Government Code Section 65962.5), and Formerly Used Defense Sites (FUDS) database. The Solid Waste Information System (SWIS) database is a database that the EDR reviews as part of its records search. No information from the SWIS database was included in the EDR; therefore, no information must have been available or it was not applicable for the proposed Project site or vicinity. In addition, as noted in Section 3.6.2.1 of the Draft EIR, GeoTracker was consulted and provided information on the number and location of groundwater monitoring wells at the adjacent ExxonMobil site.

As described in Section 3.6.4.3 of the Draft EIR, as part of the proposed Project, all contaminated soil or groundwater encountered during construction would be handled, transported, remediated, and/or disposed of in accordance with all applicable federal, state, and local laws and regulations and in accordance with the regulatory lead agency (e.g., DTSC, Los Angeles RWQCB) and following conditions under LAHD leasing requirements (i.e., lease measures - LMs):

Site Remediation Lease Requirement (LM GW-1). Unless otherwise authorized by the lead regulatory agency and the LAHD for any given site, the Tenant (i.e., ALBS) shall address all contaminated soils within proposed Project boundaries discovered during demolition and grading activities. Contamination existing at the time of discovery shall be the responsibility of the past and/or current property owner. Contamination as a result of the construction process shall be the responsibility of the Tenant and/or Tenant contractors. Remediation shall occur in compliance with local, state, and federal regulations, as described in Section 3.6.3 (above) and Section 3.7.3 (in Section 3.7, Hazards and Hazardous Materials), and as directed by the lead regulatory agency for the site (such as the Los Angeles RWQCB or DTSC).

Soil removal shall be completed such that remaining contamination levels are below risk-based health screening levels for industrial sites established by OEHHA and site specific cleanup goals established by the lead regulatory agency overseeing the implementation of the RAP at the site. Soil contamination waivers may be acceptable as a result of encapsulation (i.e., paving) and/or risk-based soil assessments for industrial sites, but are subject to the review and approval of the lead regulatory agency and LAHD. Excavated contaminated soil shall be properly disposed of off-site unless use of such material on-site is beneficial to construction and approved by the agency overseeing the environmental investigation and implementation of the RAP. All imported soil to be used as backfill in excavated areas shall be sampled to ensure that it is suitable for use as backfill and is free of contamination.

Contamination Contingency Plan Lease Requirement (LM GW-2). The following contingency plan shall be implemented to address contamination discovered during demolition, grading, and construction.

- a) All trench excavation and filling operations shall be observed for the presence of free petroleum products, chemicals, or contaminated soil. Soil suspected of contamination shall be segregated from other soil. In the event soil suspected of contamination is encountered during construction, the contractor shall notify the LAHD's environmental representative. The LAHD shall confirm the presence of the suspect material and direct the contractor to remove, stockpile or contain, and characterize the suspect material. Continued work at a contaminated site shall require the approval of the LAHD Project Engineer.
- b) Excavation of VOC-impacted soil may require obtaining and complying with a South Coast Air Quality Management District Rule 1166 permit.
- c) The remedial option(s) selected shall be dependent upon a suite of criteria (including but not limited to types of chemical constituents, concentration of the chemicals, health and safety issues, time constraints, cost, etc.) and shall be determined on a site-specific basis. Both off-site and on-site remedial options may be evaluated.
- d) The extent of removal actions shall be determined on a site-specific basis. At a minimum, the impacted area(s) within the boundaries of the construction area shall be remediated to the satisfaction of the LAHD and the lead regulatory agency for the site. The LAHD Project Manager overseeing removal actions shall inform the contractor when the removal action is complete.
- e) Copies of hazardous waste manifests or other documents indicating the amount, nature, and disposition of such materials shall be submitted to the LAHD Project Manager within 60 days of project completion.
- f) In the event that contaminated soil is encountered, all on-site personnel handling or working in the vicinity of the contaminated material must be trained in accordance with USEPA and Occupational Safety and Health and Administration (OSHA) regulations for hazardous waste operations or demonstrate they have completed the appropriate training. Training must provide protective measures and practices to reduce or eliminate hazardous materials/waste hazards at the work place.
- g) When impacted soil must be excavated, air monitoring will be conducted as appropriate for related emissions adjacent to the excavation.
- h) All excavations shall be backfilled with structurally suitable fill material that is free from contamination.

With compliance with regulations and lease requirements, construction and operation of the proposed Project would not result in the expansion of contaminated soils and would not cause significant impacts.

Response to Comment DTSC-1b

Sections 3.6 and 3.7 of the Draft EIR identify the applicable soil and groundwater contamination and hazardous materials regulations associated with the proposed Project. In addition, Section 3.6 of the Draft EIR includes two lease measures that will be required in the lease to address the mechanisms to initiate remediation and oversight if contamination is present (refer to Response to Comment DTSC-1a above for detailed description of the lease measure). As described in Section 3.6.4.3 of the Draft EIR, during proposed Project construction, if potentially hazardous materials are found, any remediation would be performed in accordance with applicable federal, state and local laws, regulations, and rules.

In addition, LM GW-1 specifically requires the handling, treatment, and disposal of contaminated material in accordance with oversight agency requirements, including but not limited to the Regional Water Quality Control Board, Department of Toxic Substances Control, and the Office of Environmental Health Hazard Assessment.

Response to Comment DTSC-1c

Section 3.6.2.3 and Section 3.7.2.3 of the Draft EIR summarize the numerous existing soil and groundwater investigations associated with the Project site and vicinity. In addition, should contamination be discovered during construction, remediation would be performed in accordance with applicable federal, state and local laws, regulations, and rules. In addition, lease measure LM GW-2 would reduce potential impacts (refer to Response to Comments DTSC-1 above for detailed description of the lease measure). It should be noted that an approved workplan, if applicable, is inherent in the remediation requirements contained in the regulations and LM GW-2.

Response to Comment DTSC-1d

As detailed in Section 3.7.4.3 of the Draft EIR, the proposed Project includes demolition of buildings and structures that may contain regulated building materials including asbestos-containing materials (ACMs)/asbestos-containing building materials (ACBMs), lead-based paint (LBPs), PCBs, and other chemicals. In addition, it has also been documented that there are total petroleum hydrocarbon, diesel range organics, and lead-contaminated soils in the northern portion of the Project site. However, these regulated materials and chemicals would be managed either prior to demolition or construction or otherwise abated during construction. Demolition of buildings would be completed in compliance with all standards and regulations discussed in Section 3.7.3 of the Draft EIR, including the Emergency Planning and Community Right-to-Know Act, the Los Angeles Fire Department regulations, your organization (DTSC), South Coast Air Quality Management District, and other state and federal regulations and guidelines) governing the demolition, remediation of hazardous materials, and release of air contaminants during demolition activities. Additionally, the proposed Project includes demolition which would include remediation efforts to remove or contain the known ACMs/ACBMs in the office area, remediation of the contaminated soil within Project site (particularly in the northern portion of the site) and the spent sandblast grit near the marine railways (refer to Section 3.7.2.4 of the Draft EIR), and any other suspected hazardous contamination at the site (i.e., soil, groundwater, building materials). Demolition activities would be carried out in accordance with federal, state, and local regulations regarding management of hazardous wastes, including South Coast Air Quality Management District Rule 1403, Title 40, Code of Federal Regulations (CFR), Title 49, CFR, and California Health and Safety Code Division 20, Chapter 6.5, which govern the removal, transport, and disposal of hazardous wastes to minimize health and environmental impacts. Known or suspected contaminated substances in structures and soil would be removed in accordance with federal, state, and local regulations prior to demolition, thereby minimizing the exposure of construction workers to contaminants, and minimizing the potential for releases of such substances to the environment. Other than for site remediation, subsurface excavations would be limited to creating foundational supports for building and other weight-bearing components of the proposed Project, thereby minimizing the chance that construction personnel would be exposed to on-site soil contamination.

Response to Comment DTSC-1e

As detailed in Section 3.6.4.3 of the Draft EIR, although significant impacts related to the potential for exposure to underlying contaminants would not occur, lease measures LM GW-1 and LM GW-2 would further reduce potential impacts (refer to Response to Comment DTSC-1a above for detailed description of the lease measures).

Response to Comment DTSC-1f

As discussed in Section 3.7, Hazards and Hazardous Materials, before demolition of structures, any hazardous materials will be abated in accordance with federal, state, and local regulations. All contaminated upland soils would be characterized and remediated under the oversight of a regulatory agency (e.g. RWQCB or DTSC) and in compliance with all federal, state, and local regulations.

Further, construction and demolition activities would comply with standard procedures that exist for protecting workers from exposure to chemicals of potential concern. For example, OSHA and local regulatory agencies (e.g., SCAQMD and fire departments) mandate controls to limit exposure to workers and the public, including:

- Use of warning signs and containment areas
- Worker training
- Implementation of work plans and health and safety plans
- Reduction of dust emissions through the use of wet methods
- Use of personal protective equipment by workers

In addition, lease measure LM GW-2: Contamination Contingency Plan Lease Requirement (detailed in Section 3.6.4.3 of the Draft EIR and provided in Response to Comment DTSC-1a above) includes provisions (“f” and “g”) that in the event that contaminated soil is encountered, all on-site personnel handling or working in the vicinity of the contaminated material must be trained in accordance with USEPA and OSHA regulations for hazardous waste operations or demonstrate they have completed the appropriate training. Training must provide protective measures and practices to reduce or eliminate hazardous materials/waste hazards at the work place. When impacted soil must be excavated, air monitoring will be conducted as appropriate for related emissions adjacent to the excavation.

Response to Comment DTSC-1g

As detailed in Section 3.7.1.1 of the Draft EIR (and specifically in Table 3.7-2), the proposed Project site uses and stores small amounts of hazardous material and/or hazardous wastes. Section 3.7.3.1 of the Draft EIR describes in detail the regulations applicable to the proposed Project or alternatives that are designed to regulate hazardous materials and hazardous wastes. These regulations also are designed to limit the risk of upset during the use, transport, handling, storage, and disposal of hazardous materials. Regulations described in the Draft EIR include California Hazardous Waste Control Law (California Health and Safety Code, Division 20, Chapter 6.5), the Hazardous Waste Control Regulations (California Code of Regulations, Title 22, Division 4.5), as well as the requirements associated with the local Certified Unified Program Agency (CUPA).

Response to Comment DTSC-1h

Thank you for your comment and information regarding clean-up oversight by DTSC.



South Coast Air Quality Management District

21865 Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 • www.aqmd.gov

E-MAILED: March 2, 2012

March 2, 2012

Mr. Christopher Cannon, Director
Environmental Management Division
ceqacomment@portla.org
Port of Los Angeles
425 South Palos Verdes Street
San Pedro, CA 90731

Draft Environmental Impact Report (Draft EIR) for the Proposed Al Larson Boat Shop Improvement Project

The South Coast Air Quality Management District (AQMD) staff appreciates the opportunity to comment on the above-mentioned document. The following comments are meant as guidance for the Lead Agency and should be incorporated into the Final CEQA document.

In the project description, the lead agency proposes improvements that would redevelop the existing facility to modernize and upgrade the existing boat shop to increase the existing annual operational output from 130 to 304 boats refinished per year. Construction would include demolition of existing structures, excavation, dredging, and the re-use of contaminated dredged material from the site to create approximately 0.9 acres of new land at the site in two newly constructed engineered landfills. Contaminated soils would be removed, disposed off-site, and clean soil would be imported. Further construction would include a new 2,400 square foot office building, paving, utility lighting, a new storm drain system and other upgrades. The construction would begin in 2012 and would occur over a three year period. The business would continue to operate during the proposed construction schedule.

Permitting

Based on the lead agency's air quality emission estimates, the AQMD staff notes that the coating air quality emission impacts resulting from the level of projected coating operations would subject the proposed operations to SCAQMD permit review. This review may include requirements under SCAQMD Regulation XIII (New Source Review), Rule 1401 (New Source Review of Toxic Air Contaminants) and Title V permits. The AQMD engineering and compliance staff should be contacted to address these permitting requirements. Questions concerning permit requirements can be directed to AQMD staff at (909) 396-2504.

SCAQMD-1

VOC's During Operations

The Draft EIR describes the emissions reported in Tables 3.2-4 and 3.2-16 as peak daily emissions. However, the baseline emission calculations assume average daily levels using Annual Emission Reports, and project emissions simply scale up these levels using the ratio of annual ship visits with and without the project. In other words, it appears that the lead agency assumed that the emissions increase occurs uniformly throughout the year such that there is no difference between an average day and a peak day. Incremental unmitigated VOC emissions are projected to be 54 pounds per day (lbs/day) (Table 3.2-16), just below AQMD's threshold of significance of 55 lbs/day. If operational activities (like coatings) vary day by day, the peak daily emissions may exceed the average 54 lbs/day calculated in the Draft EIR. The lead agency should either recalculate VOC impacts using a peak daily analysis, or it should place limits on the project stating that it cannot exceed the emissions specified in the Draft EIR.

SCAQMD-2

Health Risk Assessment

In the lead agency's health risk assessment (HRA), it appears that the HRA determined potential health risks by conservatively assuming that construction would occur over a 70 year period. It is unclear, however, how the operational emissions (including at least 54 pounds per day of VOC's) were incorporated into the HRA, if at all. Further clarification should be provided in the Final CEQA document regarding the impact of operational emissions on the potential health risk. If these operational emissions result in a significant health risk during operations (beyond the short term construction health risk described in the Draft EIR), they should be disclosed and mitigated to the maximum extent feasible.

SCAQMD-3

Pursuant to Public Resources Code Section 21092.5, please provide the AQMD with written responses to all comments contained herein prior to the adoption of the Final Environmental Impact Report. Please contact Gordon Mize, Air Quality Specialist – CEQA Section, at (909) 396-3302, if you have any questions regarding these comments.

SCAQMD-4

Sincerely,



Ian MacMillan
Program Supervisor, Inter-Governmental Review
Planning, Rule Development & Area Sources

IM:GM

LAC120124-02
Control Number

2.3.2 Regional Government

South Coast Air Quality Management District (SCAQMD)

Response to Comment SCAQMD-1

As described in Chapter 1 (Section 1.4) and Section 3.2.3.3 of the Draft EIR, the analysis for the proposed Project noted that operations include abrasive blasting and vessel coating operations which are regulated by SCAQMD Rule 301 (Permitting and Associated Fees), Rule 1140 (Abrasive Blasting) and Rule 1106 and 1106.1 (Marine Coating Operations and Pleasure Craft Coating Operations). Any changes to the facilities operational permits are the responsibility of the tenant and will be addressed by ALBS with SCAQMD when or if applicable.

Response to Comment SCAQMD-2

The comment suggests that the change in peak daily emissions may be underestimated by using a yearly amortization of emissions, and that if the growth rate assumed in the analysis were applied to existing peak daily emission rates, the incremental VOC emissions would exceed the significance threshold. The commenter recommended calculating a daily peak or establishing a daily cap on VOC emissions from coating activity.

Review of the permit documentation on file with ALBS revealed the analysis overestimated VOC emissions by using the gross amounts from the Annual Emission Reports rather than net emissions. VOC emissions from coating operations were developed from gross coating emissions contained in the Annual Emission Inventory reports provided to SCAQMD. The net coating emissions would produce a lower incremental increase than the gross coating emissions because net emissions reported include a credit for a recycling program that ALBS participates in with SCAQMD (as shown in the Project site's annual emission reports). Using the most recent two years of net coating emissions, and applying the same calculation methodology used in the Draft EIR, would produce a project incremental increase of 35 lbs of VOC/day from coating operations. When this result is added to other activity VOC increments, the proposed Project peak daily VOC increment would be 45 lbs/day – noticeably less than the SCAQMD daily threshold of 55 lbs/day for VOC emissions.

We found that the amortization method used in the Draft EIR is more conservative than that suggested by the SCAQMD. If the non-significant increase of 55 lbs/day is added to the baseline maximum daily VOC emission of 802 lbs/day, 857 lbs/day could be released over the 260 day work year by the ALBS operation without triggering a significant impact. If the yearly net average is amortized over 260 workdays and the non-significant increase of 55 lbs/day is added, 81.5 lbs/day results. The 81.5 lbs/day is a much lower significance threshold. Using amortization, the yearly amount of non-significant VOC emissions is 10 times less than the SCAQMD approach of using maximum daily emissions.

Coating activity is a small percentage of the work done at ALBS, and is not a daily occurrence. A review of the 2009 and 2010 coating logs indicates that coating/painting only occurred on approximately 50 days per year (less than 20 percent of the work days). This level of coating days per year continued through 2011 according to the logs. Because coating activity currently occurs over so few days during the year and due to the fixed number of spray equipment the future coating activity per day is not expected to increase substantially, rather the number of days with coating activity will increase.

Currently a number of vessels based within the San Pedro Bay Ports (i.e., the Ports of Los Angeles and Long Beach) go to San Diego or to the north for repairs and maintenance because existing repair facilities

1 in the San Pedro Bay Harbor Complex, such as ALBS, do not have enough capacity to meet the demand
2 in a timely manner. The project would reduce the number of vessels traveling to other ports, and the
3 vessel emission reductions associated with these eliminated trips have not been included in the
4 calculations.

5 Finally, the ALBS VOC emissions from coating are subject to an existing SCAQMD permit, and the
6 VOC limits in that permit cannot be exceeded. In issuing ALBS' permit for non-mobile spray equipment,
7 SCAQMD recognized the episodic nature of painting activity choosing to set monthly limits on VOC
8 emission rather than daily limits.

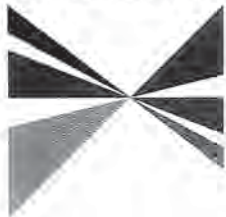
9 **Response to Comment SCAQMD-3**

10 In reviewing the construction emission inputs to the HRA it was determined that toxic air contaminant
11 (TAC) emission rates in pounds per hour (lbs/hr) were treated as tons per year (tpy) when incorporated
12 into HARP. Thus, the long-term TAC construction emissions in HARP were overestimated by a factor of
13 approximately 24 when compared to the actual annual emission estimates. In addition, several of the
14 peak daily TAC emissions (lbs/day) were incorrectly reported as lbs/hr, also overestimating short-term
15 TAC emissions for several sources. Therefore, the construction HARP results in the Draft EIR grossly
16 overestimated risk results for cancer and chronic non-cancer risks, and also overestimated the
17 construction acute risks.

18
19 The operational emissions had been initially screened out using the SCAQMD's Tier 2 risk assessment
20 spreadsheet model; therefore, were not included in the HARP runs conducted for the Draft EIR. The
21 HARP analysis has been revised in the Final EIR (refer to Chapter 3, Modifications to the Draft EIR, of
22 the Final EIR) to reflect the correction of construction TAC emissions to appropriate units and to include
23 inclusion of operational TAC emissions. The revised results with combined construction and operational
24 TAC emissions indicate that health risks for cancer and chronic non-cancer impacts will be less than the
25 appropriate thresholds for all receptor types. The construction acute risks remain significant, although
26 less than previously reported. Acute risks associated with operations are less than significant.

27 **Response to Comment SCAQMD-4**

28 In regards to notification, the LAHD will notify SCAQMD (and all commenter's to the Draft EIR) no less
29 than 10 calendar days prior to the Board of Harbor Commissioners hearing for the proposed Project.
30


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February 28, 2012

Mr. Christopher Cannon
425 S. Palos Verdes Street
San Pedro, CA 90733
ceqacomment@portla.org

RE: SCAG Comments on the Draft Environmental Impact Report for the Al Larson Boat Shop Improvement Project [I20120035]

Dear Mr. Cannon:

Thank you for submitting the **Draft Environmental Impact Report for the Al Larson Boat Shop Improvement Project [I20120035]** to the Southern California Association of Governments (SCAG) for review and comment. SCAG is the authorized regional agency for Inter-Governmental Review of Programs proposed for federal financial assistance and direct development activities, pursuant to Presidential Executive Order 12372 (replacing A-95 Review). Additionally, pursuant to Public Resources Code Section 21083(d) SCAG reviews Environmental Impacts Reports of projects of regional significance for consistency with regional plans per the California Environmental Quality Act (CEQA) Guidelines, Sections 15125(d) and 15206(a)(1). SCAG is also the designated Regional Transportation Planning Agency and as such is responsible for both preparation of the Regional Transportation Plan (RTP) and Federal Transportation Improvement Program (FTIP) under California Government Code Section 65080 and 65082. As the clearinghouse for regionally significant projects per Executive Order 12372, SCAG reviews the consistency of local plans, projects, and programs with regional plans. This activity is based on SCAG's responsibilities as a regional planning organization pursuant to state and federal laws and regulations. Guidance provided by these reviews is intended to assist local agencies and project sponsors to take actions that contribute to the attainment of regional goals and policies.

SCAG staff has reviewed this project and determined that the proposed project is regionally significant per California Environmental Quality Act Guidelines, Sections 15125 and/or 15206. The purpose of the proposed project is to improve, redevelop, modernize and upgrade the existing Al Larson Boat Shop (ALBS) located within the Port of Los Angeles.

We have evaluated this project based on the policies of SCAG's Regional Transportation Plan (RTP) and Compass Growth Vision Principles that may be applicable to your project. The RTP and Compass Growth Visioning Principles can be found on the SCAG web site at: <http://scag.ca.gov/igr>. The attached detailed comments are meant to provide guidance for considering the proposed project within the context of our regional goals and policies. We also encourage the use of the SCAG List of Mitigation Measures extracted from the RTP to aid with demonstrating consistency with regional plans and policies. Please send a copy of the Final Environmental Impact Report (FEIR) ONLY to SCAG's main office in Los Angeles for our review. If you have any questions regarding the attached comments, please contact Pamela Lee at (213) 236-1895. Thank you.

Sincerely,

JACOB LIEB, Manager
Environmental and Assessment Services

**COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE AL
LARSON BOAT SHOP IMPROVEMENT PROJECT [I20120035]**

PROJECT LOCATION

The project site is located at 1046 Seaside Avenue (Berth 258) on Terminal Island, within an industrial area in the Fish Harbor region of the Port. The ExxonMobil terminal and Southern California Ship Services are to the northwest, fisheries and canning facilities to the north (across Fish Harbor) with the ExxonMobil/General Petroleum facility (a fuel depot) along the northern project site boundary. Fish Harbors is to the east, the Southwest Marine Administration Building and former Southwest Marine Administration Building and former Southwest Marine Shipyard site is to the west, and a boat marina (Al Larson's Marina) and reservation Point/Coast Guard Station Los Angeles/Federal Prison are to the south.

PROJECT DESCRIPTION

The proposed project represents the first major upgrade to the facility since 1924 and would redevelop the existing boat shop to modernize the facility, comply with National Pollution Discharge elimination System (NPDES) stormwater requirements, perform maintenance dredging to ensure adequate vessel access to the site, construct two Confined Disposal Facilities (CDFs), renew the ALBS lease for another 30 years (to include the CDFs) , and amend the PMP related to the land created by the two CDFs.

To minimize operational impacts to the facility during construction, the proposed project would be constructed in three phases. In general, the proposed project includes: removal of a 200-foot portion of the creosote-treated timber wharf, piles piers and buildings/ structures; removal of approximately 7,600 cubic yards of legacy contaminated landside soil (from under the buildings); import of approximately 7,600 cubic yards of clean fill, construction of two concrete finger piers to support the installation and operation of two boat hoists; maintenance dredging to a depth of -22 feet mean lower low water plus an additional 2-foot overdredge allowance; construction of two CDFs using legacy contaminated sediment from Fish Harbor; installation of Standard Urban Stormwater Mitigation Plan (SUSMP) devises (such as a new storm drain system and installation of an oil/water separator); new pavement and lighting improvements; and a new 2,400 square foot two-story office building.

The basic purpose of the proposed project is to improve the safety and efficiency of marine ship building and repair, expand the maintenance and repair capabilities of the operation, modernize the site in order to comply with existing and future water quality regulations, update the ALS NPDES and WDR permits, and take advantage of opportunity to remove legacy contaminated soils for disposal off-site and contaminated bottom sediment for use in the CDFs.

CONSISTENCY WITH REGIONAL TRANSPORTATION PLAN

Regional Growth Forecasts

The Draft Environmental Impact Report (DEIR) should reflect the most recently adopted SCAG forecasts, which are the 2008 RTP (May 2008) Population, Household and Employment forecasts. The forecasts for your region, subregion, and city are as follows:

Adopted SCAG Regionwide Forecasts¹

	<u>2010</u>	<u>2015</u>	<u>2020</u>	<u>2025</u>	<u>2030</u>	<u>2035</u>
Population	19,418,344	20,465,830	21,468,948	22,395,121	23,255,377	24,057,286
Households	6,086,986	6,474,074	6,840,328	7,156,645	7,449,484	7,710,722
Employment	8,349,453	8,811,406	9,183,029	9,546,773	9,913,376	10,287,125

SCAG-1

Adopted County of Los Angeles Forecasts¹

	<u>2010</u>	<u>2015</u>	<u>2020</u>	<u>2025</u>	<u>2030</u>	<u>2035</u>
Population	10,615,732	10,971,598	11,329,832	11,678,549	12,015,885	12,338,619
Households	3,357,798	3,509,580	3,666,631	3,788,732	3,906,851	4,003,501
Employment	4,552,398	4,675,875	4,754,731	4,847,436	4,946,420	5,041,172

1. The 2008 RTP growth forecast at the regional, subregional, and city level was adopted by the Regional Council in May 2008.

SCAG Staff Comments:

Per page 3.10-4, indicates that the DEIR population, household and employment analyses were based on 2008 RTP Regional Growth Forecasts.

The **2008 Regional Transportation Plan (RTP)** also has goals and policies that are pertinent to this proposed project. This RTP links the goal of sustaining mobility with the goals of fostering economic development, enhancing the environment, reducing energy consumption, promoting transportation-friendly development patterns, and encouraging fair and equitable access to residents affected by socio-economic, geographic and commercial limitations. The RTP continues to support all applicable federal and state laws in implementing the proposed project. Among the relevant goals and policies of the RTP are the following:

Regional Transportation Plan Goals:

- RTP G1** *Maximize mobility and accessibility for all people and goods in the region.*
- RTP G2** *Ensure travel safety and reliability for all people and goods in the region.*
- RTP G3** *Preserve and ensure a sustainable regional transportation system.*
- RTP G4** *Maximize the productivity of our transportation system.*
- RTP G5** *Protect the environment, improve air quality and promote energy efficiency.*
- RTP G6** *Encourage land use and growth patterns that complement our transportation investments.*
- RTP G7** *Maximize the security of our transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies.*

SCAG Staff Comments:

Where applicable, SCAG staff finds that the proposed project meets consistency with Regional Transportation Plan Goals. The proposed project is not applicable to RTP G7 in that it is not a transportation project.

Per RTP G1, SCAG staff finds the proposed project to meet consistency. The proposed project has regional access provided by a network of freeways and highways including the Harbor Freeway (I-110) and the Long Beach Freeway (I-710). Also, the existing transit routes that serve the general area do not stop within one mile of the proposed project site. No additional demand on local transit a service is anticipated (Page 3.12-16).

SCAG staff finds the proposed project to meet consistency with RTP G2. No potential impacts to the travel safety and reliability of the regional transit system are anticipated due to the proposed project. A temporary increase in construction-related truck and auto traffic could result in decreases in roadway capacity, potential safety hazards and disruption of travel for vehicular, but is not expected to have a significant impact on the regional transportation system (Page 3.12-17).

SCAG staff finds the proposed project to meet consistency with RTP G3. Per page 3.8-13, the proposed project will be constructed under the Port of Los Angeles Sustainable Construction Guidelines used to establish air emission criteria for inclusion in construction bid specifications.

Per page 3.12-14, an increase in travel on the study area roadway system during operation of the

SCAG-1
Cont'd

proposed project associated with workers' vehicles to and from the site would occur, however significant impacts would not occur.

SCAG staff finds the proposed project to meet consistency with RTP G4. Demolition, dredging and pier construction could affect water-associated birds and marine mammals through temporary increases in noise, vibration and turbidity, as well as the potential for displacements of individuals. With the exception of potential noise impacts during pile driving, other construction disturbances are considered insignificant.

SCAG staff finds the proposed project to meet consistency with RTP G5. Per page 2-2, the proposed project includes redeveloping and modernizing an existing boat shop near existing transportation infrastructure within the Port of Los Angeles.

COMPASS GROWTH VISIONING

The fundamental goal of the **Compass Growth Visioning** effort is to make the SCAG region a better place to live, work and play for all residents regardless of race, ethnicity or income class. Thus, decisions regarding growth, transportation, land use, and economic development should be made to promote and sustain for future generations the region's mobility, livability and prosperity. The following "Regional Growth Principles" are proposed to provide a framework for local and regional decision making that improves the quality of life for all SCAG residents. Each principle is followed by a specific set of strategies intended to achieve this goal.

Principle 1: Improve mobility for all residents.

- GV P1.1** *Encourage transportation investments and land use decisions that are mutually supportive.*
- GV P1.2** *Locate new housing near existing jobs and new jobs near existing housing.*
- GV P1.3** *Encourage transit-oriented development.*
- GV P1.4** *Promote a variety of travel choices*

SCAG Staff Comments:

SCAG staff finds that the proposed project meets consistency with Principle 1.

Per GV P1.1, SCAG staff finds the proposed project meets consistency. Per page 2-2, the proposed project includes redeveloping and modernizing an existing boat shop near existing transportation infrastructure within the Port of Los Angeles.

In regards to GV P1.2, SCAG staff finds the proposed project to meet consistency. Per page 3.10-14, the proposed project is expected to increase by 20-30% thereby increasing 20 to 30 employees. The jobs/housing balance is not anticipated to be affected by the proposed project and would not directly induce population resulting in new housing or employment generation.

The proposed project is not applicable to GV P1.3 and GV P1.4 as it does not an appropriate location for transit and/or multiple modes of travel.

Principle 2: Foster livability in all communities.

- GV P2.1** *Promote infill development and redevelopment to revitalize existing communities.*
- GV P2.2** *Promote developments, which provide a mix of uses.*
- GV P2.3** *Promote "people scaled," walkable communities.*
- GV P2.4** *Support the preservation of stable, single-family neighborhoods.*

SCAG-1
Cont'd

SCAG Staff Comments:

SCAG staff finds that the proposed project is not applicable to Principle 2. The proposed project does not include infill development, nor is appropriate for a mix of uses or pedestrian facilities. The proposed project site location is located in a fully developed, urbanized location and is modernizing and redeveloping the existing boat shop.

SCAG-1
Cont'd

Principle 3: Enable prosperity for all people.

- GV P3.1** *Provide, in each community, a variety of housing types to meet the housing needs of all income levels.*
- GV P3.2** *Support educational opportunities that promote balanced growth.*
- GV P3.3** *Ensure environmental justice regardless of race, ethnicity or income class.*
- GV P3.4** *Support local and state fiscal policies that encourage balanced growth*
- GV P3.5** *Encourage civic engagement.*

SCAG-2

SCAG Staff Comments:

SCAG staff finds that the proposed project partially meets consistency with Principle 3 where applicable.

The proposed project is not applicable to GV P3.1 and GV P3.2 because it does not include residential development or educational opportunities regarding balanced growth.

Per GV P3.3, the proposed project meets consistency. The proposed project DEIR includes Chapter 4: Environmental Justice which performs an analysis to identify whether there would be any high and adverse effects are a result of the proposed ALBS improvements (Page 4-6).

SCAG staff cannot determine consistency with GV P3.4 and GV P3.5 based on the information provided in in the DEIR.

Principle 4: Promote sustainability for future generations.

- GV P4.1** *Preserve rural, agricultural, recreational, and environmentally sensitive areas*
- GV P4.2** *Focus development in urban centers and existing cities.*
- GV P4.3** *Develop strategies to accommodate growth that uses resources efficiently, eliminate pollution and significantly reduce waste.*
- GV P4.4** *Utilize "green" development techniques*

SCAG Staff Comments:

SCAG-3

Where applicable, SCAG staff finds that the project is partially consistent with Principle 4.

The proposed project is not applicable to GV P4.1 as it is not located near rural, agricultural, recreational or environmentally sensitive areas and is fully developed within an industrial area in the Fish Harbor region of the Port of Los Angeles (Page 1-2).

SCAG staff finds the proposed project to meet consistency with GV P4.2. The proposed project is located within the Port of Los Angeles on Terminal Island, located in the City of Los Angeles (Page 1-2).

Per GV P4.3 and GV P4.4, SCAG staff finds the proposed project to meet consistency. The proposed project includes several strategies aimed at using resources more sustainably including compliance with the Port of Los Angeles Strategic Plan which has a sustainable "grow green philosophy" ensuring that the ports are promoting environmental stewardship (Page 3.8-6).

CONCLUSION

Where applicable, the proposed project generally meets consistency with SCAG Regional Transportation Plan Goals and also meets consistency with Compass Growth Visioning Principles.

All feasible measures needed to mitigate any potentially negative regional impacts associated with the proposed project should be implemented and monitored, as required by CEQA. We recommend that you review the SCAG List of Mitigation Measures for additional guidance, and encourage you to follow them, where applicable to your project. The SCAG List of Mitigation Measures may be found here:

http://www.scag.ca.gov/igr/documents/SCAG_IGRMMRP_2008.pdf

When a project is of statewide, regional, or area wide significance, transportation information generated by a required monitoring or reporting program shall be submitted to SCAG as such information becomes reasonably available, in accordance with CEQA, Public Resource Code Section 21081.7, and CEQA Guidelines Section 15097 (g).

SCAG-4

Southern California Association of Governments (SCAG)

Response to Comment SCAG-1

Thank you for your review and comment on the Draft EIR. As indicated in your letter, your review of the Draft EIR determined that the analysis and proposed Project, where applicable, is consistent with the SCAG Regional Transportation Plan Goals and with the Compass Growth Visioning Principals 1 and 2.

Response to Comment SCAG-2

Your letter indicated that your staff could not determine based on the information in the Draft EIR consistency of the proposed Project with Compass Growth Visioning Principals GV3.4 and GV3.5. These principals deal with support of local and state fiscal policies that encourage balanced growth and encourage civic engagement. The proposed Project is the improvement of an existing boat shop within a highly industrialized portion of the Port. The boat shop's continued existence within the Port of Los Angeles would continue to provide valuable jobs and services support balanced growth. As for encouraging civic engagement, the Al Larson Boat Shop has been an important tenant at the Port, as well as an important business for the local community, since 1903.

Response to Comment SCAG-3

As indicated in your letter, your review of the Draft EIR determined that the analysis and proposed Project, where applicable, are consistent with Compass Growth Visioning Principal 4.

Response to Comment SCAG-4

Thank you for your comment.

CITY OF LOS ANGELES

CALIFORNIA



ANTONIO R. VILLARAIGOSA
MAYOR

February 28, 2012

DEPARTMENT OF
PUBLIC WORKS

BUREAU OF SANITATION

ENRIQUE C. ZALDIVAR
DIRECTOR

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CHIEF OPERATING OFFICER

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LOS ANGELES, CA 90065
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Christopher Cannon, Director of Environmental Management
PORT OF LOS ANGELES
425 S Palos Verdes Street
Post Office Box 151
San Pedro, CA 90733-0151

Dear Mr. Cannon:

Al Larson Boat Shop Improvement Project – Draft EIR

This is in response to your January 19, 2012 letter requesting a review of your proposed boat shop improvements by replacing facilities, dredging, and construction of maintenance and repair capabilities. The Bureau of Sanitation has conducted a preliminary evaluation of the potential impacts to the wastewater and stormwater systems for the proposed project.

WASTEWATER REQUIREMENT

The Bureau of Sanitation, Wastewater Engineering Services Division (WESD) is charged with the task of evaluating the local sewer conditions and to determine if available wastewater capacity exists for future developments. The evaluation will determine cumulative sewer impacts and guide the planning process for any future sewer improvements projects needed to provide future capacity as the City grows and develops.

Projected Wastewater Discharges for the Proposed Project:

Type Description	Average Daily Flow per Type Description (GPD/UNIT)	Proposed No. of Units	Average Daily Flow (GPD)
<i>Proposed</i>			
Office	150 GPD/1000 SQ.FT	2,400 SQ.FT	360
Commercial	80 GPD/1000 SQ.FT	12,411 SQ.FT	993
Employees	24 GPD/CAPITA	130 CAPITA	3,120
Total			4,473

File: SC.CE.



BOS-1



SEWER AVAILABILITY

The sewer infrastructure in the vicinity of the proposed project includes an existing 15-inch line on Seaside Ave. The sewage from the existing 15-inch line feeds into the Terminal Way Pumping Plant before splitting into a 20-inch line and 24-inch line on Terminal Way. The flow from both 20-inch and 24-inch lines join and finally discharge into the Terminal Island Treatment Plant. According to our existing pumping data, the Terminal Way Pumping Plant appears to have sufficient capacity to handle the proposed flow. Figure 1 shows the details of the sewer system within the vicinity of the project. The current flow level (d/D) in the 20-inch and 24-inch lines cannot be determined at this time without additional gauging.

The current approximate flow level (d/D) and the design capacities at d/D of 50% in the sewer system are as follows:

Pipe Diameter (in)	Pipe Location	Current Gauging d/D (%)	50% Design Capacity
15	Seaside Ave	52	775,319 GPD
20	Terminal Way	*	1.02 MGD
24	Terminal Way	*	678,798 GPD

* No gauging available

Based on the estimated flows, it appears the sewer system might be able to accommodate the total flow for your proposed project. Further detailed gauging and evaluation will be needed as part of the permit process to identify a specific sewer connection point. If the public sewer has insufficient capacity then the developer will be required to build sewer lines to a point in the sewer system with sufficient capacity. A final approval for sewer capacity and connection permit will be made at that time. Ultimately, this sewage flow will be conveyed to the Terminal Island Treatment Plant, which has sufficient capacity for the project.

If you have any questions, please call Kwasi Berko of my staff at (323) 342-1562.

Sincerely,



Ali Poosti, Acting Division Manager
Wastewater Engineering Services Division
Bureau of Sanitation

Attachments:

Figure 1 – Sewer Map

cc: Kosta Kaporis, BOS
Daniel Hackney, BOS
Rowena Lau, BOS



Wastewater Engineering Services Division
Bureau of Sanitation
City of Los Angeles



Thomas Brother Data reproduced with permission granted by THOMAS BROS MAP

FIGURE 1
Al Larson Boat Shop Improvement Project
Sewer Map



0 250 500 750 1,000
Feet

2.3.3 Local Government

City of Los Angeles, Bureau of Sanitation, Watershed Engineering Services Division (BOS)

Response to Comment BOS-1

Thank you for providing information on the flow gauging process and existing sewer capacity. The existing sewers in Seaside Avenue and Terminal Way do not serve an extensive or overly developed area and are located near the Terminal Island Water Reclamation Plant (TIWRP). In addition, as the Draft EIR and your comment letter noted, TIWRP has sufficient capacity to treat the sewage flows. The LAHD expects the flow gauging exercise to confirm that adequate capacity exists. As the Commenter noted, this will be confirmed as part of the permit process during which time the specific sewer connection point for the proposed Project will be identified.



March 5, 2012

Submitted by email

Port of Los Angeles
Chris Cannon
Director of Environmental Management
425 S. Palos Verdes Street
San Pedro, CA 90731
Email: ceqacomment@portla.org

Re: Al Larson Boat Shop Improvement Project Draft Environmental Impact Report, ADP #080627-072, SCH #2010091041

Dear Mr. Cannon:

On behalf of the Los Angeles Conservancy, thank you for the opportunity to comment on the Draft Environmental Impact Report (Draft EIR) for the Al Larson Boat Shop Improvement Project at the Port of Los Angeles. The Los Angeles Conservancy is the largest local historic preservation organization in the United States, with over 6,500 members. Established in 1978, the Conservancy works to preserve and revitalize the significant architectural and cultural heritage of Los Angeles County.

The Al Larson Boat Shop (ALBS) is among the longest-running businesses at the Port of Los Angeles, and one of the few related to the tradition of shipbuilding and repair to remain. The proposed demolition of three of the five identified historic resources on the site jeopardizes this link to the industrial trades that served and supported all the maritime activities at the Port. Feasible preservation alternatives and mitigation measures are available that will substantially reduce or eliminate impacts to historic resources while meeting the long-term goals of ALBS.

LAC-1

I. Historic Resources at the Al Larson Boat Shop

Established elsewhere at the Port in 1903 to build and repair wooden fishing vessels for local fisherman, ALBS relocated to its current location at Berth 258 near the mouth of Fish Harbor in 1924. Over time, the ALBS site and buildings have been altered to accommodate the demands of its evolving business, but they remain recognizable as part of the Port's shipbuilding and industrial history.

The proposed project identifies a redevelopment area encompassing a portion of the area leased by the ALBS business. Eight of the ten buildings leased by ALBS are in the redevelopment area, as well as most of the land area and some water acreage. Of these eight structures, five have been determined to be historic resources.

As evaluated by SWCA Environmental Consultants in January 2010, Al Larson Boat Shop's original 1924 Office and Workshop Complex, comprised of three separate structures identified as A1, A2 and A3, is eligible for the California Register of Historic Resources for its association with the development of the Los Angeles ship-building and fishing industries between 1924 and 1959.

The Machine Shop Complex, constructed in 1938 as an industrial machine shop for a boat engine business but acquired by ALBS in the late 1960s, is also eligible for the California Register. Consisting of two independent structures as C1 and C2, the Machine Shop Complex is significant for its association with and as an example of maritime industrial heritage, which is becoming increasingly rare at the Port.

II. Proposed Demolition of Buildings A2, A3, and C1 is an Unavoidable Significant Impact and Will Have a Cumulative Impact on Historic Resources at the Port

A key policy under the California Environmental Quality Act (CEQA) is the lead agency's duty to "*take all action necessary* to provide the people of this state with... historic environmental qualities...and preserve for future generations...examples of major periods of California history."¹ To this end, CEQA "requires public agencies to deny approval of a project with significant adverse effects when feasible alternatives or feasible mitigation measures can substantially lessen such effects."²

Courts often refer to the EIR as "the heart" of CEQA, providing decision makers with an in-depth review of projects with potentially significant environmental impacts and analyzing alternatives that would reduce or avoid those impacts.³ Based on objective analyses found in the EIR, agencies "shall mitigate or avoid the significant effects on the environment...whenever it is feasible to do so."⁴ The lead agency cannot merely adopt a statement of overriding considerations and approve a project with significant impacts; it must first adopt feasible alternatives and mitigation measures.⁵

LAC-2

The proposed project seeks to demolish Buildings A2 and A3 in the Office and Workshop Complex, as well as Building C1 in the Machine Shop Complex. The removal of these three California Register-eligible buildings would result in significant unavoidable adverse impacts to cultural resources under CEQA, and potentially jeopardize the integrity and historic status of Buildings A1 and C2 that would remain. Additionally, the demolition of these buildings will exacerbate the threat to the Port's industrial heritage that is underway through proposed demolition projects at the Pan-Pacific Fisheries Cannery Buildings, Canner's Steam Company

¹ Public Resources Code §21001 (b), (c).

² *Sierra Club v. Gilroy City Council* (1990) 222 Cal. App.3d 30, 41; also see PRC §§ 21002, 21002.1.

³ *County of Inyo v. Yorty* (1973) 32 Cal.App.3d 795; *Laurel Heights Improvement Association v. Regents of the University of California* (1993) 6 Cal.4th 1112, 1123.

⁴ PRC § 21002.1.

⁵ PRC § 21081; *Friends of Sierra Madre v. City of Sierra Madre* (2001) 25 Cal.4th 165, 185).

Plant, and Southwest Marine Shipyard. The ALBS project is demonstrates further the pattern and practice of the Port's needless demolition of its historic properties, and as such, is considered by the Draft EIR to have a cumulatively significant adverse impact.

LAC-2
Cont'd

III. Feasible Preservation Alternatives Exist that Avoid or Significant Lessen Adverse Impacts and Meet Most of the Basic Project Objectives

Alternative 3: Retention of Historic Buildings avoids destruction of historic resources at ALBS and can substantially lessen the project's significant adverse environmental effects while meeting many of the project objectives. The underlying purpose of the project is to comply with water quality regulations and modernize the boat shop facilities with new concrete piers for a mobile boat hoist system. Dredging sediment from the harbor and encapsulating the contaminated soil in two CDF cells that creates additional land for ALBS can still be accomplished through this alternative. Retaining the historic buildings additionally would continue to provide encapsulation of legacy contaminants and avoid exposing the contaminants, thus requiring necessary remediation and clean-up.

LAC-3

Despite one of the project objectives impermissibly calling for removing buildings/structures in order to modernize and reconfigure the facility -- which prevents objective consideration of alternatives that avoid demolition -- Alternative 3 has not been shown to be infeasible. Alternative 3 would still allow ALBS to utilize a 100-ton boat hoist to lift vessels onto land for repair, and options should be explored to accommodate the 600-ton hoist, or its functional equivalent, while retaining Buildings A2, A3, and C1 in this alternative. For instance, reconfiguration of the CDF cells, creating more land at the water edge, or utilizing other available nearby land outside the project boundaries may allow the turning radius necessary for the 600-ton hoist or more direct access to the newly-created land area. The use of alternate equipment such as cranes, marine railways or other potentially space-saving machinery should also be considered.

LAC-4

Furthermore, according to the numbers provided in the analysis for Alternative 2: Reduced Project: Limited Demolition, there appears to be sufficient clearance for the 600-ton hoist to avoid demolition of Building C1, and a mere 1-foot difference if Building A3 was retained. The Draft EIR fails to establish the necessity of a 600-ton hoist, based on ALBS's cliental or the anticipated business demand. The Final EIR should evaluate the market demand for a 600-ton hoist at ALBS, and consider a smaller hoist, such as a 400-ton hoist, that may require less clearance and turning radius while meeting ALBS's expanded needs. In such an instance, Alternative 2, which limits the demolition of historic buildings at the site, may be the preferred alternative if the historic status of the remaining buildings can be maintained. At a minimum, no historic structures at ALBS should be demolished until the appropriate-size equipment is determined.

LAC-5

IV. The Project Boundaries Are Flawed and Fail to Adequately Reflect the Scope of the Proposed Project

The project boundaries are limited to approximately half of the ALBS leasehold, and appear to exclude the parking lot in which the 600-ton boat hoist will operate. This arbitrary distinction fails to fully consider the area that will be impacted by the proposed project, including construction and operation impact on the Bethlehem Steel (Southwest Marine) Administration

LAC-6

Building, which is a contributor to the Bethlehem Shipyard Historic District, and now within the fence line of the ALBS site. This building has already been isolated from the remainder of its historic district at the Southwest Marine site through a rerouting of Seaside Avenue in 2004 to accommodate a slipway at ALBS. The proposed extension of ALBS's leasehold to include the parking lot already used by ALBS and surrounding the Administration Building in order to operate the 600-ton hoist will have a direct impact on this historic resource. Not only could the hoist physically damage the Administration Building, but the loss of available parking potentially jeopardizes options for its future reuse.

LAC-6
Cont'd

Regardless of the existing leaseholder, the Final EIR should redefine the project boundaries to reflect the true scope of the project and include the parking lot and the Bethlehem Steel Administration Building as areas impacted by the proposed project. Including the Administration Building in the project boundaries also provides an opportunity to consider the rehabilitation of this historic resource to serve as an office building for ALBS. A new office building is proposed in Phase 3 of the current project but the Draft EIR fails to identify where it would be located within the project boundaries.

V. Additional Mitigation Measures Should Be Implemented

Proposed mitigation measures in the Draft EIR -- including HABS and photo documentation and a retrospective website -- would not reduce the impact of demolishing Buildings A2, A3, and C2 to a less than significant level. Under CEQA, it is widely recognized that “[a] large historical structure, once demolished, normally cannot be adequately replaced by reports and commemorative markers.”⁶

If the historic buildings are ultimately slated for demolition, the Port should make every effort to dismantle and relocate these structures elsewhere at the Port or to appropriate locations offsite with reasonable financial incentives attached as part of any RFP or bid process. The \$3.5 million to \$12 million estimate for relocation included in the Draft EIR is a wide range and seems out of scale with the simple timber-framing systems of the buildings, similar to barn construction techniques. Further evaluation should be required in the mitigation to establish more precise figures and analysis that will aid in the successful dismantling and relocation. This should assess the feasibility of leaving the buildings intact and/or moving them “in-whole.” Any relocation and reuse should also adhere to the *Secretary of the Interior's Standards for the Treatment of Historic Properties*.

LAC-7

As mentioned above, no demolition permit should be issued until the size of the boat hoists have been identified based on anticipated market demand and the clearances and turning radius re-evaluated by the Port to determine if any building demolition is necessary. Rehabilitation and reuse, or at minimum, stabilization of the Bethlehem Steel Administration Building should also be included as a mitigation measure. As this building is directly impacted by the project, mitigation which fully secures and stabilizes this building is warranted, and should also fully adhere to the *Secretary of the Interior's Standards for the Treatment of Historic Properties*.

⁶ *League for Protection of Oakland's Historic Resources v. City of Oakland* (1997) 52 Cal.App.4th 896, 909.

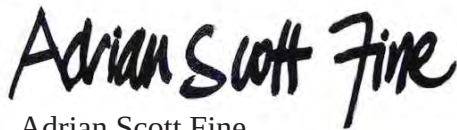
VI. The Relationship of the Proposed Project to the Port's Terminal Island Master Plan Efforts is Unclear

In addition to updating its Port Master Plan, the Port of Los Angeles has initiated a master land use planning process for Terminal Island in which ALBS appears to occupy a larger site than the project boundaries or even the current lease area. The Draft EIR fails to consider additional phases and future expansion of the ALBS site as envisioned by the Terminal Island and Port master plans. If expansion of ALBS is proposed, as indicated in the plan recently endorsed by members of the Harbor Commission, the project should be coordinated and re-evaluated to consider the project as a whole, including the cumulative impacts of the master plan(s).

LAC-8

Thank you for the opportunity to comment on the Al Larson Boat Shop Improvement Project Draft EIR. We look forward to working with ALBS and the Port in developing an appropriate solution that preserves the historic qualities of ALBS. Please feel free to contact me at (213) 430-4203 or afine@laconservancy.org should you have any questions.

Sincerely,

A handwritten signature in black ink that reads "Adrian Scott Fine". The signature is written in a cursive, slightly slanted style.

Adrian Scott Fine
Director of Advocacy

cc: Councilmember Joe Buscaino, Council District 15
Office of Historic Resource, City of Los Angeles
San Pedro Historical Society

2.3.4 Organizations

Los Angeles Conservancy (LAC)

Response to Comment LAC-1

As discussed throughout the Draft EIR (in particular Chapter 6, Analysis of Alternatives), any alternative that would not include the removal of Buildings C1, A2 and A3 at the site would only meet some of the Project objectives, notably allowing the site to comply with its WDR and NPDES requirements and includes partial clean up of legacy contaminants (i.e., sediments within Fish Harbor). However, because the existing historic buildings would not be demolished or relocated, implementation of Alternative 3 would not result in the complete modernization of the existing boat yard facilities, provide for the same level of operational efficiency, or meet the long term business goals of ALBS, as would occur under the proposed Project. Further, retention of potentially historic buildings would constrain the opportunities to redesign the site to fully and most effectively comply with NPDES requirements, upgrade the existing infrastructure, and reduce the ability to clean up site legacy contaminants from beneath the existing pavement and buildings. Alternatives have been analyzed and found to not meet project objectives of modernizing, expanding and optimizing the ALBS.

Response to Comment LAC-2

Section 21081 of the California Public Resources Code and Section 15091 of CEQA (CEQA Guidelines) require a public agency, prior to approving a project, to identify significant impacts of the project and make one or more written findings for each such impact. According to Section 21081, “no public agency shall approve or carry out a project for which an environmental impact report has been certified which identifies one or more significant effects on the environment that would occur if the project is approved or carried out unless both of the following occur:

(a) The public agency makes one or more of the following findings with respect to each significant effect:

1. Changes or alterations have been required in, or incorporated into, the project which mitigate or avoid the significant effects on the environment.
2. Those changes or alterations are within the responsibility and jurisdiction of another public agency and have been, or can and should be, adopted by that other agency.
3. Specific economic, legal, social, technological, or other considerations, including considerations for the provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or alternatives identified in the environmental impact report.

(b) With respect to significant effects which were subject to a finding under paragraph (3) of subdivision (a), the public agency finds that specific overriding economic, legal, social, technological, or other benefits of the project outweigh the significant effects on the environment.”

As indicated in the Draft EIR, the proposed Project would result in the following unavoidable significant adverse impacts after mitigation:

1. Significant localized air quality impacts may occur during the construction of the proposed Project.

2. Development of the proposed Project would necessitate the removal of four of six of the potentially historic buildings at the site. Therefore, even with implementation of mitigation measures, an unavoidable adverse impact to historic resources would remain.
3. Temporary significant noise impact associated with the proposed Project during construction.
4. Potential cumulative impacts associated with Air Quality, Meteorology and Greenhouse Gases, Cultural Resources, and Noise (construction only).

Having properly disclosed within the Draft EIR that the proposed Project would result in a significant impact to existing historic resources, which is the issue of concern raised in this comment, the Draft EIR recommends all feasible mitigation measures to reduce the impact, consistent with CEQA requirements. Such mitigation measures are presented in Section 3.4, Cultural Resources, of the Draft EIR (refer to pages 3.4-2, -3, -31, -33, and -36 for description of mitigation measures) which includes MM CUL-2: Historic Resource Recordation and MM CUL-3: Recordation Posting. Additionally, Chapter 6, Analysis of Alternatives, of the Draft EIR addresses potential alternatives that could avoid or substantially reduce significant impacts to historic resources as follows:

- Alternative 1 – Reduced Project: Water Quality Improvements
- Alternative 2 – Reduced Project: Limited Demolition
- Alternative 3 – Retention of Historic Buildings
- Alternative 4 – Relocation of Historic Buildings

However, as indicated in the Draft EIR, such alternatives were determined to not meet many or most of the Project objectives. Although Alternatives 2 and 4 would reduce impacts on historic resources, impacts would not be eliminated and would remain significant and unavoidable.

As detailed in Chapter 5, Cumulative Analysis, of the Draft EIR (specifically Section 5.2.4.3), although demolition of historic structures in the redevelopment area of the Project site is a Project specific impact, there are other historic structures within the Project vicinity that have similar historical significance (i.e., locally significant for its association with the development of the Los Angeles shipbuilding and fishing industries between 1924 and 1959, such as the Southwest Marine Facility and Chicken of the Sea Cannery). As a result, the impacts of the proposed Project would make a cumulatively considerable contribution to a significant cumulative impact under Cumulative Impact CUL-2.

The proposed Project would maximize the primary project objectives of meeting the surface water quality requirements mandated by the Los Angeles RWQCB. Thus, the proposed Project provides long-term benefits by safely managing surface water runoff, which would protect public health and safety. Another benefit of the proposed Project is that it provides for the cleanup of legacy contamination on land (under the buildings proposed for removal), in Fish Harbor (removal of three marine railways from use and dredging of contaminated sediment and creation of CDF's for disposal/reuse), resulting in the creation of 20 to 30 additional permanent jobs once the facility is modernized.

Therefore, the proposed Project's benefits outweigh and override its unavoidable significant impacts for the reasons stated above. This conclusion has been reached after having done all of the following: (1) applied all feasible mitigation measures, (2) rejected other Project alternatives, (3) recognized all significant, unavoidable impacts associated with the proposed Project, and (4) balanced the benefits of the Project against its determining the impacts that would be significant and unavoidable.

As for the Commenter's opinion on the LAHD's treatment of historic properties, the comment is noted. The LAHD recently completed a historic survey of Terminal Island with the cooperation of the Los Angeles Conservancy to comprehensively identify potential historic resources within that area of the Port to support the Port Master Plan Update with which the Los Angeles Conservancy is involved. Since 2000, LAHD has carried out over 38 cultural history surveys involving more than 100 buildings and structures. Where practicable and within the bounds of the State Tideland Grant, the State Tideland Trust Doctrine, and the Coastal Act. LAHD prefers the reuse of buildings eligible for, or listed, as federal, state or local cultural resources. Examples are the College of Oceaneering Building as the Departmental Archive Annex, Municipal Ferry Building as a Maritime Museum, Fireboat House No. 1 for housing the Port of Police Dive Team, proposed reuse of Berths 57-60 Transit Sheds in connection with a Marine Science Center, the proposed use of the Bekins Warehouse as a Museum/Archive and the U.S. Immigration Station used for offices and until recently a restaurant. There are no current plans to demolish Pan-Pacific Cannery, Canner's Steam Plant, Southwest Marine Facility, or Southwest Marine Administration Building. There are ongoing efforts to find a tenant for the adaptive reuse of the Chicken of the Sea Cannery, some of whose buildings are eligible for listing as a historic resource. In addition, LAHD successfully listed the Port's Warehouse No. 1 on the National Register of Historic Places.

Response to Comment LAC-3

As the Commenter notes, and as detailed in Chapter 6, Analysis of Alternatives, of the Draft EIR, Alternative 3 would meet some of the Project objectives, notably allowing the site to comply with its WDR and NPDES requirements and includes partial clean up of legacy contaminants (i.e., sediments within Fish Harbor). Although impacts to the potentially historic structures would be completely eliminated under this alternative, implementation of this alternative would neither result in the complete modernization of the existing boat yard facilities, provide for the same level of operational efficiency nor allow ALBS to meet market demand that would occur under the proposed Project. Further, retention of a potentially historic building would constrain the opportunities to redesign the site to fully and most effectively comply with NPDES requirements, upgrade the existing infrastructure, and would reduce the ability to clean up site legacy contaminants from beneath the existing pavement and buildings. Currently ALBS is space constrained, limiting the number of vessels serviced at one time. Compared to the proposed Project, Alternative 3 with its retention of the three historic buildings would reduce dry docking space by as much as 10,500 square feet and preclude access of the 600-ton hoist to the land area created by the construction of the Phase 2 CDF. Building A2 and A3 do not rest on concrete foundations but on sand, having no foundations other than footing and piles. The contaminants under these buildings are not completely isolated from the environment as would be the case with a concrete slab foundation. The restrictive nature of this alternative would not meet the operational needs of ALBS, including access to the existing and proposed facilities and would not adequately address legacy landside contamination.

Alternative 3, which entails retention of Buildings A2, A3 and C1, limits the modernization of the site and affects the ability of the site to meet the local demands of the boat repair industry by limiting access to dry docking areas by the 600-ton boat hoist. With only Building D demolished, the length of vessels that could be moved into the backland for dry docking is limited to 136 feet. With Buildings D and C1 demolished the backland is accessible to vessels up to 196 feet in length (refer to Response to Comment LAC-4 below and the table in Section 2.5, at the end of this chapter, for a discussion of the need for these size boats and the trend to service larger vessels). Additionally retention of Buildings A2, A3 and C1 reduces the area available for dry dock by 10,500 square feet. Thus Alternative 3 restricts size of vessels that can be serviced by ALBS and reduces the area available for dry docking. In addition, the Commenter incorrectly assumes that leaving the historic buildings in place would provide encapsulation of the legacy contamination beneath those buildings; this is not the case. Refer to Response to Comment LAC-5 below for additional information on the maneuvering of vessels around ALBS related to building retention scenarios.

Response to Comment LAC-4

The purpose of the large hoist with its 600-ton capacity is to replace three 350-ton marine railways being eliminated as part of the Phase 2 CDF to reduce runoff of contaminated water into Fish Harbor and provide additional land area for ALBS. Without the 600-ton boat hoist ALBS would be limited to dry docking a maximum of two vessels over 100 tons at once using the floating dry dock and Marine Railway #4. With the 600-ton boat hoist, the number of vessels over 100 tons that can be dry docked is greater than two and limited only by available space in which to place the vessels. Utilizing only a 100-ton hoist would reduce the capacity of the boat yard to service vessels over 100 tons, which would reduce the future capacity to less than that of current operations. Employing the smaller boat hoist with its 100-ton capacity would limit the dry docking of vessels more than 100 tons to Railway #4 or the floating dry dock; when not otherwise occupied by larger vessels. Thus, use of a 100-ton boat hoist in place of a 600-ton hoist would limit the facility's ability to service vessels over 100-tons.

One way to accommodate the 600-ton boat hoist while retaining Buildings A2, A3 and C1 is to reconfigure the CDF cells to create more land. The two CDFs were designed to limit the environmental impacts associated with filling Fish Harbor by minimizing the amount of landfill while meeting the goals of removal of the three marine railways, and redirecting water runoff away from Fish Harbor and into the on-site stormwater treatment system. However, if the CDF's were expanded, this would increase the impact under Impact BIO-2, and also this is not feasible because extension of the CDFs and boat hoist/travel lift piers further into Fish Harbor would impede and possibly prevent access into Fish Harbor by larger tugs and barges (Mike Rubino, Chief Port Pilot, June 5, 2012); thereby creating a new potentially significant safety hazard and new potentially significant impact (see attached Figure LAC-1a and Figure LAC-1b).

The Commenter suggested that modernization and reconfiguration of the facility through utilizing other available nearby land outside the project boundaries. This is also not feasible because there is no vacant or available land adjacent to the Project site. The property to the south of the Project boundary is part of the functioning boat yard and would remain as such, and south of that is a marina. To the north is an existing fuel depot (ExxonMobil/General Petroleum facility) that is not available and to the west is Seaside Avenue. Therefore, no contiguous land exists or could be created beyond what is proposed under the proposed Project that would meet the objectives of the Project, while taking into consideration existing land uses and leases and maintaining safe access to Fish Harbor.

As for the Commenter's suggestion that alternate and potentially space-saving equipment/machinery could be used in lieu of the proposed 600-ton hoist, is noted. There are limited options for replacement of the 600-ton hoist. Other ship yards on the west coast employ boat hoists (travel lifts), cranes, shiplifts (syncrolift), marine railways, dry docks or some combination of these methods (see the table at the end of this chapter, under Section 2.5, for a list of the medium active boat yards along the west coast). Cranes are restricted to removal of smaller vessels and would not suffice for the target market of barges and tugs. Movement of the vessel to another location for servicing requires its placement on a chassis for transport.

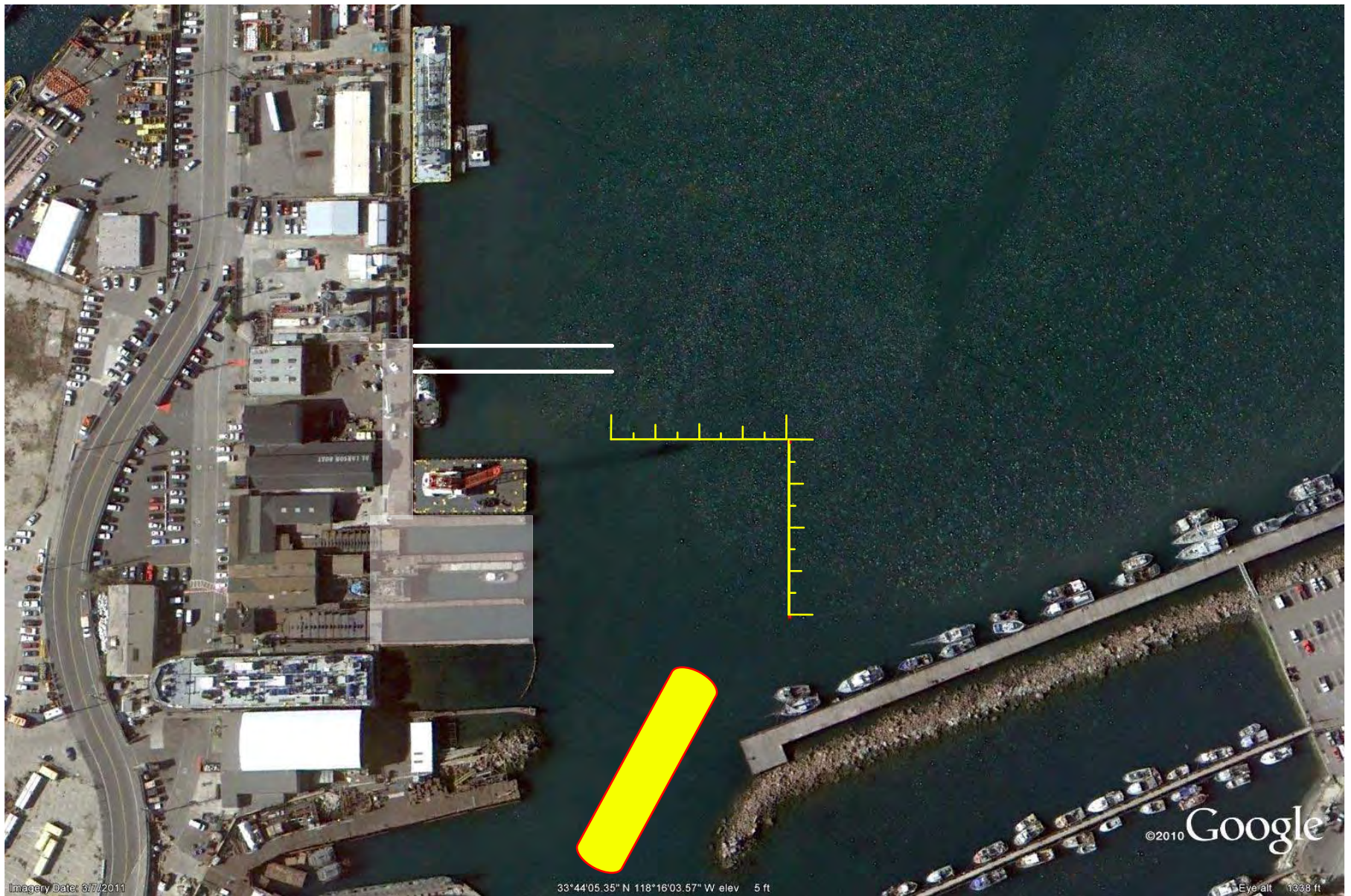


Figure LAC-1a

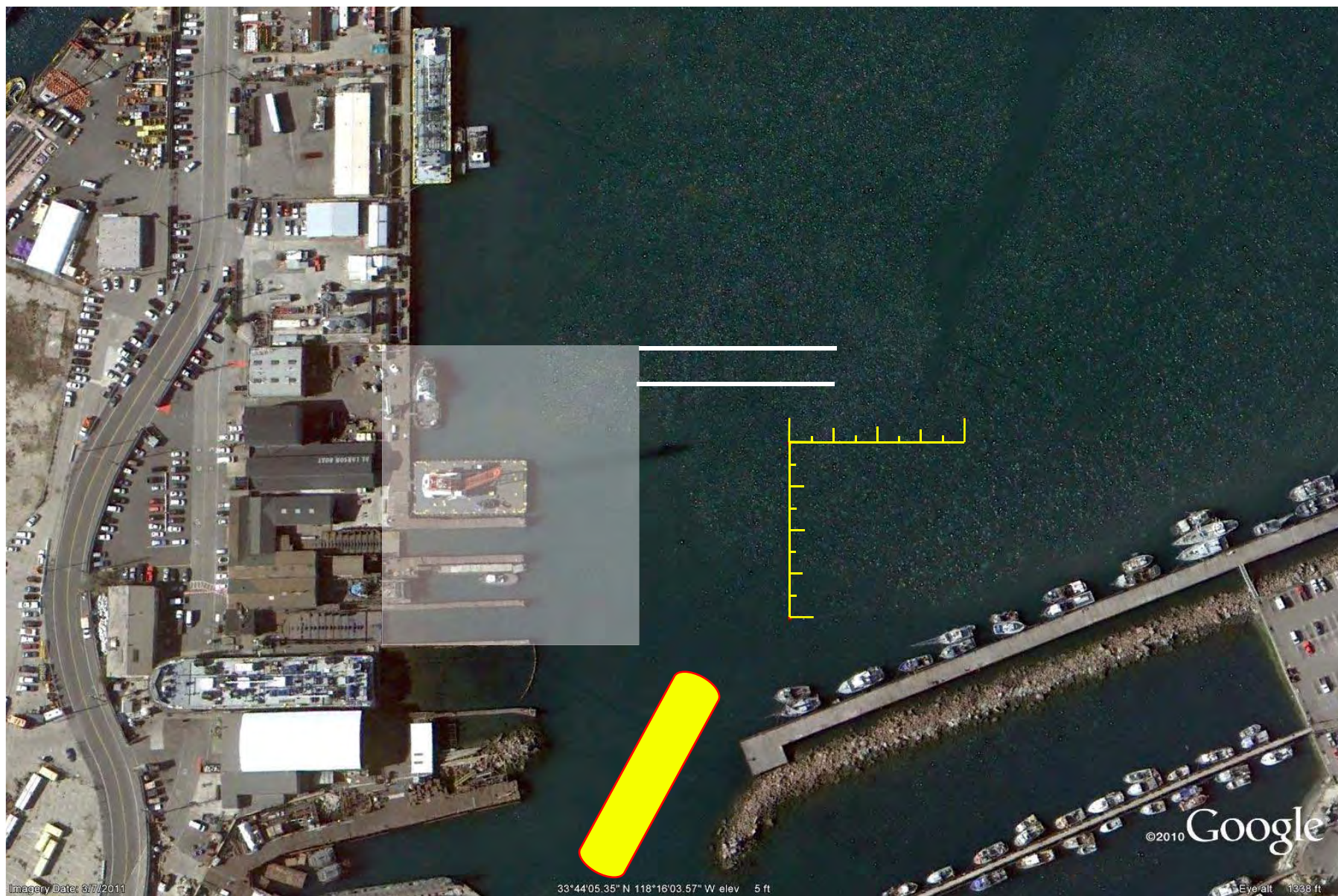


Figure LAC-1b

A shiplift system positions a vessel over an underwater platform then lifts both clear of the water. The vessel is then serviced or moved to another location for service. Movement of the vessel to another location in the shipyard requires its placement on a chassis, wheeled or rail. The shiplift is very similar to the boat hoist system, requires similar piers and would not offer any benefit over the boat hoist system at ALBS. A third option is use of marine railway, such as those currently at ALBS. Floated over a cradle on the railway the vessel is then hauled out of the water. Again, the vessel must be conveyed into the boat yard on a chassis or remain on the railway for servicing. Because of the need for the railway to extend into the water there is continued threat of water pollution from this method. Use of the CDF area for marine railways would reduce the reduce space available for dry docking and still represent a potential source of contaminated runoff into harbor waters. Further, marine railway use is tied to the tidal cycles and does not provide the flexibility of the boat hoist/travel lift system. Either a land based or floating dry dock would not greatly increase the capacity of ALBS as dry docks usually service one vessel at a time while the boat hoist/travel lift system allows for servicing of vessel limited only by storage space. The utilization of space could be maximized if the ships were removed from dry dock and transferred to the ALBS backland and Phase 2 CDF. However, in all cases, any method including the 600-ton boat hoist have similar access limitations and additional space needed for storage therefore would necessitate removal of the Buildings C1, A2, and A3. Also, a boat hoist is more efficiently than the above systems as it combination both lifting and conveyance within one piece of equipment.

Response to Comment LAC-5

Currently the ALBS facility is space constrained. One of the objectives of the proposed Project is to provide additional space for servicing more vessels simultaneously and/or larger vessels. The proposed Project will, amongst other things, provide additional space for dry docking and open up an otherwise cluttered facility. This will increase the number off vessels that may be dry docked at one time. Alternative 2 would allow for some increased capacity at the ALBS site, although to what extent would depend on which structures are retained. Retention of Building A2 results in a 36-foot access corridor between Building A2 and Marine Railway #4, which would preclude access of the 600-ton boat hoist to the Phase 2 CDF. The space for direct transfer of vessels by the 600-ton boat hoist from Phase 1 CDF to Phase 2 CDF is not possible given there is only a 40-foot access corridor between the wharf edge and Building A1.

In addition to limitations of access caused by the width of the boat hoist there are also vessel length limitations on access. LAHD Engineering Division undertook a reexamination of space available for maneuvering vessels around ALBS with Buildings C1 and A3 both present and absence. Without Buildings C1 and A3 present, the maximum length of vessel that could be maneuvered into the Phase 2 CDF was 195 feet. With both or either building present, the maximum vessel length drops to 136 feet (refer to Figure LAC-2).

Retention of Building C1 reduces the potential dry docking area by 2,680 square feet and limits the size of vessels that can access the backland and Phase 2 CDF to 136 feet.

In preparing the response to this comment, an error was discovered in the Operational Analysis for Alternative 2 in Chapter 6 of the Draft EIR. Retention of Building A3 would provide a 76-foot, not a 58-foot, corridor between Building A3 and Marine Railway #4. The reexamination took this wider corridor into account, but again access was restricted to vessels 136 feet or less. Also, with retention of Building A3 the area available for dry docking is reduced by 3,770 square feet.

The purpose of the 600-ton hoist is to replace three 350-ton marine railways eliminated as part of the Phase 2 CDF. The 600-ton boat hoist will increase the facility's capacity to handle vessels in the 350- to 600-ton size range, which is currently limited to two at one time using the floating dry dock and Railway 4. As part of the planning process, the tenant (Al Larson Boat Shop) reviewed other size hoists, such as a 400-ton hoist. A 400-ton boat hoist, with lifting capacity of 400 tons and 50-foot width and 76-foot

outside turning radius, could better access the Phase 2 CDF with the retention of Building A3. However, the 400-ton boat, because it is smaller in size, would be limited in the range of vessels it can transport.

In any situation, Alternative 2 would limit the facility's operational capacity by restricting access to vessels no more than 136 feet in length and reducing the available area for dry docking by 2,700 to 7,800 square feet depending on the mix of buildings retained. Further, retention of a potentially historic building would constrain the opportunities to redesign the site to fully and most effectively comply with NPDES requirements upgrade the existing infrastructure, and it would reduce the ability to clean up site legacy containments from beneath the existing pavement and buildings. This alternative would not be feasible as the restrictive nature of the improvements would not allow the Project to meet its objectives.

Refer to the Figure LAC-2 for a graphic representation of this travel lift ship size analysis described above.

In addition, ALBS is one of the few remaining local medium boat yards in the Ports of Los Angeles and Long Beach, as well as southern California and the west coast. Refer to the table at the end of this chapter, Section 2.5, for information on the medium active boat yards along the west coast.

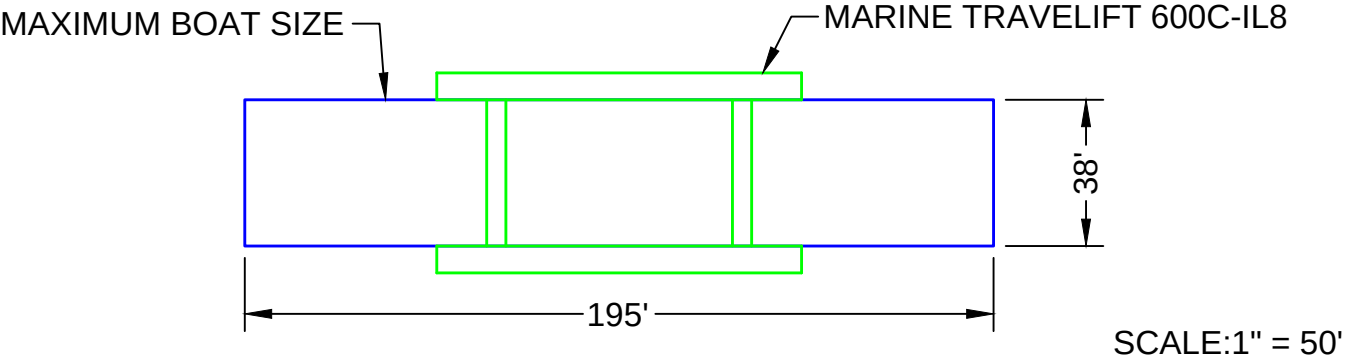
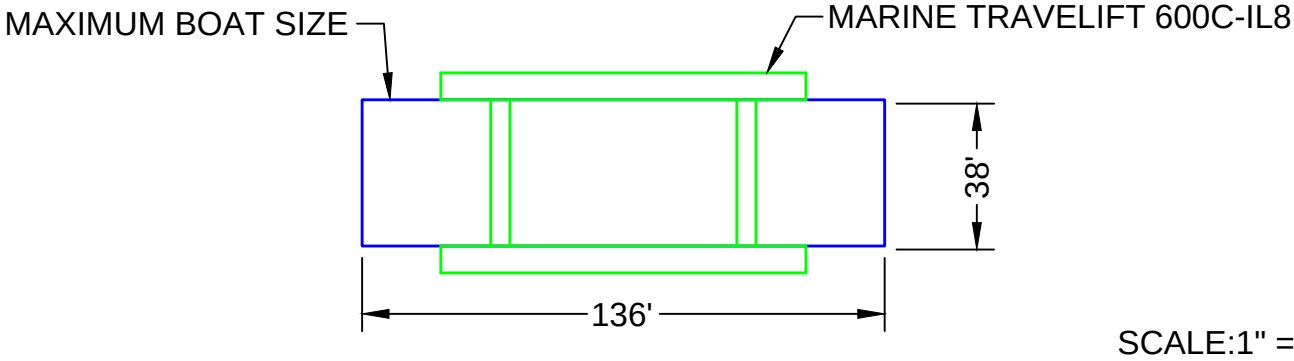
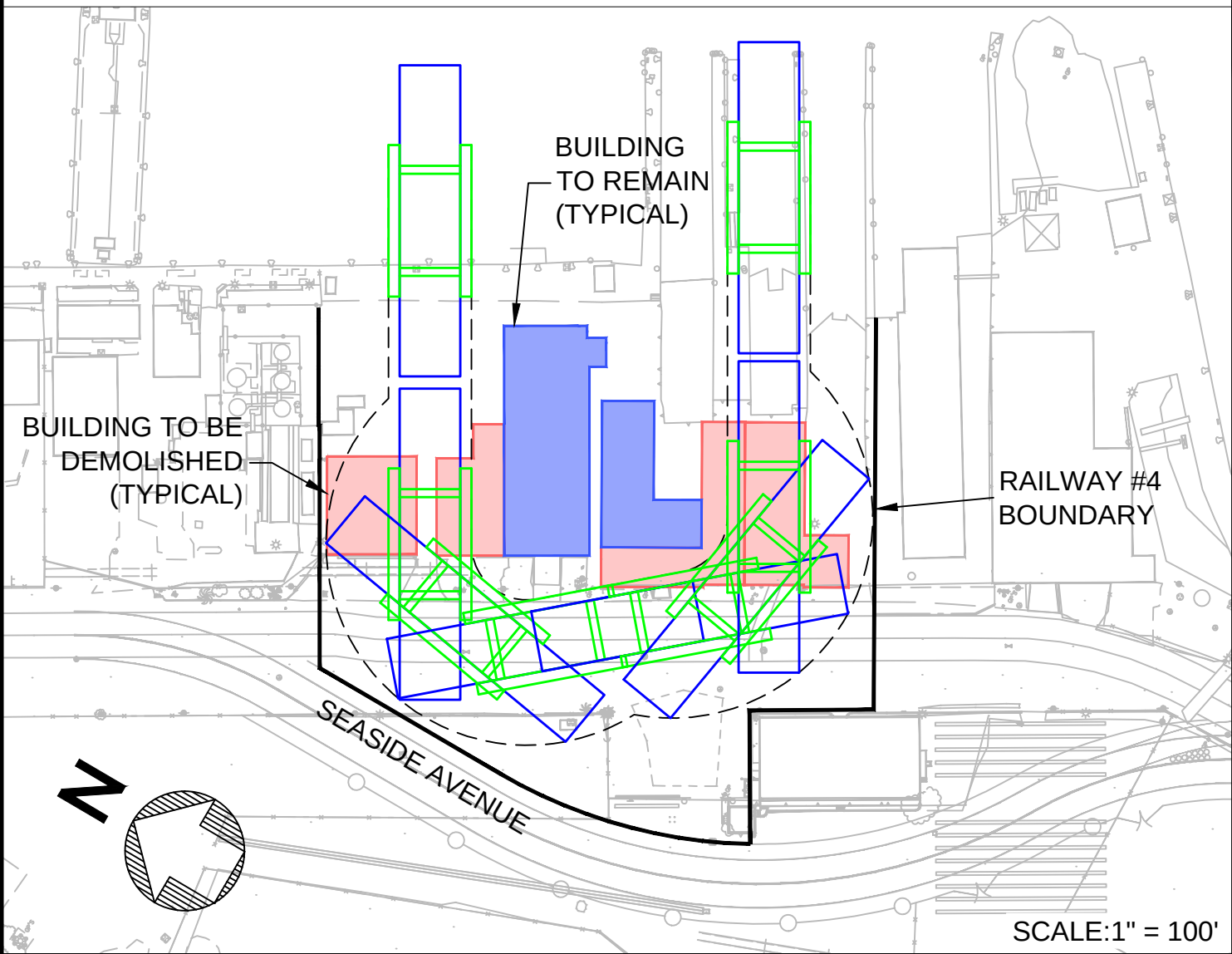
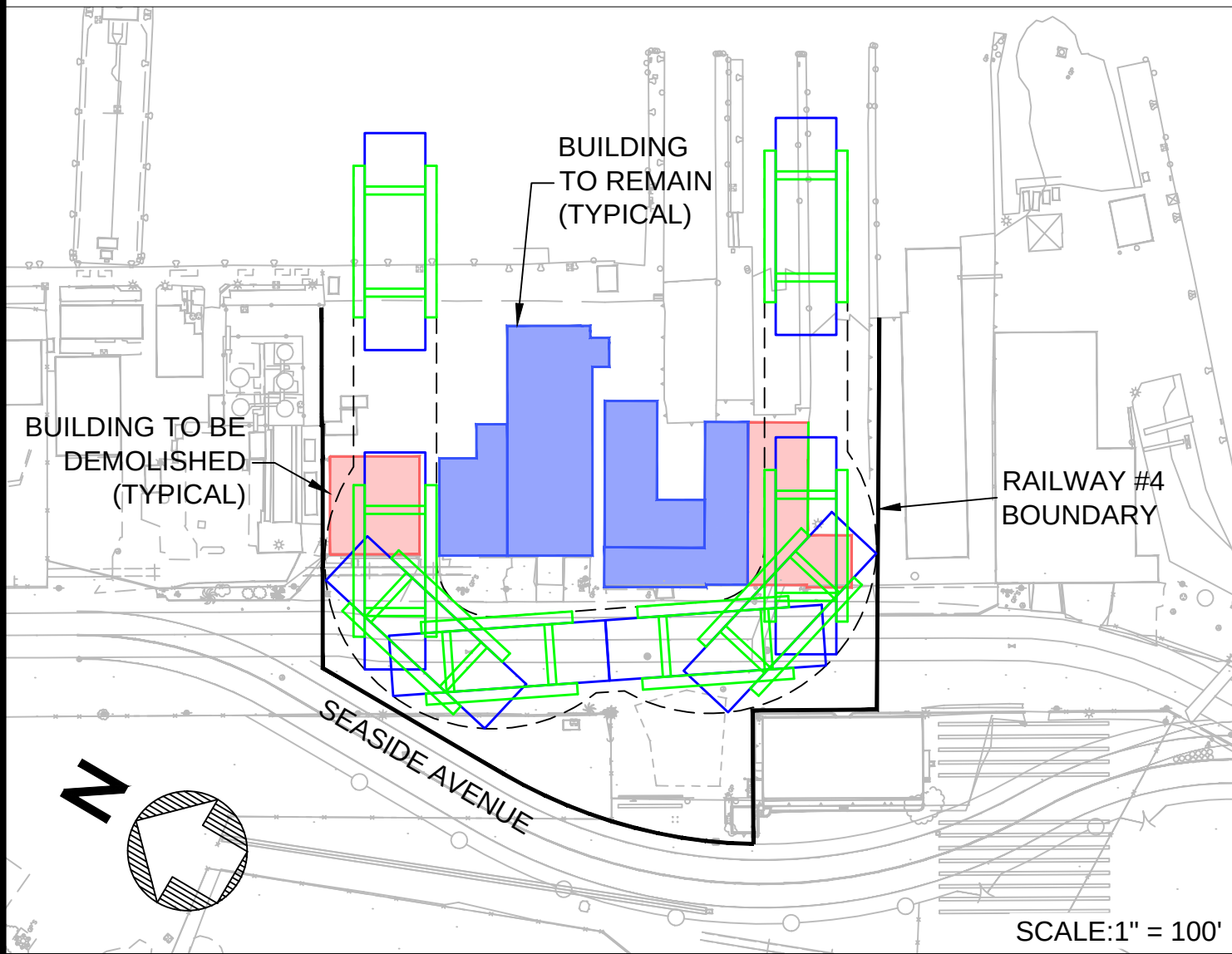
The Port currently supports three repair facilities; one that services recreational vessels and another that can haul out ships up to 100 feet in length with a maximum weight of 150 tons. The third is ALBS, with three marine railways with a capacity of ships of 112 to 131 feet with a maximum weight of 350 tons, one marine railway with a capacity for ships 265 feet and a maximum weight of 1,200 tons and a floating dry dock with a capacity of 250 with a maximum weight of 1,000 tons in addition to servicing vessels in-water up to 450 feet. The Port of Long Beach has two repair facilities for smaller ships and a facility that can haul vessels up to 150 feet with a maximum weight of 300 tons and service vessels in-water up to 350 feet. The current ability to haul out vessels above 150 tons and 131 feet is limited to ALBS and the facility in the Port of Long Beach. When vessels above 300 tons are considered, ALBS is the only option unless one travels to San Diego Bay or San Francisco Bay or beyond. The capacity for hauling out and service vessels over 350 tons or 131 feet is limited to two at one time using ALBS's one large marine railway and its floating dry dock. After modernization and replacement of the three 350-ton marine railways by the 600-ton boat hoist, ALBS will be able to remove vessels in the 350 to 600 tons range, with a length up to 195 feet and position them in various configurations, limited only by the available backland.

In a market analysis, LAHD identified the only market for growth in boatyard services for commercial vessels appears to be barges and tugs. Such sized vessels could be serviced in-water or at the redeveloped Al Larson facility" (Boatyard Analysis: A Review of Boatyard Market Demand Data - January, 2012).

A survey of vessels that have used or could use ALBS finds 34 percent are of the length and weight that require a 600-ton boat hoist. In order to service this growing market, the proposed Project estimates that with the improvement to ALBS it will enable the facility to service more than two such vessels at a time. This 34 percent does not take into account the barges, crew boats, naval vessels, yachts and dinner cruisers larger than 136 feet. Thus, retention on any of the historic buildings would limit the capacity of ALBS to service vessels in the size range of 136 to 195 feet.

ALTERNATIVE 2 - TWO BUILDINGS (D AND A2) DEMOLISHED

PROPOSED PROJECT - FOUR BUILDINGS (D, C1, A3, A2) DEMOLISHED



POLAPRO4_VER.1_12/96

NO. DATE DRAWN REVISIONS --				CH'KD	APP'D	SCALE: AS SHOWN	RECOMMENDED FOR APPROVAL		AL LARSON BOAT SHOP IMPROVEMENTS PROJECT	
						DRAWN: J. C. BROWN	CHIEF OF DESIGN		TRAVELIFT SHIP SIZE ANALYSIS	
						CHECKED:				
						DESIGNED: J. C. BROWN	ASSISTANT CHIEF HARBOR ENGINEER		APPROVED	THE PORT OF LOS ANGELES ENGINEERING DIVISION 425 S. PALOS VERDES STREET SAN PEDRO CA 90731-3309
						ENGR/ARCH				
									CHIEF HARBOR ENGINEER	FIGURE LAC-2

Response to Comment LAC-6

Figure 2-3 from Chapter 2 of the Draft EIR has been revised to clarify and better illustrate the boundary of the proposed Project (refer to Chapter 3, Modifications to the Draft EIR, of the Final EIR for the revised figure). The portion of ALBS and Fish Harbor where proposed improvements will occur are bounded by the dashed line in Figure 2-3), the existing ALBS leasehold proposed for renewal are highlighted in yellow and additional land and water areas for the proposed ALBS leasehold are highlighted in green.

The Draft EIR describes the Southwest Marine Administration Building's relationship to the site and the proposed Project. The boundary of the proposed Project is appropriately defined. Although located next to ALBS, the Southwest Marine Administrative Building is owned by the BAE Systems and has never been part of the ALBS lease area and not part of the project. The proposed Project was designed, and the environmental impacts analyzed, considering the modernization and increased efficiency of the facility with the Southwest Marine Administration Building at its current location. The building is vacant, there is currently no proposed use for the building and hence the issue of parking is speculative. Also, this space is necessary and identified for ALBS expansion. However, should an application concerning the building by its owner be submitted to the LAHD for review, which could include restoration and reuse of the building; it will be subject to the CEQA review process. The size of the new office, which if built, would be a maximum of 2,400 square feet. Instead of a permanent office building, ALBS is also examining using temporary trailers on an as-needed basis based on operational need. Potential locations for either building or trailers include, east of Building A1 or the far northern segment of the lease hold.

Response to Comment LAC-7

The comment is noted and has been incorporated into the Final EIR for review and consideration by the decision-makers prior to any action on the proposed Project. Chapter 6, Analysis of Alternatives, of the Draft EIR analyzed Alternative 4, Relocation of Historic Buildings. This alternative would be the same as the proposed Project; however, all of the potentially historic buildings slated for demolition would be moved to another location within the Port. The relocation site would be one of two redevelopment project sites within the Port: the San Pedro Waterfront project or the Wilmington Waterfront project (see Figure 6-2 in Chapter 6 of the Draft EIR). Relocation to either of the redevelopment project sites would be consistent with the LAHD's "Procedures to Implement the Real Estate Leasing Policy," which incorporates long-range facility planning and objectives in the two redevelopment project areas. Relocation to either of the two redevelopment project areas would not guarantee that the buildings would be located on the waterfront, which would result in a loss in the integrity of the structures. In addition, the relocated buildings would be removed from the other portions of the historic buildings, which would further result in a loss in the integrity of the complexes. If relocated to either of the two redevelopment project areas, the structures would need to comply with the Design Criteria associated with the redevelopment areas (e.g. installation of windows and minimal use of blank wall) that would further compromise the integrity of the buildings and improvements to meet building code requirements, which could include alterations to the structures that could result in a loss in the integrity of the structures. Although all of the potentially historic structures slated for demolition would be relocated, the actual relocation process would result in a loss in the integrity of the structures. Thus, under this alternative, impacts on historic resources would be reduced, but not eliminated.

This alternative would not be ideal because of the complexity and resulting high cost to relocate the potentially historic structures. The buildings have a frame structure and would need to be disassembled to be moved. The reassembly of the buildings would likely require improvements to meet current building standards and correct any damage that occurring during disassembly. The new site would require reinforced concrete foundations, reinforced concrete slab on grade and site development documents similar to what a new building would require (geotechnical report, design documents, permitting

documents, building site permitting documents) and structural drawings. It is estimated that the approximate cost for disassembly and re-assembly at another site of Buildings C1, A2 and A3 could be as much as \$12 million (refer to Appendix D3 – Structural Assessment Memorandum, of the Draft EIR). The total cost for the proposed Project is estimated at \$13 to \$16 million; therefore, relocation would increase total cost of this alternative by as much as approximately 75 percent.

In conclusion, the relocation of the potentially historic structures would reduce the impacts of demolition but it would result in a loss of integrity of the structures due to relocation away from the waterfront, removal from the other portions of the complexes, possible alteration due to Design Criteria and/or building code required alterations or damage from relocation, all which have the potential to compromise the structure's historic significance.

As for the Commenter's request to add additional mitigation related to the rehabilitation, reuse and protection of the Southwest Marine Administration Building (referred to by the Commenter as the Bethlehem Steel Administrative Building), the proposed Project would not impact the building. As noted above in Response to Comment LAC-6, there is currently no proposed use for the building. Also, the Southwest Marine Administration building is owned by neither LAHD nor ALBS which precludes its rehabilitation, reuse or stabilization unilaterally by the LAHD or ALBS.

However, should an application for future use of the building be submitted to the LAHD for review, which could include restoration and reuse of the building; it will be subject to a separate CEQA review process.

Response to Comment LAC-8

As the Commenter noted, the LAHD has prepared a Terminal Island Land Use Plan to determine long-term land use and facility improvements for Terminal Island, including boat yard uses. Given that a higher level planning process is underway, it is speculative to know the outcome. The LAHD will be preparing a comprehensive Port Master Plan Update (related-project #31 in Chapter 5, Cumulative Analysis of the Draft EIR), which includes redevelopment of Terminal Island. While the amendments addressed changes relating to specific projects, a comprehensive review and update of the PMP is being completed. This effort is a work in progress and a completion date has not been set.

From: FBMJET@aol.com [mailto:FBMJET@aol.com]
Sent: Monday, March 05, 2012 7:47 PM
To: Ceqacomments
Subject: Al Larson Boat Shop Improvement Project EIR comments

The San Pedro Bay Historical Society requests that the potentially historic buildings (A2, A3, C1) at the Al Larson Boat Shop be relocated to another site within the Port of Los Angeles as described in ES.4.2.4 ("Alternative 4--Relocation of Historic Buildings") of the Boat Shop EIR. Demolition of these structures would permanently destroy an important part of what little remains of an integral and significant part of our Port's and community's history: shipyards, ship building and ship repair. These potentially historic buildings should be relocated to a site where their historical importance can be seen and appreciated by all who seek not only to enjoy our history but also who desire to understand our rich maritime history within the context of our community's history. Other historical maritime realia, e.g. photos, tools, etc., will mean little if the buildings that represent them are destroyed. Further, our community, in its wisdom, is preserving its historical houses through overlay zones (e.g. Vinegar Hill HPOZ) and through the adapted reuse of historical structures (e.g. Warehouses 9 and 10). The Boat Shop building are no less worthy of preservation.

SPBHS-1

Members of the Historical Society have toured the Boat Shop site and have talked extensively with its President, Jack Wall. We have no desire to impede the necessary expansion and growth of the business because his business represents an integral part of our maritime history. This expansion and growth can only benefit our community. However, as custodians of San Pedro's history, the Historical Society would be remiss if we did not call for preservation of the three historical buildings at the site, for they stand as a testament to a past era that greatly influenced our community's growth and the Port's development and preeminence.

Finally, the Historical Society wishes to see these historical buildings relocated to the San Pedro Waterfront Project (ES.4.2.4) since the relocation to that site would be consistent with the community plan. Additionally, the Historical Society concurs with and endorses the key points raised by the Los Angeles Conservancy in the comments that it made in the Boat Shop Notice of Preparation, particularly with respect to the rationale behind the proposed demolition, and the necessity of developing steps to rehabilitate the historical structures.

Sincerely,
Frank B. Anderson
President, San Pedro Bay Historical Society
fbmjet@aol.com
515 North Meyler St.
San Pedro, California 90731-1840
H. 310 8339113 C. 310 3875665

San Pedro Bay Historical Society (SPBHS)

Response to Comment SPBHS-1

Thank you for your review and comment on the Draft EIR. The comments are noted and have been incorporated into the Final EIR for review and consideration by the decision-makers prior to any action on the Project.

Please refer to Response to Comments LAC-3 to LAC-7 regarding your concurrence and endorsement of the Los Angeles Conservancy's key points regarding the rationale behind proposed demolition and the necessity of developing steps to rehabilitate the historical structures.

IN RE THE MATTER OF THE AL LARSON)
BOAT SHOP IMPROVEMENT PROJECT,)
PORT OF LOS ANGELES, SAN PEDRO,)
CALIFORNIA.)
_____)

Transcript of the
Draft Environmental Impact Report
for the Al Larson Boat Shop
Improvement Project Public Meeting
Wednesday, February 15, 2012
San Pedro, California

SNYDER HEATHCOTE INC.

REPORTED BY Jamie L. Apodaca, CSR #10990

OUR FILE NO.

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IN RE THE MATTER OF THE AL LARSON)
BOAT SHOP IMPROVEMENT PROJECT,)
PORT OF LOS ANGELES, SAN PEDRO,)
CALIFORNIA.)
_____)

Transcript of the Draft Environmental Impact
Report for the Al Larson Boat Shop Improvement
Project Public Meeting for the Port of Los Angeles,
held at 6:02 P.M. on Wednesday, February 15, 2012,
at 425 South Palos Verdes Street, San Pedro,
California, transcribed by Jamie L. Apodaca,
CSR #10990.

1 APPEARANCES:

2 Christopher Cannon

3 Dorothy Meyer

4 Elizabeth Warren

5 Frank B. Anderson

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1 MR. CANNON: Good evening and welcome to the public
2 hearing for the Al Larson Boat Shop Project environmental
3 impact report.

4 CEQA doesn't require public hearings, but the law
5 allows the lead agency to call a hearing if it facilitates
6 the purpose and the goals of CEQA. The Port of Los Angeles
7 always has hearings for environmental documents because we
8 want to be able to facilitate a public dialogue.

9 The environmental process is best, we believe, when
10 it is iterative, which is to say we hear from you and we
11 respond, and then that way we learn about your needs and
12 we're able to best address those concerns. And we don't know
13 about them until we hear about them.

14 So we ask that you focus your comments tonight on
15 the sufficiency of the document in identifying and addressing
16 possible impacts on the environment. If you have ways to
17 suggest that these impacts could be avoided or different ways
18 in which they can be reduced, we'd like to hear about them.
19 If there's alternative mitigation measures, we'd like to hear
20 about them, but any mitigation measures that you propose must
21 be feasible and therefore are things that can actually be
22 accomplished.

23 Please give us at least some idea of the basis of
24 your comments if for no other reason that it helps us track
25 down whatever it is that you want us to do. But keep in mind

1 that we're ultimately here to listen, which is to say we're
2 not going to respond to comments or questions tonight from
3 the ideas here. We're just going to listen to what you have
4 to say. We have a court reporter here who is recording your
5 comments, and so we look forward to hearing from you.

6 We have not a large crowd, obviously, so we're going
7 to try and be very brief with our presentation. We're going
8 to have Dorothy Meyer here, who is the consultant project
9 manager and worked closely with us, who is going to go over
10 the CEQA process and the description of the project. And
11 then we'll take comments -- I have two speaker cards here --
12 and then we'll end this.

13 So without any further ado, I turn this over to
14 Dorothy for a brief presentation.

15 MS. MEYER: Thank you.

16 The main objective of CEQA is to disclose potential
17 environmental effects, identify ways to reduce or avoid
18 impacts through mitigation or alternatives that would reduce
19 and avoid those impacts, disclose reasons for the project
20 approval where significant impacts occur, and enhance public
21 participation and agency coordination.

22 The E.I.R. process is made up of several steps.
23 Step one is the notice of preparation and scoping meeting,
24 which for this project occurred in September, 2010.

25 The second step is the draft E.I.R., which is what

1 we're currently discussing today. This was released in
2 January and is currently out for public review. And the
3 environmental document analyzes the potential impacts of the
4 proposed project and the alternatives to the proposed
5 project.

6 Step three is the final E.I.R. Once we receive all
7 the comments on the draft E.I.R., which will include
8 tonight's comments as well as those that reach us by the
9 March 5th deadline, all the comments will be addressed and
10 any changes made to the document, and then the final E.I.R.
11 will be given to the Board of Harbor Commissioners for
12 decision-making and possible approval and certification of
13 the document and the project.

14 Here's a view of the E.I.R. process. The yellow
15 circles are the areas where public participation is
16 encouraged, and we are right here at the public meeting for
17 the draft E.I.R.

18 The Al Larson boat shop is located at 1049 Seaside
19 Avenue, west side of the Fish Harbor in the Port of Los
20 Angeles at Berth 258. The existing facility consists of 7.7
21 acres, 2.35 of which is land and 5.35 of water. The proposed
22 project would change that to 7.3 acres, or 4.1 land, 3.2
23 water. The project site is in the red-circled area in Fish
24 Harbor.

25 The Al Larson facility consists of several

1 structures, as you can see here, and here they are on the
2 screen. There are -- the portion of the project that is part
3 of the facility is from that "E" on up. The "E," "B," and
4 the marina are not part of this project.

5 The Al Larson boat shop has been in its present
6 location since 1920. The historic -- there has been a
7 historic-resources survey done of the project site, and it
8 currently has approximately two building complexes as
9 potentially historic. Here is a figure of those buildings.
10 The ones that are designated "A" are the office and workshop
11 complex, and the ones designated "C" are considered the
12 marine -- the machine shop complex.

13 The objectives of the proposed project are to
14 improve the project site drainage to comply with current and
15 future environmental permits and regulations; also to
16 optimize the facility by increasing the land available in
17 order to better use the site for ship-building and vessel
18 maintenance and repair; and then thirdly is to modernize the
19 boatyard facilities. The facility was built in the 1920s,
20 and several of the structures, particularly the ones that are
21 potentially historic, are close to 90 years old and in need
22 of repair as well as modern equipment.

23 Also part of the project is the return of the area
24 leading to the facility to its designed depth of minus
25 22 feet below low mean low low waters. So in order to do

1 that, we would need to dredge, and as part of the dredging,
2 we'll have an opportunity to clean up the sediment and the
3 soil contaminants that have been at the site for a long
4 time.

5 Here is an overall plan of what is proposed. There
6 are three phases that would occur in sequence. In green is
7 Phase I; orange is Phase II; and three, which is pink, is
8 Phase III. As you can see, in Phase I and II, there are
9 dredging and confined disposal facilities that are part of
10 the project.

11 The Phase I includes demolition of existing wharves
12 and piles within the Phase I area. We're going to construct
13 a CDF, also as part of the Phase I, and dredge as part of the
14 project. Also, there will be two finger piers built to
15 support travel lifts that would function to lift vehicles out
16 of the water and take them to the land side in order that
17 repairs can be made.

18 Finally as part of this, buildings D, C-1, and a
19 shed will be demolished. Pavement will be removed,
20 contaminated soil also removed, and the site graded and --
21 the site graded. Here is a graphic vision of what that is.
22 There's the demolition, and here's the creation of the CDF as
23 well as the demolition of the buildings -- there we go --
24 demolition of the buildings under Phase I.

25 Okay. The orange box actually represents the area

1 where dredged material will be taken by barge to that area.
2 Cement mixers will be put into those scows, or the barges,
3 and it will be mixed and the soil will be stabilized. That
4 stabilized soil will then be brought back to the area where
5 the CDF is going to be created, and it will be used to create
6 land and stabilize the contaminated soils.

7 Phase II includes the demolition of the finger piers
8 for the three existing marine railways. It will construct a
9 CDF and demolish building H-2, which is also another little
10 shed. The dredge from the area in Phase II will again go
11 through the same process as the dredge in Phase I, and the
12 CDF will also be created in the same manner as the CDF in
13 Phase I, except for the CDF in Phase II is much bigger.
14 Again, this will allow contaminated dredge to come out of
15 Fish Harbor and be put in a CDF.

16 This will -- also at this time, there will be
17 re-engineering of the site's drainage system, and an
18 oil-water separator will be put on the site to treat
19 discharge before going into Fish Harbor.

20 And here's a view of Phase II where the three piers
21 will be removed. There's the shed. It's that little
22 building. There's the creation of the CDF, and there's the
23 dredge area.

24 All right. Phase III -- this will include the
25 demolition of two buildings. These are a part of the office

1 and workshop complex, A-2 and A-3, and this will also include
2 paving of the area, additional storm-drain systems, and also
3 some yard lighting, and if they need it, they will construct
4 a new office building. There's a visual of it.

5 Here it summarizes the buildings that will remain
6 versus those that are being proposed to go. The red are the
7 buildings that are going to be demolished as part of the
8 proposed project. The blue buildings would be retained. The
9 green area is the area added to the lease, which is going to
10 be extended as part of the proposed project. And then the
11 building that's orange that says "Not part of the project" --
12 that's the Southwest Maritime Administration building, and
13 even though it looks like it's part of the project area, it
14 is not, and it's not part of the project and won't be touched
15 as part of this project.

16 Project operation -- currently the space is
17 available to do repairs, ship-building, and maintenance, but
18 it's limited based on the size and the equipment itself.
19 Part of the changes would include removing three old marine
20 railway systems and installing two travel lifts, therefore
21 freeing up more of the back land, or the dry dock, to be able
22 to be used for the operation and the repair of ships.

23 Here is a graphic that shows the turn radius of
24 those lifts, and as you can see, the lifts are actually
25 limited if the buildings remain in place. And you can see

1 how the turning radius is necessary for the ships to be
2 pulled out of the water and then repaired on land.

3 The environmental impact report looked at all these
4 different environmental areas. Of those, we did have
5 significant impacts in air quality, bio, cultural,
6 green-house gas emissions, health risk, and noise. As you
7 can see, most of them were from construction, although in air
8 quality and greenhouse gas, it was operation as well.

9 For biological resources, because we were taking out
10 areas of where the water was and creating these two CDF, we
11 did have -- and we're going to fill 0.9 acres in Fish Harbor,
12 we did have to mitigate for that using existing mitigation
13 credits.

14 Even with mitigation, there was still a significant
15 impact in air quality during construction. The largest
16 contributor to the air quality impact is dredging equipment
17 and creation of the CDFs.

18 For operation, we also still have a significant
19 impact after mitigation. The main source of emissions was
20 from air compressors, and the facility uses these air
21 compressors throughout the port and not just at this
22 facility, and there is no feasible way of turning those into
23 electric devices that would have reduced some of the diesel
24 impacts. So that remained a significant impact.

25 Also with cultural resources, we do have these three

1 potentially historic buildings which are part of potentially
2 historic complexes. So once you demolish those, then they're
3 no longer -- they no longer exist. So that was a significant
4 impact we could not avoid, although we did have mitigation
5 for doing recordation.

6 Greenhouse impact for construction and operation, we
7 would be over the significance threshold even with
8 mitigation.

9 Health risks -- health risks, same thing. For
10 construction, we would be over the significance threshold of
11 1.0 for cancer and acute. And -- but it's mostly because of
12 the marina, which is just south of the project. Although not
13 part of the project site, they are live-aboards. There are
14 two live-aboards there, and so they count as residential
15 receptors.

16 Noise -- we do have several mitigation measures like
17 attenuation barriers and also some things that we're going to
18 do with the pile-driving equipment as part of the CDF and the
19 dredge. And even with those mitigations, during construction
20 we still would have a potential impact, particularly to the
21 Al Larson marina, because there are receptors there, and also
22 Reservation Point.

23 There are seven alternatives to the proposed
24 project. The first one involves a reduced project that would
25 just take care of water-quality improvements -- and that

1 would be the minimum -- as part of this.

2 The second one is limited demolition. We would just
3 take out one of the historic structures and not all of them
4 that we were proposing as part of the proposed project.

5 Number three is the alternative where the proposed
6 project would have no impacts on historic buildings. So we
7 would still do the CDFs. We would still do dredging and
8 clean up that contamination there, but we couldn't clean up
9 the contamination that's under these historic buildings --
10 potential historic buildings, and we wouldn't be able to use
11 the travel lifts because, as you can see by that turn radius,
12 you need all that space to be able to bring the boats out
13 onto the dry dock.

14 Proposal four would be relocating the historical
15 buildings to another part of the port. And actually these
16 were the sites in yellow that we looked at in the
17 environmental document as possible locations to relocate.

18 And actually -- excuse me -- this is the relocation
19 of -- this is five. Take Al Larson and actually put it
20 somewhere else in the port and what would that look like in
21 terms of we'd have to clean up the site as well as we would
22 have impact somewhere else in the port; and that's where this
23 figure comes in. These would be the possible places that we
24 would locate the Al Larson boat shop under alternative five.

25 Alternative six is the no-project. Now, the

1 no-project means that there would be no action and no way of
2 correcting or cleaning up the contamination either in the
3 ground water or -- I mean in the water or the sediments out
4 in Fish Harbor.

5 And then seven is the no federal action. This
6 basically would allow for all the project elements that are
7 actually on the land but nothing that would impact the water.
8 So the CDFs, the dredging -- all of that -- the finger -- the
9 new piers and the travel lifts on those piers would not
10 occur, but all the land-side activities would still happen.

11 Of all the alternatives, alternative one was the
12 environmentally superior alternative, and that's because it
13 reduced some water quality impacts, but it did not meet all
14 the objectives.

15 As you can see here, we have until March 5th to give
16 us comments, plus you can always give us comments tonight.
17 So with that I'd like to open it up for public comments, and
18 Christopher has the cards. Thank you.

19 MR. CANNON: Thank you very much.

20 We have two comment cards here, one from Miss
21 Elizabeth Warren and also from Mr. Frank Anderson.

22 Elizabeth, you were first, and so we look forward to
23 hearing from you.

24 MS. WARREN: Good evening. Thank you, Christopher and
25 Dorothy, for the opportunity to provide some comments this

1 evening.

2 For the record, my name is Elizabeth Warren. I'm
3 the executive director at Future Ports. We appreciate the
4 opportunity to provide our comments in support of the Al
5 Larson Boat Shop Improvements D.E.I.R.

6 The project is environmentally beneficial, allows
7 for the modernization of the facility that is over 100 years
8 old, and will continue to provide services to many commercial
9 industries in the San Pedro Bay that would otherwise have to
10 use facilities elsewhere.

11 Our members represent a broad range of businesses
12 that support the continued growth of the San Pedro Bay ports
13 as a vital economic engine and those in the goods-movement
14 supply chain that benefit from the port's continued success.
15 As such, we support this project as it will provide critical
16 services to the industry. We'd like to emphasize and
17 highlight some of the benefits of the project that reflect
18 the basis of our support for this project.

19 One, the modernization of the boat shop will
20 consistently provide the industry in the Los Angeles region
21 with reliable, cost-effective, high-quality services and boat
22 repair services.

23 Two, the plan will clean up historical dredge
24 contaminants and sequester them in a confined disposal
25 facility, or CDF, while expanding an area that can be used

**ALSBPH-1
Cont.**

1 for boat-shop operations in an environmentally superior
2 manner.

3 Three, the project will improve water quality in
4 Fish Harbor.

5 Four, the project will clean up legacy upland
6 contaminants.

7 Five, we support the project's beneficial use of
8 contaminated dredge material to create additional land.

9 Six, the majority of impacts are short-term and
10 construction-related.

11 Seven, the project will provide both construction
12 jobs as well as long-term jobs during the new operations.

13 And lastly, without the proposed improvement, the
14 lack of capacity within the facility will create backlogs and
15 scheduling issues with their existing customers. Most of the
16 Al Larson boat shop customers are inspected vessels, either
17 being inspected by the U.S. Coast Guard or the American
18 Bureau of Shipping. The only other similar boatyards that
19 can handle that similar vessel size are in San Diego or
20 San Francisco. This effectively forces their customers to
21 transport their vessels elsewhere, adding more cost,
22 additional air emissions, and negatively affecting the local
23 work force as work is exported to other regions. The
24 proposed improvements will all but ensure the work stays here
25 in the Los Angeles region.

ALBSPH-1
Cont.

1 So in closing, we ask that the port expedite the
2 clean-up in the adjacent parcel north of the proposed project
3 to ensure there are no delays to Al Larson boat shop
4 construction.

5 So thank you again very much for the opportunity to
6 comment this evening.

7 MR. CANNON: Thank you, Elizabeth.

8 Frank?

9 MR. ANDERSON: Good evening. My name is Frank B.
10 Anderson. I am the president of the San Pedro Bay Historical
11 Society. We don't oppose the project, but we do have deep
12 concerns about the demolition of those three buildings that
13 have historical status. And they're reflective of a past,
14 the past that we had here in this town of ship-building,
15 ship-repair.

16 These three buildings -- E-2, E-3, and C-1 -- may
17 not be on the National Site for Historical Registry but do
18 have historical importance, and just videographing them,
19 filming them after the fact really isn't preservation. So
20 we're very concerned about this, not the other parts of the
21 project. I think it's a very sound project in general, and I
22 know that it would be difficult to build a lift around it,
23 but I think you have to look at maybe alternative 3 where the
24 buildings are retained.

25 So again, we don't oppose the project as such, but

ALBSPH-1
Cont.

ALBSPH-2

1 we're going to weigh in on the historical buildings. Thank
2 you.

3 MR. CANNON: Okay. That's the last of the comments that
4 I have. Anybody else here want to have something to say? If
5 so, speak now or forever hold your peace, as goes the
6 expression.

7 Hearing none, then I will declare this hearing
8 closed and thank you all for coming.

9 MS. MEYER: And if you haven't already, please sign the
10 sign-in sheets because that way we'll get additional
11 information to you and keep you informed of the project.

12 (Whereupon the meeting was
13 adjourned at 6:19 P.M.)
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25

1 STATE OF)
2 CALIFORNIA) SS.
3

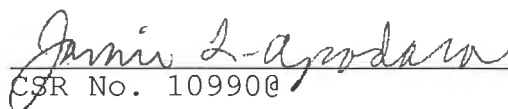
4 I, Jamie L. Apodaca, Certified Shorthand Reporter
5 qualified in and for the State of California, do hereby
6 certify:

7 That the foregoing transcript is a true and correct
8 transcription of my original stenographic notes and that
9 dismantling, unsealing, or unbinding of this transcript will
10 render this certificate null and void.

11 I further certify that I am neither attorney or
12 counsel for, nor related to or employed by any of the parties
13 to the action in which this proceeding was taken; and
14 furthermore, that I am not a relative or employee of any
15 attorney or counsel employed by the parties hereto or
16 financially interested in the action.

17 I further certify that I am not interested in the
18 event of the action.

19 IN WITNESS WHEREOF, I have hereunto set my hand this
20 24th day of January, 2012.

21
22 
23 CSR No. 109900
24
25

2.3.5 Draft EIR Public Hearing

Al Larson Boat Shop Public Hearing Transcript (ALBSPH)

Response to Comment ALBSPH-1

Thank you for your review and comment on the Draft EIR.

Response to Comment ALBSPH-2

Thank you for your review and comment on the Draft EIR. Please refer to Response to Comment SPBHS-1.

2.4 References

2.4.1 Printed References

Port of Los Angeles. *Boatyard Analysis - A Review of Boatyard Market Demand Data*, January 2012.

2.4.2 Personal Communications

Mike Rubino, June 5, 2012

2.5 Table

MEDIUM ACTIVE BOAT YARDS ALONG THE WEST COAST

FACILITY	EQUIPMENT	LENGTH (feet) and/or LIFT CAPACITY
Washington		
All American Marine - Bellingham, WA	Shipbuilding	
Dakota Creek Industries - Anacortes, WA	Floating Dry dock	314 (95,000 ton)
	Syncolift	306 (5,000 ton)
Duwamish Shipyard - Seattle, WA	Closed	
Fishing Vessel Owners Marine Ways - Seattle, WA	Marine Railway #1	600 ton
	Marine Railway #2	600 ton
Foss Maritime - Seattle, WA	Floating Dry dock #1	194
	Floating Dry dock #2	220 (2,000 ton)
Hansen Boat - Everett, WA	Dry dock	140
J.M. Martinac Shipbuilding - Tacoma, WA	Shipbuilding	
Kvichak Marine Industries - Seattle, WA	Shipbuilding	
Lake Union Dry dock - Seattle, WA	Floating Dry dock #1	420 (6,000 ton)
	Floating Dry dock #2	200 (1,200 ton)
LeClercq Marine Construction - Seattle, WA	Shipbuilding	
Little Hoquiam Shipyard - Hoquiam, WA	Shipbuilding	
MARCO - Seattle, WA	Closed	
Modutech Marine - Tacoma, WA	Marine Railway	85 ton

	Three (3) Travel Lifts	Max 85 ton
Nichols Brothers Boat Builders - Freeland, WA	Shipbuilding	
Northlake Shipyard - Seattle, WA	Floating Dry dock #2	200 (1,000 ton)
	Floating Dry dock #9	288 (1,900 ton)
Pacific Fishermen - Seattle, WA	Marine Railway	70 (150 ton)
	Marine Railway	146 (600 ton)
	Syncolift	144 (600 ton)
	Sidetrack	160 (600 ton)
Pacific Ship Repair & Fabrication - Bremerton, WA	No haul out	
Puglia (Fairhaven Shipyard) - Bellingham, WA	Floating Dry dock	400 (3,200 ton)
	Marine Railway	121 (400 ton)
Puglia Engineering - Tacoma, WA	No haul out	
Rozema Boat Works - Mt. Vernon, WA	Shipbuilding	
Seaview West - Bellingham, WA	Travel Lift #1	135 ton
	Travel Lift #2	35 ton
Seaview Fairhaven - Bellingham, WA	No haul out	
Seaview North - Seattle, WA	Travel Lift	55 ton
Straits Marine and Industrial - Port Angeles, WA	Travel Lift	300 tons
	Dry dock	1,900 tons
	Sealift	50 ton
Vigor Industrial - Everett, WA	Dry dock #3	200 x 60 (1,000 ton)

Vigor Industrial - Tacoma, WA	Marine Railway	180 x 50 (500)
	Floating Dry dock	398 x 57 (2,800)
Vigor Industrial (Todd Shipyard) - Seattle, WA	Dry dock #1	528 x 87 (17,500 ton)
	Dry dock #3	500 x 134 (12,500 ton)
	Dry dock #10	552 x 93 (18,000 ton)
Walashek Industrial & Marine - Seattle, WA	Boilers only	
Westport Shipyard - Westport, WA	Shipbuilding	
William E. Munson - Mt. Vernon, WA	Boat building	
Oregon		
Diversified Marine - Portland, OR	Floating Dry dock #1	60 x 30 (100 ton)
	Floating Dry dock #2	101 x 62 (700 ton)
	Floating Dry dock #3	160
Charleston Shipyard - Charleston, OR	Travel Lift	60 ton
	Marine way	200 ton
Foss Maritime - Rainier, OR	Shipway #1	120 (500 short tons)
	Shipway #2	120 (500 short tons)
Giddings Boat Works - Charleston, OR	Shipbuilding	
Gunderson - Portland, OR	Barge Builder	
Southern Oregon Marine - Coos Bay, OR	Shipway	351
	Floating Dry dock	200
For use by company vessels		
Sundial Marine Tug & Barge Works - Troutdale, OR	Shipway	298

	Floating Dry dock	298
Vigor Industrial (Cascade General) - Portland, OR	Dry dock #1	598 x 88 (15,000 ton)
	Dry dock #2	661 x 114 (27,000 ton)
	Dry dock #3	246 x 140 (30,000 ton)
Zidell Marine - Portland, OR	Construction	340
California		
Al Larson	Shipway #1	112 (350 ton max)
	Shipway #2	121 (350 ton max)
	Shipway #3	131 (350 ton max)
	Shipway #4	265
	Floating Dry dock	249
Anacapa Marine Service - Oxnard, CA	Travel Lift	50 x 15 (30 ton)
BAE Systems - San Diego, CA	Floating Dry dock	20,000 ton
BAE Systems - San Francisco, CA	Floating Dry dock #1	14,500 ton
	Floating Dry dock #2	56,600 ton
Balboa Boatyard - Newport Beach, CA	Marine Railway	70 (80 ton)
	Crane	2 ton
Basin Marine - Newport Beach, CA	Travel Lift	35 ton
Bay Ship & Yacht Company - Alameda, CA	Floating Dry dock	390 (3,000 ton)
	Syncrolift	200 (1,200 ton)
BellPort Newport Harbor Shipyard - Newport Beach, CA	Crane	115 (90 tons)
Cabrillo Boat Shop - Long Beach, CA		15
Channel Islands Boat Yard - Oxnard, CA	Closed	
Continental Maritime of San Diego - San Diego, CA	Leases Floating Dry dock and Graving Dry dock from Navy	

Coastal Boatworks - Morro Bay, CA	Closed	
Dana Point Shipyard - Dana Point, CA	Travel Lift	40 ton
Depth Perceptions - Newport Beach, CA	Travel Lift	60 (30 ton)
Dockside Machine & Ship Repair - Wilmington, CA	No water access	
Driscoll Boat Works - San Diego, CA	Syncrolift	150 ton
	Travel Lift #1	150 ton
	Travel Lift #2	88 ton
	Travel Lift #3	50 ton
	Travel Lift #4	10 ton
Fashion Blacksmith - Crescent City, CA	Construction & repair	
Fonteneau Yacht Repair - San Diego, CA	Specializes in the service and repair of stabilizers, water makers and bow thrusters.	
Gambol Shipyard - Long Beach, CA	Fast Lift	150 x 40 (300 ton)
	Crane	30 ton
General Dynamics NASSCO (National Steel and Shipbuilding Company) - San Diego, CA	Building way #1	950
	Building way #2	950
	Graving Dry dock	1000 (30,000 ton)
	Floating Dry dock	820 (44,000 ton)
Harbor Marineworks - Santa Barbara, CA	Travel Lift	70 (40 ton)
	Crane	15 ton
Kettenberg - San Diego, CA	Lift	150 tons maximum
King Harbor Marine Center - Redondo Beach, CA	Travel Lift	60 ton

Knight and Caver Yacht Center- San Diego, CA	Dry Dock	4,000 ton
	Travel Lift	330 ton
	Floating Dry dock #1	400 ton
Keohler Kraft - San Diego, CA	Marine Railway	70
Marine Group Boat - Chula Vista, CA - Same address as South Bay Boatyard	Travel Lift #1	220 (665 ton)
Nielsen Beaumont Marine - San Diego, CA	Marine Railway	70 ton
Newport Harbor Shipyard - Newport Beach, CA	Travel Lift	110 (90 ton)
Oceanside Marine Center - Oceanside, CA	Travel Lift w/Crane	Small (14' 11" beam max) 3,300 lb(lift); 2,500 lb (crane)
Pacific Ship Repair & Fabrication - San Diego, CA	No haul out	
Pedigree Marine - Newport Beach, CA	Travel Lift	35 ton
Puglia Engineering - Alameda, CA	No haul out	
Seamark Boatyard - Marina del Ray, CA		26 (3 ton)
Shelter Island Boatyard - San Diego, CA	Travel Lift #1	30 ton
	Travel Lift #2	80 ton
South Coast Shipyard - Newport Beach, CA	Syncrolift	70 (70 tons)
South Bay Boatyard - Chula Vista, CA	Travel Lift #1	25 ton
	Travel Lift #2	58 x 22 (70 ton)
Stone Boat Yard - Alameda, CA	Travel Lift	69
	Marine Railway	164
Sunset Aquatic Shipyard - Huntington Beach, CA	Travel Lift	70 ton
The Boat Yard - Marina del Ray. CA	Travel Lift #1	35 ton
	Travel Lift #2	65 ton
Van Peer Boatworks- Ft. Bragg, CA	Ship building	

Ventura Harbor Boatyard - Ventura, CA	Travel Lift #1	56 (35 ton)
	Travel Lift #2	131 (150 ton)
Wilmington Marine Service - Wilmington, CA	Marine Railway	100 (150 ton)
Windward Yacht Center - Marina del Ray, CA	Travel Lift #1	34 ton
	Travel Lift #2	70 ton
	Travel Lift #3	100 ton

Source: Boatyard Guide.com, last accessed April 2012

Chapter 3

Modifications to the Draft EIR

Introduction

This chapter of the document addresses modifications to the Draft EIR for the Al Larson Boat Shop Improvement Project (proposed Project) at the Port of Los Angeles (Port). It presents all revisions related to public comments, as determined necessary by the lead agencies, for the following areas of the document:

- Executive Summary;
- Chapter 2, Project Description;
- Section 3.1, Aesthetics and Visual Resources;
- Section 3.2, Air Quality, Meteorology and Greenhouse Gases;
- Section 3.3, Biological Resources;
- Section 3.4, Cultural Resources;
- Section 3.5, Geology;
- Section 3.6, Groundwater and Soils;
- Chapter 5, Cumulative Analysis
- Chapter 6, Analysis of Alternatives;
- Chapter 9, References;
- Chapter 10, List of Preparers and Contributors;
- Appendix C2, Operation Emissions;
- Appendix C3, Health Risk Assessment.
- Add Appendix H: Boatyard Analysis – A Review of Boatyard Market Demand Data

Any revisions to supporting documentation are also presented. The numbering format from the Draft EIR is maintained in the sections presented here. Only sections that have revisions based on public comment are included, and sections that have no revisions are not included. Readers are referred to the Draft EIR to view complete sections. It should be noted that some of the changes were editorial in nature. However, corrections and refinements to Section 3.2, Air Quality, Meteorology and Greenhouse Gases, in particular the health risk assessment, as a result of South Coast Air Quality Management District (SCAQMD) comment SCAQMD-3 resulted in changes (reductions) in the maximum

health impacts under Impact AQ-7, and elimination of a significant and unavoidable impact to residential cancer risk and acute hazard.

As provided in Section 15088(c) of the State CEQA Guidelines, responses to comments may take the form of a revision to a Draft EIR or may be separate section in the Final EIR. This chapter provides changes to the Draft EIR in revision-mode text (i.e., deletions are shown with ~~strike through~~ and additions are shown with underline). These notations are meant to provide clarification, corrections, or minor revisions as needed as a result of public comments or because of changes in the proposed Project since the release of the Draft EIR.

Changes to the Draft EIR

The following changes to the text as presented below are incorporated into the Final EIR:

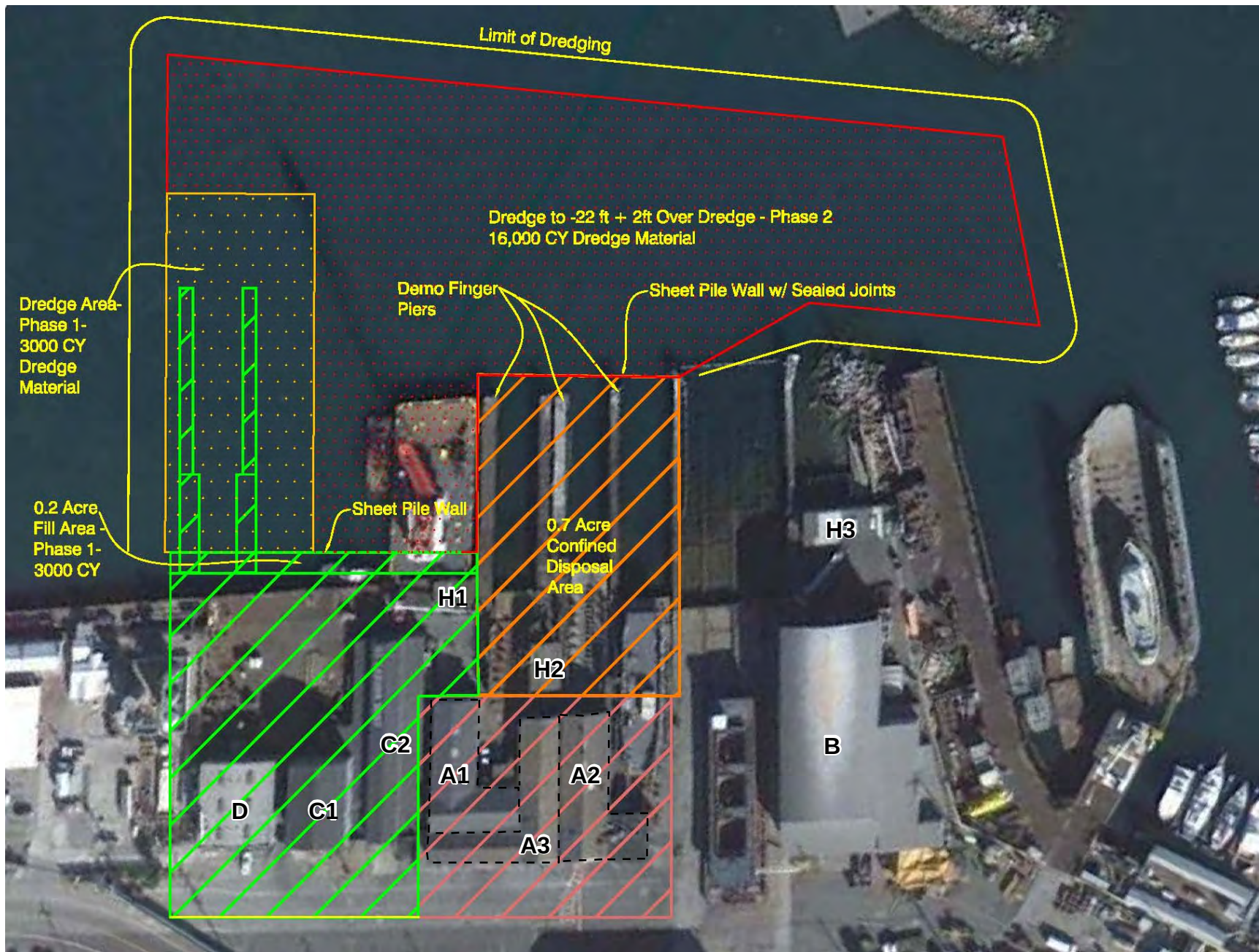
Changes Made to the Executive Summary

Section ES.3.3, Figure ES-3, Page ES-8

The southernmost portion of Building A2, which is part of the Office and Workshop Complex, was inadvertently omitted from the boundary delineating Building A2. Figure ES-3 has been revised to reflect the correct boundary of Building A2. In addition, the name of the figure has been revised to clarify the information being presented in the figure. Replace Figure ES-3 with the attached (next page).

Section ES.3.3.1.8, Figure ES-4, Page ES-13

The southernmost portion of Building A2, which is part of the Office and Workshop Complex, was inadvertently omitted from the boundary delineating Building A2. Figure ES-4 has been revised to reflect the correct boundary of Building A2. In addition, the Project boundary has been added to delineate the facility improvements and future leasehold area and the name of the figure has been revised to clarify the information being presented in the figure. Replace Figure ES-4 with the attached (following Figure ES-3).



- A - Office and Workshop Complex
- B - Paint and Shed
- C - Machine Shop Complex
- D - Building No. 4
- H - Ancillary Buildings and Structures

LEGEND:

- PHASE 1
- PHASE 2
- PHASE 3



Port of Los Angeles
Al Larson Boat Shop
Improvement Project

Improvement Element of Proposed Project

Figure ES-3



 Existing Lease	 Buildings to be demolished
 Area to be added to lease	 Buildings to remain
 Excluded	 Redevelopment Area
 Project Boundary - Facility Improvements and Future Leasehold	

Port of Los Angeles
Al Larson Boat Shop Improvement Project
Project Boundary and Lease Renewal
Element of Proposed Project
Figure ES-4

Section ES.4.2.2, Page ES-15

Revise paragraph under “Alternative 2 – Reduced Project: Limited Demolition” heading, as follows:

Alternative 2 – Reduced Project: Limited Demolition

This alternative would be very similar to the proposed Project; however, not all of the three potentially historic buildings (A2, A3, or C1) would be demolished. Most of the other Project components would be constructed/implemented (i.e., drainage improvements, soil clean-up, dredging, 100-ton boat hoist, and CDFs). However, due to the retention of some of the potentially historic buildings, some of these components would not be implemented to their fullest extent, or, as is the case with the 600-ton boat hoist, not implemented at all (due to reduced clearance as a result of the retention of buildings slated for demolition as part of the proposed Project). In particular, the clean-up of landside legacy contaminants would not fully occur, as some of the potentially historic buildings would remain (i.e., contaminated soils beneath the buildings and asbestos from the buildings themselves would remain). Further, the maneuverability and versatility of the boat hoists would be limited due to loss of land area available for drydocking of vessels and access issues ~~due to site constraints~~. No new structures would be constructed on the site, since some of the potentially historic buildings would remain available for reuse. Under this alternative, ALBS would continue to operate on the site under a new 30-year lease for the new area. The new lease term would begin in 2012.

Section ES.5.2.2, Table ES-1, Page ES-32

Revise mitigation measure MM CUL-2, in Table ES-1 as follows:

Environmental Impacts	Impact Determination	Mitigation Measures	Impacts after Mitigation
CUL-2: Construction of the proposed Project would impact significant historic architectural resources	Significant	MM CUL-2: Historic Resource Recordation. Impacts resulting from the demolition of Buildings A2, A3, and C1 shall be minimized through archival documentation of both building complexes in as-built and as-found condition. Prior to issuance of demolition permits, the Los Angeles Harbor Department (LAHD) shall ensure that documentation of the buildings proposed for demolition is completed in the form of a Historic American Building Survey (HABS) Level II documentation that shall comply with the Secretary of the Interior's Standards for Architectural and Engineering Documentation. The documentation shall include large-format photographic recordation, detailed historic narrative report, and compilation of historic research. The documentation shall be completed by a qualified architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards for History and/or Architectural History. The original archival-quality documentation shall be placed in the offered as donated material to Port of Los Angeles LAHD archives. Archival copies of the documentation shall also be submitted to the Los Angeles Maritime Museum, the Central Branch of the Los Angeles Public Library and the Port of Los Angeles archives where it would be available to local researchers.	Significant and unavoidable

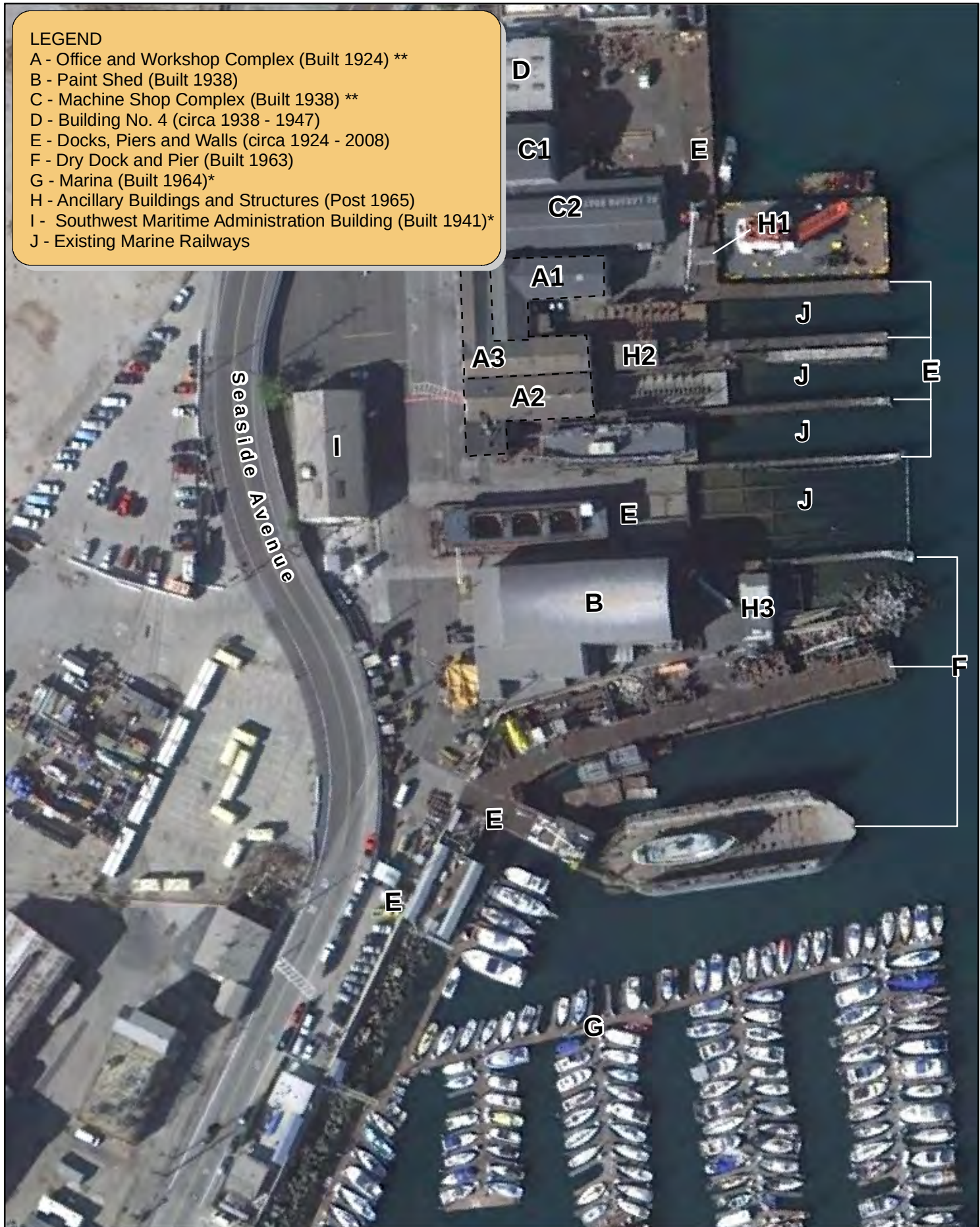
Changes Made to Chapter 2, Project Description

Section 2.4.2, Figure 2-1, Page 2-8

The southernmost portion of Building A2, which is part of the Office and Workshop Complex, was inadvertently omitted from the boundary delineating Building A2. Figure 2-1 has been revised to reflect the correct boundary of Building A2. Replace Figure 2-1 with the attached (next page).

LEGEND

- A - Office and Workshop Complex (Built 1924) **
- B - Paint Shed (Built 1938)
- C - Machine Shop Complex (Built 1938) **
- D - Building No. 4 (circa 1938 - 1947)
- E - Docks, Piers and Walls (circa 1924 - 2008)
- F - Dry Dock and Pier (Built 1963)
- G - Marina (Built 1964)*
- H - Ancillary Buildings and Structures (Post 1965)
- I - Southwest Maritime Administration Building (Built 1941)*
- J - Existing Marine Railways



* Not part of the project.
 ** Potentially Historic Buildings.

**CDM
Smith**



50 0 50
Feet

Port of Los Angeles
 Al Larson Boat Shop
 Improvement Project
 Project Site - Existing Conditions
 Figure 2-1

Section 2.5.1, Figure 2-2, Page 2-11

The southernmost portion of Building A2, which is part of the Office and Workshop Complex, was inadvertently omitted from the boundary delineating Building A2. Figure 2-2 has been revised to reflect the correct boundary of Building A2. In addition, the name of the figure has been revised to clarify the information being presented in the figure. Replace Figure 2-2 with the attached (next page).

Section 2.5.3, Figure 2-3, Page 2-16

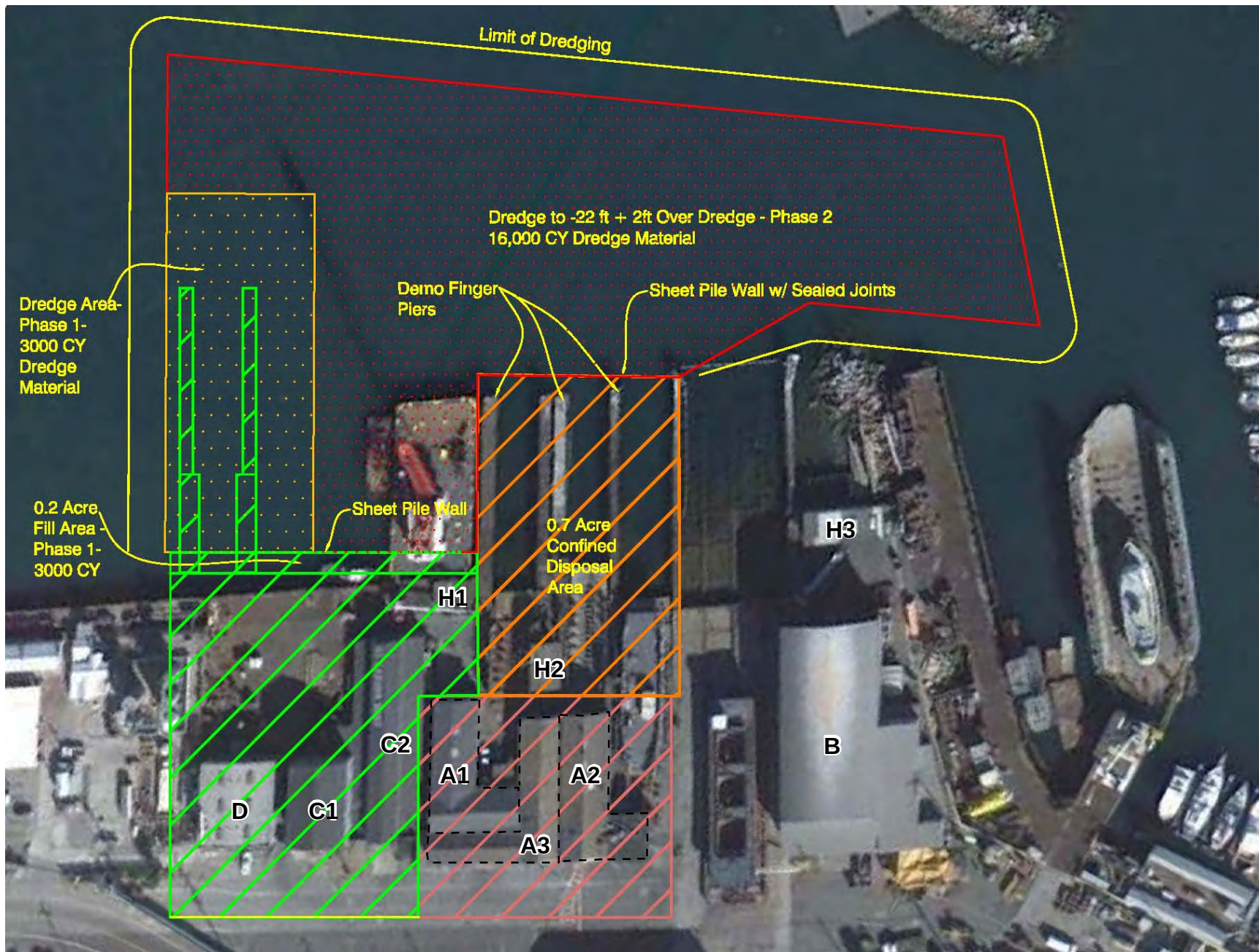
The southernmost portion of Building A2, which is part of the Office and Workshop Complex, was inadvertently omitted from the boundary delineating Building A2. Figure 2-3 has been revised to reflect the correct boundary of Building A2. In addition, the Project boundary has been added to delineate the facility improvements and future leasehold area and the name of the figure has been revised to clarify the information being presented in the figure. Replace Figure 2-3 with the attached (following Figure 2-2).

Section 2.7.1.2, Page 2-18

Revise paragraph under “Alternative 2 – Reduced Project: Limited Demolition” heading, as follows:

Alternative 2 – Reduced Project: Limited Demolition

This alternative would be very similar to the proposed Project; however, not all of the three potentially historic buildings (A2, A3, or C1) would be demolished. Most of the other Project components would be constructed/implemented (i.e., drainage improvements, soil clean-up, dredging, 100-ton boat hoist, and CDFs). However, due to the retention of some of the potentially historic buildings, some of these components would not be implemented to their fullest extent, or, as is the case with the 600-ton boat hoist, not implemented at all (due to reduced clearance as a result of the retention of buildings slated for demolition as part of the proposed Project – see Figure 2-4). In particular, the clean-up of landside legacy contaminants would not fully occur, as some of the potentially historic buildings would remain (i.e., contaminated soils beneath the buildings and asbestos from the buildings themselves would remain). Further, the maneuverability and versatility of the boat hoists would be limited due to loss of land area available for drydocking of vessels and access issues~~site constraints~~. No new structures would be constructed on the site, since some of the potentially historic buildings would remain available for reuse. Under this alternative, ALBS would continue to operate on the site under a new 30-year lease for the new area. The new lease term would begin in 2012.



- A - Office and Workshop Complex
- B - Paint and Shed
- C - Machine Shop Complex
- D - Building No. 4
- H - Ancillary Buildings and Structures

LEGEND:

- PHASE 1
- PHASE 2
- PHASE 3



Port of Los Angeles
Al Larson Boat Shop
Improvement Project

Improvement Element of Proposed Project

Figure 2-2



 Existing Lease	 Buildings to be demolished
 Area to be added to lease	 Buildings to remain
 Excluded	 Redevelopment Area
 Project Boundary - Facility Improvements and Future Leasehold	

Port of Los Angeles
Al Larson Boat Shop Improvement Project
Project Boundary and Lease Renewal
Element of Proposed Project
Figure 2-3

Section 2.7.1.2, Figure 2-4, Page 2-19

The southernmost portion of Building A2, which is part of the Office and Workshop Complex, was inadvertently omitted from the boundary delineating Building A2. Figure 2-4 has been revised to reflect the correct boundary of Building A2. Replace Figure 2-4 with the attached (next page).

Changes Made to Section 3.1, Aesthetics and Visual Resources

Section 3.1.2.1, Figure 3.1-2, Page 3.1-7

The southernmost portion of Building A2, which is part of the Office and Workshop Complex, was inadvertently omitted from the boundary delineating Building A2. Figure 3.1-2 has been revised to reflect the correct boundary of Building A2. Replace Figure 3.1-2 with the attached (following Figure 2-4).

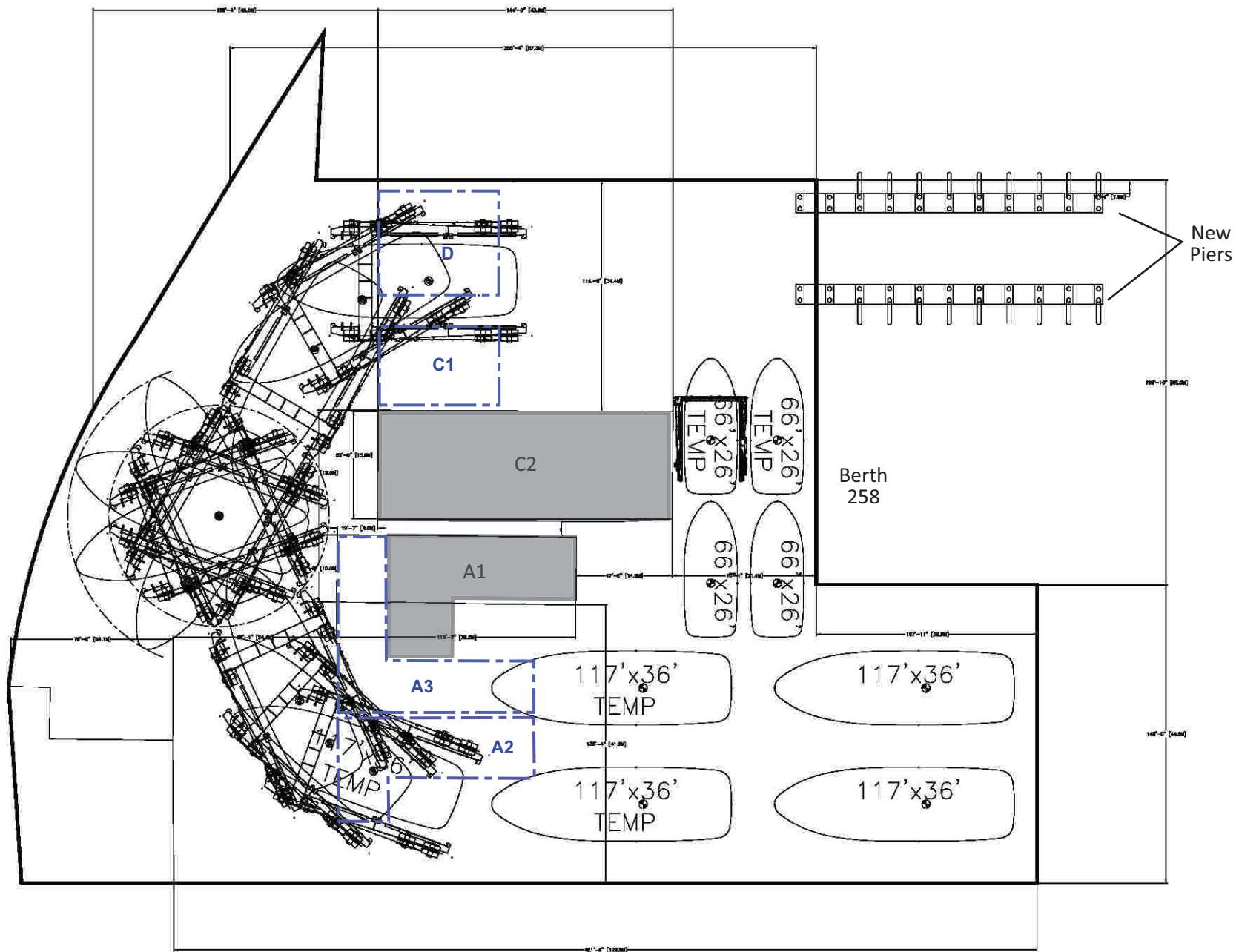
Changes Made to Section 3.2, Air Quality, Meteorology, and Greenhouse Gases

Section Summary, Key Points of Section 3.2, Page 3.2-4

Revise paragraph under “Health Risk Impacts” heading, as follows:

Health Risk Impacts

~~The combined Toxic air contaminant (TAC) emissions (in particular, diesel particulate matter for cancer [long term] risk and formaldehyde for acute [short term] risk) from construction diesel equipment would result in significant residential cancer risk and acute residential and occupational acute (short-term) risk hazard index impacts. Operational emissions do not contribute significantly to acute risks. The cancer (long term) risk and chronic non-cancer (long-term) health risk impacts from both construction equipment and incremental operational activity would be less than SCAQMD significance thresholds at all receptor types. Also, the maximum acute risk impacts at residential, sensitive, student, and recreational receptors would be less than significant. Mitigation measures MM AQ-1 through MM AQ-6 would reduce acute risk impacts; however, the residential cancer-related health risk impact and the acute residential and occupational hazard index impact would remain significant and unavoidable after mitigation. The initial screening assessment of emissions associated with proposed Project operations determined that the proposed Project would result in a minimal increase in operational TACs over baseline, and thus no significant short and long term health risks would occur as a result of operations.~~



Legend

- Buildings to be demolished
- Buildings to remain



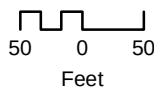
Port of Los Angeles
Al Larson Boat Shop
Improvement Project
Boat Hoists – Turn Radius
Figure 2-4

LEGEND

- A - Office and Workshop Complex (Built 1924)
- B - Paint Shed (Built 1938)
- C - Machine Shop Complex (Built 1938)
- D - Building No. 4 (circa 1938 - 1947)
- E - Docks, Piers and Walls (circa 1924 - 2008)
- F - Dry Dock and Pier (Built 1963)
- G - Marina (Built 1964)*
- H - Ancillary Buildings and Structures (Post 1965)
- I - Southwest Maritime Administration Building (Built 1941)*
- - - - - Redevelopment Boundary



* Not part of the project.



Port of Los Angeles
Al Larson Boat Shop
Improvement Project
Existing Conditions
Figure 3.1-2

Section 3.2.4.1, Page 3.2-33

Revise fourth paragraph under “Methodology,” as follows:

A health risk assessment (HRA) of toxic air contaminant emissions associated with construction and operation of the proposed Project was conducted in accordance with a protocol prepared by the Port and reviewed and approved by both CARB and SCAQMD (POLA and POLB, 2009). Maximum predicted health risk values in the communities adjacent to the Project site were compared to Significance Criterion AQ-6. The HRA analyzed Project emissions and human exposure to the emissions during the 70-year period from approximately ~~2011 to 2080~~2012 to 2081 for residential risk.⁴ Occupational risk is based on a 40-year exposure period, for this project from approximately ~~2011 to 2040~~2012 to 2051.⁵

Revise footnote “4” as follows:

The health risk assessment was based on ~~2012~~2012 emission factors for construction equipment since. Although construction is anticipated to begin in 2012, using 2011 factors and data is considered conservative as the emissions in future years are anticipated to be lower as technology improves. Operational emission factors were assumed to decrease from 2012 to 2040, based on the assumed fleet turnover in EMFAC 2011 and OFFROAD 2011. Operational emission factors were assumed to be constant over time after 2040.

Section 3.2.4.3, Page 3.2-54

Revise Table 3.2-16 under Impact AQ-3, as follows:

Table 3.2-16: Peak Daily^a Operational Emissions Without Mitigation – Proposed Project

Emission Source	Peak Daily Emissions (lb/day) ^d					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Proposed Project						
Machine Shop Operations	82 ^e	9	41	<1	37	11
Off-road Mobile Equipment	2	9	12	<1	1	1
Boat Hoists	<1	1	2	<1	<1	<1
Harbor Craft Transit	10	54	63	<1	1	1
Worker Trips ^b	5	50	5	<1	2	1
Total Peak Daily for Project Year 2014^c	100^e	123	123	<1	42	14
<u>Impacts</u>						
Baseline Emissions	46 ^e	71	122	<1	22	9
Project minus Baseline	54 ^e	52	1	<1	20	5
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No

a Emissions assume the simultaneous occurrence of maximum theoretical daily equipment activity levels. Such levels would rarely occur during day-to-day ALBS operations.

b Truck and worker commute emissions include transport within the South Coast Air Basin.

c Emissions might not precisely add due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.

d The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

e VOC emissions from coating operations were developed from gross coating emissions contained in the Annual Emission Inventory reports provided to SCAQMD. If net coating emissions from these reports were used instead, the proposed Project VOC emissions from Machine Shop Operations would be 65 lbs/day (62 lbs/day from coating activity) and total VOC emissions in 2014 would be 83 lbs/day. Baseline total VOC emissions would also be reduced to 38 lbs/day (26 lbs/day from coating activity). Therefore, using the net coating emissions would have resulted in an incremental VOC emission of 45 lbs/day. Since using the net coating emissions would produce a lower incremental increase than the gross coating emissions, the analysis in the Draft EIR is conservative, and VOC emissions would not be significant.

Section 3.2.4.3, Pages 3.2-57 to 3.2-59

Revise text and table under Impact AQ-6, as follows:

Impact AQ-6: The proposed Project would expose receptors to significant levels of TACs.

Health Risk

Project construction and operations would emit toxic air contaminant (TAC) emissions that could affect public health. The pollutant contributing most to health risk impacts is DPM, and the main sources of DPM are the spray coating compressor engines, other on-site mobile diesel engines, and the heavy-duty off-road construction equipment. ~~The main sources of DPM would occur during proposed Project construction from heavy-duty off-~~

~~road construction equipment. Increased TAC emissions would occur from the increase in ship repair activity anticipated after completion of the proposed Project. However the increase in DPM would be minimal. Other TACs from welding and sand blasting would be emitted, but the increase over the baseline operations is minimal, and emissions passed a simple Tier 2 screening assessment for both short and long term health risks, and thus, no additional analysis of the health risks associated with operations is required. Therefore the health risk assessment (HRA) presented below is focused on addressing potential public health effects from TACs generated by the construction of the proposed Project, in particular DPM.~~

An HRA spanning years ~~2011-2080~~2012 to 2081 was conducted pursuant to a Protocol reviewed and approved by both CARB and SCAQMD (POLA, 2010). The period ~~2011-2080~~2012 to 2081 is the 70-year exposure period during which proposed Project construction would occur. The Hotspots Analysis and Reporting Program (HARP), version 1.4c (CARB, 2009), was used to perform health risk calculations based on output from the AERMOD dispersion model. The complete HRA report is included in Appendix C3 of this EIR.

As noted above, the major TAC contributing to health risk would be DPM.~~The main sources of TACs from proposed Project construction would be DPM emissions from off-road equipment, trucks, and dredging equipment.~~ For health effects resulting from long-term exposure, CARB considers DPM as representative of the total health risks associated with the combustion of diesel fuel. TAC emissions from nondiesel sources (such as gasoline ~~fuel engines~~ exhaust and cleaning/coating operations) also were evaluated in the HRA, although their impacts were minor in comparison to DPM. Since the Project would generate emissions of DPM, Impact AQ-6 also discusses the effects of ambient PM on increased mortality and morbidity.

The HRA evaluated three different types of health effects: individual lifetime cancer risk, chronic noncancer hazard index, and acute noncancer hazard index. Individual lifetime cancer risk is the additional chance for a person to contract cancer after a lifetime of exposure to Project emissions. The “lifetime” exposure duration assumed in this HRA is 70 years for a residential receptor and 40 years for an occupational receptor.¹²

The chronic hazard index is a ratio of the long-term average concentrations of TACs in the air to established reference exposure levels. A chronic hazard index below 1.0 indicates that adverse noncancer health effects from long-term exposure are not expected. Similarly, the acute hazard index is a ratio of the short-term average concentrations of TACs in the air to established reference exposure levels (i.e., short-term exposure, which as described above consists of DPM emissions from off-road equipment, trucks, and dredging equipment during construction activities). An acute hazard index below 1.0 indicates that adverse noncancer health effects from short-term exposure are not expected.

For the determination of significance, this HRA determined the increase in health effects values due to the proposed Project construction. The health effects values were compared to the significance thresholds for health risk described in Section 3.2.4.2.

To estimate residential cancer risk impacts, VOC and DPM emissions were calculated for proposed Project construction and incremental operations, and averaged over a 70-year period, from approximately ~~2011 through 2080~~2012 through 2081. Occupational risk was determined over a 40-year period, from approximately ~~2011 to 2040~~2012 to 2051.

Recreational, student, and sensitive receptor risks are determined from the calculated residential and occupational risks and according to receptor-type locations. Where applicable, emission factors were allowed to change with time in accordance with normal fleet turnover rates (for trucks and off-road equipment), and existing regulations and agreements listed in Table 3.2-8.

Table 3.2-18 presents the maximum predicted health impacts associated with the proposed Project without mitigation. The table includes estimates of individual lifetime cancer risk (long-term), chronic noncancer hazard index (long-term), and acute noncancer hazard index (short-term) at the maximally exposed residential, occupational, sensitive, student, and recreational receptors. For each receptor type, the various health values in Table 3.2-18 often occur at different locations. Figure 3.2-1 shows the maximum concentration locations associated with unmitigated emissions, while Figure 3.2-2 shows the maximum concentration locations associated with mitigated emissions.

Table 3.2-18: Maximum Health Impacts Associated With the Construction and Incremental Operation of the Proposed Project Without Mitigation, 2012-20812011—2080

Health Impact	Receptor Type	Maximum Predicted Impact ^{a,b}	Significance Threshold
		Increment ^c	
Cancer Risk	Residential ^d	~~29 × 10⁻⁰⁶~~ (29 in a million) ~~8.5 × 10⁻⁰⁶~~ (8.5 in a million)	10 × 10 ⁻⁶ 10 in a million
	Occupational	~~9 × 10⁻⁰⁶~~ (9 in a million) ~~3.6 × 10⁻⁰⁶~~ (3.6 in a million)	
	Sensitive	~~5 × 10⁻⁰⁷~~ (0.5 in a million) ~~5 × 10⁻⁰⁸~~ (0.05 in a million)	
	Student	~~3 × 10⁻⁰⁹~~ (0.003 in a million) ~~7 × 10⁻¹⁰~~ (0.0007 in a million)	
	Recreational	~~3 × 10⁻⁰⁷~~ (0.3 in a million) ~~2.6 × 10⁻⁰⁶~~ (2.6 in a million)	
Chronic Hazard Index	Residential	~~0.07~~ 0.03	1.0
	Occupational	~~0.1~~ 0.03	
	Sensitive	~~0.0003~~ 0.0004	
	Student	~~0.0001~~ 0.00001	
	Recreational	~~0.07~~ 0.0002	
Acute Hazard Index	Residential	~~0.7~~ 3.5	1.0
	Occupational	~~1.7~~ 4.2	
	Sensitive	~~0.004~~ 0.4	
	Student	~~0.04~~ 0.03	
	Recreational	~~0.7~~ 0.2	

^a Exceedances of the significance thresholds are in **bold**. The significance thresholds apply to the increments only.

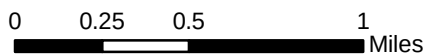
^b Data represent the receptor locations with the maximum impacts or increments. The impacts or increments at all other receptors would be less than these values.

^c The increment represents Project minus baseline.

^d The cancer risk values reported in this table for the residential receptor are based on the 80th percentile breathing rate.

**Section 3.2.4.3, Figure 3.2-1 and Figure 3.2-2, Pages 3.2-60
and 3.2-61**

Based on revisions to the text and table under Impact AQ-6, replace Figures 3.2-1 and 3.2-2 with the following:



Port of Los Angeles
Al Larson Boat Shop Improvement Project
Maximum Concentration Locations associated
with the Unmitigated Proposed Project
Figure 3.2-1



0 0.25 0.5 1 Miles

Port of Los Angeles
Al Larson Boat Shop Improvement Project
Maximum Concentration Locations associated
with the Mitigated Proposed Project
Figure 3.2-2

Section 3.2.4.3, Pages 3.2-66 to 3.2-68

Revise text and table under Impact Determination under Impact AQ-6, as follows:

Impact Determination

Table 3.2-18 shows that the maximum cancer risk (long-term) increment associated with the unmitigated ~~combined construction and incremental operation-phase~~ of the proposed Project is predicted to be 8.5 ~~29~~ in a million at a residential receptor and less than 3.6 in a million or less at an occupational, recreational, sensitive, and student receptors. The cancer risk therefore would be less than significant at all residential receptors during construction. The peak residential impact ~~during construction~~ occurs at the liveboards directly to the south of the proposed Project. ~~No other residential locations would exceed the threshold of 10 in a million for cancer risk.~~

As shown on Table 3.2-18, the maximum chronic (long-term) hazard index increment associated with the unmitigated Project is predicted to be less than 0.1 at residential, occupational, sensitive, recreational, and student receptors. No chronic hazard index impact exceeds the threshold of 1.0, therefore chronic health risk impacts associated with the proposed Project would be less than significant.

As shown on Table 3.2-18, the maximum acute (short-term) hazard index increments associated with ~~residential receptors (3.5) and occupational receptors (1.74-2) without mitigation~~ would exceed the significance criterion hazard index of 1.0 during construction and therefore impacts would be significant for off-site occupational workerseconstruction.¹⁴ The acute risk would be less than significant for all other receptor types. The acute risk is driven by formaldehyde emissions, also from diesel engines~~the main source of which is dredging equipment.~~ The maximum residential impact occurs south of the proposed Project at the liveboard location at the Al Larson Marina, approximately 280 ft (85 meters) to the south of the nearest onshore portion of the Project (Phase 3 area) and 100 ft (30 meters) south of the southern limits of proposed Project dredging (Phase 2). The maximum occupational impact occurs 80 feet west -the west fence line at a marine fueling station (currently operated by ExxonMobil/General Petroleum) directly north of the proposed Project, on the west side of Seaside Avenue.

The 24-hour PM_{2.5} impact shown in Table 3.2-14 for proposed Project construction is 19.4 µg/m³. This exceeds the SCAQMD threshold of 10.4 µg/m³. To assess whether morbidity and mortality calculations were required, additional dispersion modeling was performed to determine whether the extent of the PM_{2.5} exceedance reaches a residential area. With the exception of the liveboards, no exceedance of the PM_{2.5} SCAQMD threshold for construction occurs outside approximately 50 meters of the project boundary. There are only a few potential liveboards that are impacted; therefore, a population exposure determination would not apply to this area. Similarly, while the operational PM_{2.5} in Table 3.2-17 is 25.7 µg/m³ which exceeds the SCAQMD threshold of 2.5 µg/m³, the range of the exceedance would not extend into residential areas beyond the Project boundary with the exception of the few potential liveboards within Al Larson Marina. Appendix C3 shows the results of this analysis in greater detail. Therefore the 24-hour PM_{2.5} concentration is considered to be less than significant for the purposes of a mortality and morbidity analyses, and a mortality and morbidity determination is not required.

Mitigation Measures

Mitigation measures to reduce TAC emissions would be the same as measures **MM AQ-1 through MM AQ-6** described above for Impact AQ-1. These mitigation measures would be implemented by the responsible parties identified in Section 3.2.4.5.

Residual Impacts

Table 3.2-20 shows the maximum cancer, chronic and acute risks associated with the mitigated proposed Project with mitigation for construction activities. ~~The residential cancer risk after mitigation is reduced with mitigation, but remains significant at 22 in a million.~~ The acute (short-term) occupational hazard index (1.42-0) remains significant after mitigation. ~~The acute (short-term) residential hazard index (1.0) remains significant after implementation of mitigation measures MM AQ-1 through MM AQ-6.~~

Therefore, after mitigation, the residential cancer risk and the residential and occupational acute hazard index ~~remains~~ remains significant and unavoidable for construction activities.

Table 3.2-20: Maximum Health Impacts Associated With the Construction and Incremental Operation of the Proposed Project With Mitigation, 2011–~~2080~~2012 – 2081

Health Impact	Receptor Type	Maximum Predicted Impact ^{a,b}	Significance Threshold
		Increment ^c	
Cancer Risk	Residential ^d	~~2×10^{-05} (22 in a million)~~ ~~8.5×10^{-06} (8.5 in a million)~~	10×10^{-6} 10 in a million
	Occupational	~~7×10^{-06} (7 in a million)~~ ~~3.6×10^{-06} (3.6 in a million)~~	
	Sensitive	~~4×10^{-07} (0.4 in a million)~~ ~~5×10^{-08} (0.05 in a million)~~	
	Student	~~3×10^{-09} (0.003 in a million)~~ ~~7×10^{-10} (0.0007 in a million)~~	
	Recreational	~~2×10^{-07} (0.2 in a million)~~ ~~2.6×10^{-06} (2.6 in a million)~~	
Chronic Hazard Index	Residential	~~0.07~~ 0.008	1.0
	Occupational	~~0.1~~ 0.02	
	Sensitive	~~0.0003~~ 0.0002	
	Student	~~0.0001~~ 0.00001	
	Recreational	~~0.07~~ 0.0001	
Acute Hazard Index	Residential	~~0.6~~ 1.0	1.0
	Occupational	~~1.4~~ 2.0	
	Sensitive	~~0.003~~ 0.2	
	Student	~~0.04~~ 0.01	
	Recreational	~~0.6~~ 0.1	

Table 3.2-20: Maximum Health Impacts Associated With the Construction and Incremental Operation of the Proposed Project With Mitigation, 2011–2080/2012 – 2081

Health Impact	Receptor Type	Maximum Predicted Impact ^{a,b}	Significance Threshold
		Increment ^c	

^a Exceedances of the significance thresholds are in **bold**. The significance thresholds apply to the increments only.

^b Data represent the receptor locations with the maximum impacts or increments. The impacts or increments at all other receptors would be less than these values.

^c The increment represents Project minus baseline.

^d The cancer risk values reported in this table for the residential receptor are based on the 80th percentile breathing rate.

Section 3.2.4.4, Table 3.2-26, Page 3.2-77

Revise Impact AQ-6 in Table 3.2-26, as follows:

AQ-6: The proposed Project would expose receptors to significant levels of TACs.	~~During construction cancer risk would be significant for residential receptors.~~ During construction the acute hazard index would be significant for residential and occupational receptors. The <u>cancer risk and chronic hazard index</u> would be less than significant for all receptors.	MM AQ-1 through MM AQ-6	~~The cancer risk and acute hazard index would be significant and unavoidable during construction at residential receptors (livaboards in Al Larson Marina). The acute hazard index would be significant and unavoidable at occupational receptors during construction.~~

Section 3.2.5, Page 3.2-83

Revise fifth paragraph under “Significant Unavoidable Impacts,” as follows:

Construction and operational emissions of TACs under the proposed Project after mitigation would not increase the cancer risk or chronic hazard index from baseline levels to above the significance criterion of 1.0 to off-site residential, occupational, and sensitive receptors. The construction emissions of TACs under the proposed Project after mitigation would increase the acute hazard index from baseline levels to above the significance criterion of 1.0 to off-site residential and occupational receptors. ~~The construction emissions of TACs under the proposed Project after mitigation would increase the cancer risk from baseline levels to above the significance criterion of 10 in a million (10×10^{-6}) risk or above to off-site residential receptors. Impacts would be significant and unavoidable.~~

Changes Made to Section 3.3, Biological Resources

Section 3.3.2.9, Pages 3.3-17 to 3.3-19

Essential Fish Habitat (EFH)

The proposed Project/alternative area is located in an area designated as EFH for two Fishery Management Plans (FMPs): the Coastal Pelagics and Pacific Groundfish Management Plans. Of the 95 species federally managed under these plans, ~~241~~ adult species are known to occur in the Port Complex and could potentially be affected by the proposed Project or alternatives. However, most of these ~~241~~ species have been collected only sporadically and in very low numbers, and habitat near the proposed Project site is not suitable for these species. The species with the highest potential to be affected by the proposed Project are identified in Table 3.3-3.

Two coastal pelagics—northern anchovy and Pacific sardine—are likely to occur in the vicinity of the proposed Project. Northern anchovy is among the most common and abundant fish species in the Port Complex. In 2006, larvae were present in the Port Complex during two seasonal periods: a greater peak in March-July and a lesser peak in October-December (MBC et al., 2007). Juvenile and adult anchovies have consistently been collected during fish sampling near the proposed Project site (MEC and Associates, 2002; SAIC, 2010). Northern anchovy are found from the surface to depths of 1,017 feet, though juveniles are generally more common inshore and in estuaries (Davies and Bradley, 1972).

Pacific sardine were not abundant during 2006 ichthyoplankton sampling throughout the Port Complex; two sardine larvae were collected in the Outer Harbor in April 2006 (MBC et al., 2007). This species is also less common than northern anchovy near the Project site (MEC and Associates, 2002; SAIC, 2010). Pacific sardine is epipelagic, occurring in loosely aggregated schools (Wolf et al., 2001). Jack mackerel and Pacific mackerel have been collected in the Port, but in much lower frequency and numbers than northern anchovy and Pacific sardine. ~~While no mature market squid have been reported in recent surveys, market squid paralarvae were collected in Inner and Outer Harbor areas in 2006 (MBC et al., 2007). All coastal pelagics are associated with the water column (as opposed to the seafloor like many of the groundfish); however, female squid also lay egg masses on sandy bottoms during spawning (at depths of about 16-180 feet, with most occurring between 66-115 feet) (PFMC, 1998).~~

Table 3.3-3: Managed ~~Adult Fish /Invertebrate Species Most Likely to Occur Near the Proposed Project Site in Port of~~ Found in Los Angeles Harbor Based on Past Occurrences

Common Name	Potential Habitat Use	Larval Occurrence ^{1,2,4}	Juv./Adult Occurrence ^{2,3,4,5}
<i>Coastal Pelagics</i>			
northern anchovy (<i>Engraulis mordax</i>)	Open water.	Abundant	Abundant
Pacific sardine (<i>Sardinops</i>)	Open water.	Uncommon	Common
Pacific (chub) mackerel (<i>Scomber japonicus</i>)	Open water, juveniles off sandy beaches and around kelp beds.	-	Uncommon

Table 3.3-3: Managed Adult Fish /Invertebrate Species Most Likely to Occur Near the Proposed Project Site in Port of Found in Los Angeles Harbor Based on Past Occurrences

Common Name	Potential Habitat Use	Larval Occurrence ^{1,2,4}	Juv./Adult Occurrence ^{2,3,4,5}
jack mackerel (<i>Trachurus symmetricus</i>)	Open water, young fish over shallow banks and juveniles around kelp	Rare	Uncommon
market squid (<i>Doryteuthis opalescens</i>)	Open water. Rare near bays, estuaries, and river mouths.	Rare	-
<i>Pacific Groundfish</i>			
English sole (<i>Parophrys vetulus</i>)	Soft bottom habitats.	Rare	Uncommon
Pacific sanddab (<i>Citharichthys sordidus</i>)	Soft bottom habitats.	Rare	Common
butter sole (~~<i>Isopsetta isolepis</i>~~)	Soft bottom habitats.	Rare	-
black rockfish (<i>Sebastes melanops</i>)	Along breakwater, near deep piers and pilings. Associated with kelp.	-	Rare
Bocaccio (<i>Sebastes paucispinis</i>)	Multiple habitat associations, including soft and hard bottom, kelp.	-	Rare
brown rockfish (<i>Sebastes auriculatus</i>)	Multiple habitat associations but prefer hard substrata and rocky	-	Rare
calico rockfish (<i>Sebastes dallii</i>)	Multiple habitat associations but prefer hard substrata and rocky	-	Rare
California scorpionfish (<i>Scorpaena guttata</i>)	Benthic, on soft and hard bottoms, as well as around structures.	-	Uncommon
grass rockfish (<i>Sebastes rastrelliger</i>)	Common on hard substrate, kelp, and eelgrass habitats.	-	Rare
kelp rockfish (<i>Sebastes atrovirens</i>)	Common on hard substrate, kelp; reported along breakwater.	-	Rare
olive rockfish (<i>Sebastes serranoides</i>)	Common around hard substrate, kelp; reported along breakwater.	-	Rare
vermillion rockfish (<i>Sebastes miniatus</i>)	Juveniles over soft-bottom and kelp, adults associated with hard substrate.	-	Uncommon
Lingcod (<i>Ophiodon elongatus</i>)	Multiple habitat associations but prefer hard substrata and rocky	-	Rare
Cabezon (<i>Scorpaenichthys</i>)	Multiple habitat associations but prefer hard substrata and rocky	Rare	Rare
Pacific hake (~~<i>Merluccius productus</i>~~)	Common offshore, juveniles in open water.	Rare	-
leopard shark (<i>Triakis semifasciata</i>)	Multiple habitat associations, including soft bottoms, and near	N/A	Rare
spiny dogfish (~~<i>Squalus acanthias</i>~~)	Pelagic and on muddy bottoms.	N/A	Rare
big skate (<i>Raja binoculata</i>)	Soft bottom habitat.	N/A	Rare
California skate (<i>Raja</i>)	Soft bottom habitat.	N/A	Uncommon

Sources: 1 – (MBC et al.,2007), 2 – (MEC and Associates, 2002), 3 – (MBC ,2009a,b), 4 – (SAIC, 2010), 5 – (MEC,1999).

Notes: N/A = Not applicable, internal fertilization.

Abundant>Common>Uncommon>Rare.

Most rockfish larvae not identifiable to species.

Changes Made to Section 3.4, Cultural Resources

Section Summary, Key Points of Section 3.4, Page 3.4-2

Revise mitigation measure MM CUL-2, as follows:

- **MM CUL-2: Historic Resource Recordation.** Impacts resulting from the demolition of Buildings A2, A3, and C1 shall be minimized through archival documentation of both building complexes in as-built and as-found condition. Prior to issuance of demolition permits, the Los Angeles Harbor Department (LAHD) shall ensure that documentation of the buildings proposed for demolition is completed in the form of a Historic American Building Survey (HABS) Level II documentation that shall comply with the Secretary of the Interior's Standards for Architectural and Engineering Documentation. The documentation shall include large-format photographic recordation, detailed historic narrative report, and compilation of historic research. The documentation shall be completed by a qualified architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards for History and/or Architectural History. The original archival-quality documentation shall be placed in the offered as donated material to Port LAHD archives. ~~Archival copies of the documentation shall also be submitted to the Los Angeles Maritime Museum, the Central Branch of the Los Angeles Public Library and the Port archives where it would be available to local researchers.~~

Section 3.4.2.3.5, Figure 3.4-2, Page 3.4-14

The southernmost portion of Building A2, which is part of the Office and Workshop Complex, was inadvertently omitted from the boundary delineating Building A2. Figure 3.4-2 has been revised to reflect the correct boundary of Building A2. Replace Figure 3.4-2 with the attached (next page).

Section 3.4.4.3, Page 3.4-31

Under Impact Determination, Impact CUL-2, revise mitigation measure MM CUL-2, as follows:

MM CUL-2: Historic Resource Recordation

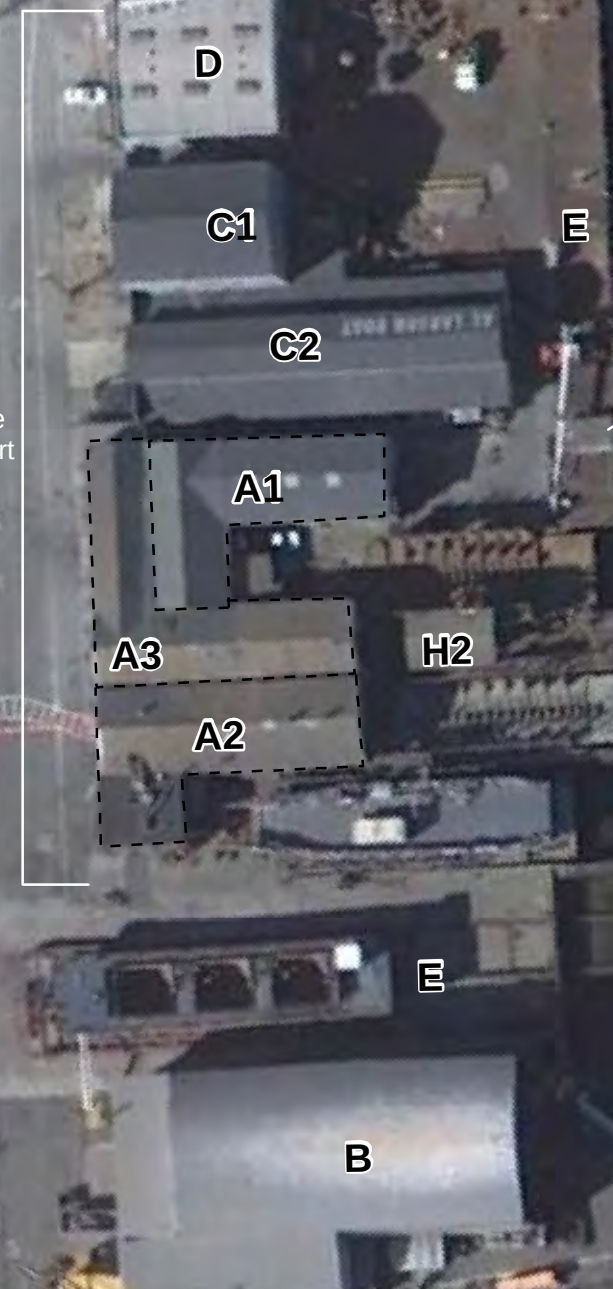
Impacts resulting from the demolition of Buildings A2, A3, and C1 shall be minimized through archival documentation of both building complexes in as-built and as-found condition. Prior to issuance of demolition permits, the Los Angeles Harbor Department (LAHD) shall ensure that documentation of the buildings proposed for demolition is completed in the form of a Historic American Building Survey (HABS) Level II documentation that shall comply with the Secretary of the Interior's Standards for Architectural and Engineering Documentation. The documentation shall include large-format photographic recordation, detailed historic narrative report, and compilation of historic research. The documentation shall be completed by a qualified architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards for History and/or Architectural History. The original archival-quality documentation shall be placed in the offered as donated material to Port LAHD archives. ~~Archival copies of the documentation shall also be submitted to the Los Angeles Maritime Museum, the Central Branch of the Los Angeles Public Library and the Port archives where it would be available to local researchers.~~

LEGEND

- A - Office and Workshop Complex (Built 1924) *
- B - Paint Shed (Built 1938) **
- C - Machine Shop Complex (Built 1938) *
- D - Building No. 4 (circa 1938 - 1947)
- E - Docks, Piers and Walls (circa 1924 - 2008)
- H - Ancillary Buildings and Structures (Post 1965)



See
Insert



* Potentially Historic Buildings.
 ** Not part of the Project.



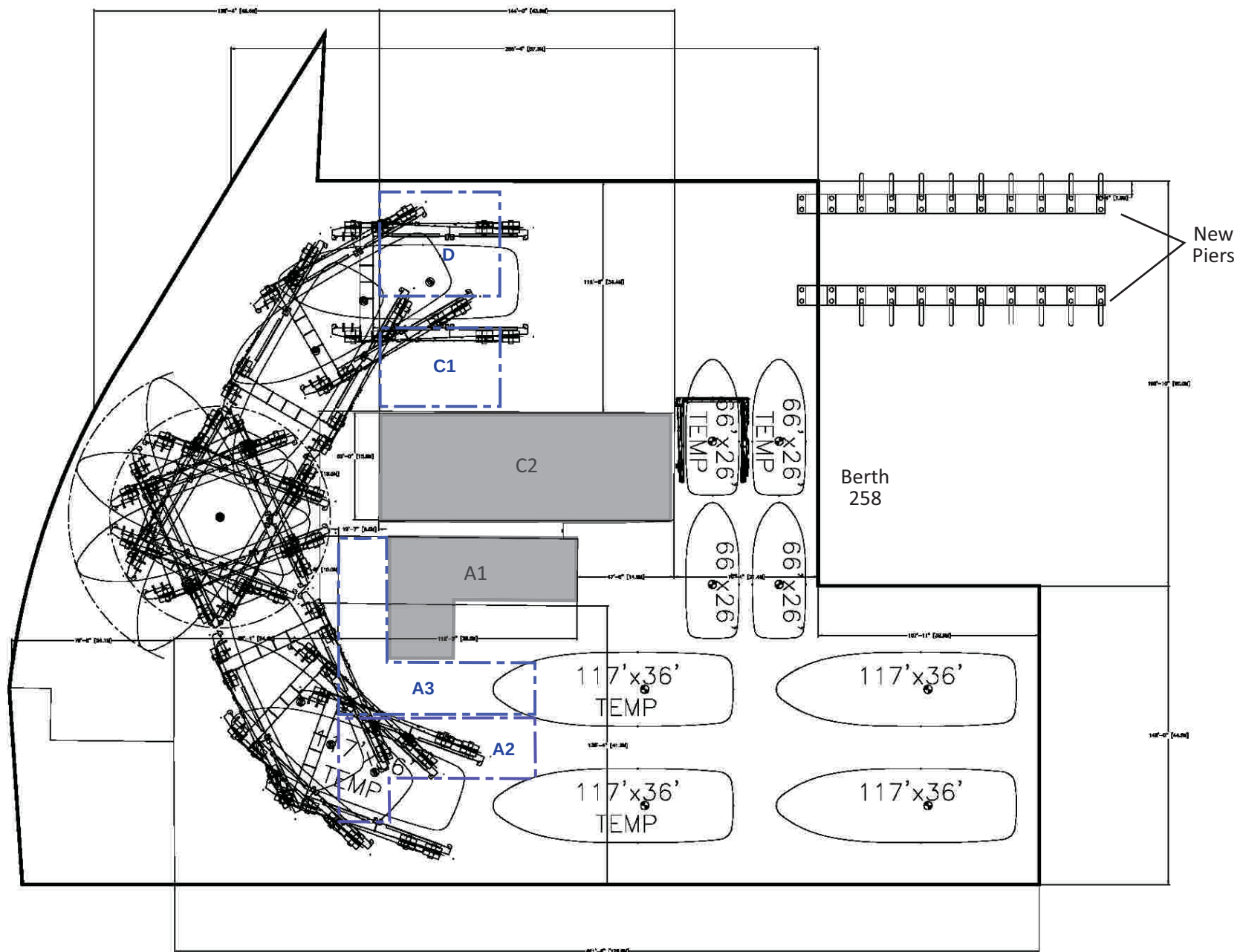
Section 3.4.4.3, Under Impact Determination CUL-2, Figure 3.4-3, Page 3.4-32

The southernmost portion of Building A2, which is part of the Office and Workshop Complex, was inadvertently omitted from the boundary delineating Building A2. Figure 3.4-3 has been revised to reflect the correct boundary of Building A2. Replace Figure 3.4-3 with the attached (next page).

Section 3.4.4.5, Page 3.4-36

Under Mitigation Monitoring, Impact CUL-2, revise mitigation measure MM CUL-2, as follows:

Mitigation Measure	MM CUL-2: Historic Resource Recordation. Impacts resulting from the demolition of Buildings A2, A3, and C1 shall be minimized through archival documentation of both building complexes in as-built and as-found condition. Prior to issuance of demolition permits, the Los Angeles Harbor Department (LAHD) shall ensure that documentation of the buildings proposed for demolition is completed in the form of a Historic American Building Survey (HABS) Level II documentation that shall comply with the Secretary of the Interior's Standards for Architectural and Engineering Documentation. The documentation shall include large-format photographic recordation, detailed historic narrative report, and compilation of historic research. The documentation shall be completed by a qualified architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards for History and/or Architectural History. The original archival-quality documentation shall be <u>placed in the offered as-donated material to Port LAHD</u> archives. ~~Archival copies of the documentation shall also be submitted to the Los Angeles Maritime Museum, the Central Branch of the Los Angeles Public Library and the Port archives where it would be available to local researchers.~~
Timing	Prior to demolition of the Buildings A2 and A3 in the Office and Workshop Complex and Building C1 in the Machine Shop Complex.
Methodology	LAHD shall prepare HABS recordation of the historic buildings.
Responsible Parties	Environmental Management Division shall prepare or cause to be prepared the required documentation.
Residual Impacts	Significant and unavoidable after mitigation.



Legend

- Buildings to be demolished
- Buildings to remain



Changes Made to Section 3.5, Geology

Section 3.5.2.2.2, Page 3.5-9

Revise third paragraph as follows:

Groundwater depth information is ~~not~~ currently available for the Project site; ~~however,~~ based on reports from adjacent sites such as the ExxonMobil/General Petroleum facility immediately north of the Project site the Southwest Marine Terminal (Berth 240 or 240Z) located at 985 S. Seaside Avenue and the Mobil Southwest/ExxonMobil Terminal (Berths 238-240C) located at 799 S. Seaside Avenue, have reported groundwater depths in the vicinity (i.e., within 1,000 feet of the Project site), which included the installation of four groundwater monitoring wells at the northern area of the Project site as part of their site investigations. During first quarter 2011 groundwater monitoring associated with the ExxonMobil/General Petroleum facility depth of groundwater under the Project site ranged from 4.12 to 6.23 feet below top of casing (ERM, 2011). There are currently 16 groundwater monitoring wells at the ExxonMobil site (SWRCB, 2010).¹ Groundwater depth recorded at these monitoring wells range from 7.4 to 11.2 feet bgs. Groundwater beneath the adjacent Southwest Marine Terminal has been recorded at depths ranging from 6 to 8.5 feet bgs (POLA, 2006). The groundwater beneath the ExxonMobil/General Petroleum facility has varied from 3 to 8 feet bgs, depending on the recent rainfall infiltration rates.

Changes Made to Section 3.6, Groundwater and Soils

Section 3.6.2.1, Page 3.6-4 to Page 3.6-5

Revise third paragraph as follows:

Groundwater depth information is ~~not~~ currently available for the Project site; ~~however,~~ based on reports from adjacent sites such as the ExxonMobil/General Petroleum facility immediately north of the Project site the Southwest Marine Terminal (Berth 240 or 240Z) located at 985 S. Seaside Avenue and the Mobil Southwest/ExxonMobil Terminal (Berths 238-240C) located at 799 S. Seaside Avenue, have reported groundwater depths in the vicinity (i.e., within 1,000 feet of the Project site), which included the installation of four groundwater monitoring wells at the northern area of the Project site as part of their site investigations. During first quarter 2011 groundwater monitoring associated with the ExxonMobil/General Petroleum facility depth of groundwater under the Project site ranged from 4.12 to 6.23 feet below top of casing (ERM, 2011b). There are currently 16 groundwater monitoring wells at the ExxonMobil site (SWRCB, 2010).¹ Groundwater depth recorded at these monitoring wells range from 7.4 to 11.2 feet bgs. Groundwater beneath the adjacent Southwest Marine Terminal has been recorded at depths ranging from 6 to 8.5 feet bgs (POLA, 2006). The groundwater beneath the ExxonMobil/General Petroleum facility has varied from 3 to 8 feet bgs, depending on the recent rainfall infiltration rates. It is a mixture of brackish groundwater in the Bellflower Aquiclude and salt water from the Pacific Ocean (details regarding this site – which shares the northern boundary of the proposed Project site – are in Section 3.6.2.4). These depths, as well as gradient and flow direction, is subject to variation as a result of tidal influences. Because the Project site is paved (impermeable), there is a low potential for infiltration of surface runoff.

Section 3.6.2.4.8, Page 3.6-11

Revise section as follows:

Conclusion Regarding Soil Contamination Issues

Contamination and remediation of the landside portions of the Project site have been addressed in the ALBS facility RAP and the ExxonMobil/GP site RAP. Due to access and operation restrictions, implementation of both of these the RAPs associated with the Project site will occur as part of the phases associated with construction of the proposed Project. Remediation and closure of the site prior to placement of fill will require regulatory oversight by the Los Angeles RWQCB or the California Department of Toxic Substances Control (DTSC), under oversight and approval of the LAHD, and coordination with ExxonMobil/General Petroleum.

Section 3.6.4.3, Page 3.6-15

Revise first and second paragraph and LM GW-1 as follows:

The proposed Project would include grading, excavation, and other construction-related activities that could disturb or expose soils that are contaminated. Project elements that could result in exposure of soils include: demolition of Buildings D, A2, A3, and C1; development of new dry-dock area, and construction of the piers for the boat hoists; modification of site drainage; utility and infrastructure installation; grading and paving activities; and, construction of a new building approximately 2,400 sq ft. Three marine railways would be covered by the Phase 2 CDF, thereby encapsulating contaminated soils/sediments.

Excavations associated with these improvements could would encounter known and possibly previously unknown soil and/or groundwater contamination due to the limited extent of the previous investigations. Such discoveries could result in adverse impacts to construction and operations personnel. Improvements that would require asphalt or concrete paving such as the new dry dock area, the CDFs, and modifications to the site's drainage would essentially encapsulate contamination in the identified issue areas, thereby preventing runoff from leaching through the remaining contaminants. This would minimize future contamination of soil and groundwater the potential for exposure to underlying contaminants. As part of the proposed Project, all contaminated soil or groundwater encountered during construction would be handled, transported, remediated, and/or disposed of in accordance with the approved RAP and all applicable federal, state, and local laws and regulations and in accordance with the regulatory lead agency (e.g., DTSC, Los Angeles RWQCB) and following conditions under LAHD leasing requirements (i.e., lease measures - LMs):

Site Remediation Lease Requirement (LM GW-1). Unless otherwise authorized by the lead regulatory agency and the LAHD for any given site, the Tenant (i.e., ALBS) shall address all contaminated soils within proposed Project boundaries discovered during demolition and grading activities. Contamination existing at the time of discovery shall be the responsibility of the past and/or current property owner. Contamination as a result of the construction process shall be the responsibility of the Tenant and/or Tenant contractors. Remediation shall occur in compliance with local, state, and federal regulations, as described in Section 3.6.3 (above) and Section 3.7.3 (in Section 3.7, Hazards and Hazardous Materials), and as directed by the lead regulatory agency for the site (such as the Los Angeles RWQCB or DTSC).

Soil removal shall be completed such that remaining contamination levels are below risk-based health screening levels for industrial sites established by OEHHA and site specific cleanup goals /or applicable action levels (e.g., Environmental Screening Levels, Preliminary Remediation Goals) established by the lead regulatory agency overseeing the implementation of the RAP at the ~~with jurisdiction over the site~~. Soil contamination waivers may be acceptable as a result of encapsulation (i.e., paving) and/or risk-based soil assessments for industrial sites, but are subject to the review and approval of the lead regulatory agency and LAHD. Excavated contaminated soil shall be properly disposed of off-site unless use of such material on-site is beneficial to construction and approved by the agency overseeing the environmental investigation and implementation of the RAP ~~concerns~~. All imported soil to be used as backfill in excavated areas shall be sampled to ensure that it is suitable for use as backfill and is free of contamination ~~at an industrial site~~.

Section 3.6.4.5, Page 3.6-21

Revise LM GW-1 under “Mitigation Monitoring,” as follows:

Impact GW-1: Construction activities may encounter toxic substances or other contaminants associated with historical uses of the Port, resulting in short-term exposure (duration of construction) to construction/operations personnel and/or long-term exposure to future site occupants.	
Lease Measure	LM GW-1: Site Remediation Lease Requirement. Unless otherwise authorized by the lead regulatory agency <u>and the LAHD</u> for any given site, the Tenant (i.e., ALBS) shall address all contaminated soils within proposed Project boundaries discovered during demolition and grading activities. Contamination existing at the time of discovery shall be the responsibility of the past and/or current property owner. Contamination as a result of the construction process shall be the responsibility of the Tenant and/or Tenant contractors. Remediation shall occur in compliance with local, state, and federal regulations, as described in Section 3.6.3 (above) and Section 3.7.3 (in Section 3.7, Hazards and Hazardous Materials), and as directed by the lead regulatory agency for the site (such as the Los Angeles RWQCB or DTSC). Soil removal shall be completed such that remaining contamination levels are below risk-based health screening levels for industrial sites established by OEHHA and <u>site specific cleanup goals /or applicable action levels (e.g., Environmental Screening Levels, Preliminary Remediation Goals)</u> established by the lead regulatory agency <u>overseeing the implementation of the RAP at the</u> ~~with jurisdiction over the site~~. Soil contamination waivers may be acceptable as a result of encapsulation (i.e., paving) and/or risk-based soil assessments for industrial sites, but are subject to the review <u>and approval</u> of the lead regulatory agency and LAHD. Excavated contaminated soil shall be properly disposed of off-site unless use of such material on-site is beneficial to construction and approved by the agency overseeing <u>the environmental investigation and implementation of the RAP</u> ~~concerns~~. All imported soil to be used as backfill in excavated areas shall be sampled to ensure that it is suitable for use as backfill <u>and is free of contamination</u> ~~at an industrial site~~.

Changes Made to Chapter 5, Cumulative Analysis

Section 5.2.2.7, Pages 5-43 to 5-44

Revise under Cumulative Impact AQ-6 section, as follows:

Contribution of the Proposed Project

The main source of health risk associated with the proposed Project would occur during construction. Prior to mitigation, proposed Project construction emissions of TACs would increase cancer risks from baseline levels.

The maximum cancer risk increment associated with the unmitigated proposed Project is predicted to be ~~298.5~~ in a million at a residential receptor, ~~9-3.6~~ in a million at an occupational receptor, ~~2.6~~ in a million at a recreational receptor, and less than 1 in a million at ~~recreational~~, sensitive, and student receptors. Although the project-level cancer risk is below the significance threshold, the proposed Project would result in an increase in cancer risk in the Project area; consequently, the proposed Project would make a cumulatively considerable and unavoidable contribution to a significant cumulative cancer risk at ~~The cancer risk therefore would be cumulatively significant for residential, and occupational, and recreational.~~

The maximum chronic hazard index increment associated with the unmitigated Project is predicted to be ~~0.03~~ 0.07 at residential receptors, up to 0.1 at ~~and occupational receptors,~~ 0.07 at recreational receptors, and less than 0.01 at sensitive, ~~recreational,~~ and student receptors. No chronic hazard index impact exceeds the threshold of 1.0; therefore chronic health risk impacts associated with the proposed Project would be cumulatively insignificant.

The acute hazard index increments associated with ~~residential receptors (3.5) and occupational receptors (1.74-2)~~ would exceed the significance criterion hazard index of 1.0. As a result, acute non-cancer effects would be cumulatively significant.

Any concurrent emissions-generating activity that occurs near the Project site would add additional airborne health burdens to these significant levels. As a result, emissions from Project construction would make a cumulatively considerable contribution to a significant impact.

Mitigation Measures and Residual Cumulative Impacts

The residential, ~~and occupational, and recreational~~ cancer risks after Project mitigation described in Section 3.2, Air Quality, Meteorology, and Greenhouse Gases, are ~~4-8.5~~ in a million, ~~and 7-3.6~~ in a million, ~~and 2.6~~ in a million, respectively. Although these levels are below the significant thresholds, these impacts would still be cumulatively considerable and unavoidable to a significant cumulative cancer risk. The acute ~~residential hazard index (3.3) and occupational hazard index (4-1.4)~~ remains significant after mitigation. Therefore, after mitigation, the ~~residential and occupational~~ acute hazard index remains significant and unavoidable. As a result, even with mitigation, the proposed Project would make a cumulatively considerable contribution to a significant health risk impact.

Project Alternatives

Alternatives 1 and 7

The main source of acute (short-term) health risk would occur during construction and cancer (long-term) risk would occur during operation. Given that the amount of construction would be considerably less and of shorter duration under Alternative 1 and Alternative 7 (i.e. no dredging would occur), it is anticipated that acute health risk impacts would be less than significant for all receptor types. Also, operational activity would not increase under these alternatives relative to existing conditions. Therefore, Alternatives 1 and 7 would not make a cumulatively considerable contribution to a significant cumulative impact relative to health risk.

Alternatives 2, 3, and 4

The main source of acute (short-term) health risk would occur during construction and cancer (long-term) risk would occur during operation~~The main source of health risk would occur during construction~~. Construction and operational emissions occurring under ~~from~~ Alternatives 2 through 4 would be similar to or slightly less than the proposed Project. Therefore, Alternatives 2 through 4 would make a cumulatively considerable contribution to a significant cumulative impact related to health risk. Mitigation measure would reduce this impact; however, the alternatives' contribution would continue to be cumulatively considerable and unavoidable.

Alternatives 5 and 6

Construction emissions under Alternatives 5 ~~and 6~~ would be greater than under the proposed Project given that all existing structures on the Project site would be ~~removed or~~ relocated, a larger amount of soils and sediments would be transported off site, and, ~~in the case of Alternative 5,~~ construction/assembly of buildings would occur at an alternate site. Also, the level of operations at this site would be similar to that for the proposed Project. Therefore, construction and operation of Alternatives 5 ~~and 6~~ would make a cumulatively considerable contribution to significant cumulative health risks (cancer and acute). Mitigation measure would reduce this impact; however, the alternatives' contribution would continue to be cumulatively considerable and unavoidable.

Alternative 6

Construction emissions under Alternative 6 would be greater than under the proposed Project given that all existing structures on the Project site would be removed and a larger amount of soils and sediments would be transported off site. However, the operation of the boat shop would cease under Alternative 6, thus no cumulative operational health risk impacts would occur. Therefore, construction of Alternative 6 would make a cumulatively considerable contribution to significant cumulative acute health risk. Mitigation measure would reduce this impact; however, the alternatives' contribution would continue to be cumulatively considerable and unavoidable.

Section 5.2.5.6, Page 5-73

Revise under Cumulative Impact GEO-6 section, as follows:

Cumulative Impact GEO-6 addresses the degree to which the proposed Project, along with other cumulative projects, results in substantial damage to structures or infrastructure or expose people to substantial risk of injury as a result of collapsible or unstable soils.

Excavations that occur in natural alluvial and estuarine deposits, as well as artificial fill consisting of dredged deposits or imported soils, may encounter relatively fluid materials near and below the shallow groundwater table. Groundwater at the site is locally present at depths ranging from 4.12 to 6.23 feet below top of casing as shallow as 4.5 feet bgs. In the absence of proper engineering, new structures could be cracked and warped as a result of saturated, unstable, or collapsible soils, exposing building personnel to a safety hazard.

Section 5.2.6.1, Page 5-76

Revise under Groundwater and Soils, Scope of Analysis, third paragraph, as follows:

The cumulative area of influence is predominantly underlain by a shallow, unconfined aquifer (non-potable) (with an overlying shallow, perched, water-bearing zone of saline, non-potable water), which has historically occurred under the site at depths ranging from 4.12 to 6.23 feet below top of casing as shallow as 5 feet bgs. This shallow aquifer is underlain by several major water-bearing zones. Spills of petroleum products and hazardous substances, due to long-term industrial land use, have resulted in contamination of some surface soils and shallow groundwater.

Changes Made to Chapter 6, Analysis of Alternatives

Section 6.2.3, Table 6-1, Page 6-4

Replace Table 6-1 with the following revised table:

1 **Table 6-1: Summary of Project Elements Associated with the Alternatives**

Project Element	Alternative 1 – Reduced Project – Water Quality Improvements	Alternative 2 – Reduced Project” Limited Demolition	Alternative 3 – Retention of Historic Buildings	Alternative 4 – Relocation of Historic Buildings	Alternative 5 – Alternate Site	Alternative 6 – No Project	Alternative 7 – No Federal Action
Comply with NPDES/ WDR	Yes - change site drainage and install oil/ water separator	Yes	Yes	Yes	Yes	No	Yes - change site drainage and install oil/water separator
Dredging contaminated sediment and creation of CDFs	No	Yes	Yes	Yes	Yes (at ALBS site) – but no CDFs would be created.	Yes – but no CDFs would be created.	No
Remove three marine railways and construct concrete piers for new boat hoists	No	Yes - one or more of Buildings A2, A3, or C1 will be retained	Yes - limited use due to turning radius limitations	Yes	Yes - marine railways would be removed at ALBS site. New pier would be constructed at alternative site.	Partial – marine railways would be removed. No new pier would be constructed.	No
Optimize and modernize space through removal of historic buildings	No	Partial - limited use due to turning radius <u>and space</u> limitations	No	Yes - relocation of 3 historic structures to the San Pedro or Wilmington Waterfront	Yes - relocation of historic buildings to alternate site; removal of buildings (some potentially historic) at the alter. site.	Yes – historic structures would be removed to bring site back to pre-lease conditions	No
Remove landside legacy contamination	No	Partial – no clean up under remaining building(s)	Partial - no clean up under remaining buildings	Yes	Yes - required to bring site back to pre-lease conditions	Yes - required to bring site back to pre-lease conditions	No
Replace infrastructure (lighting, pavement, etc) and construct new office	No	Partial – some new infrastruc-ture but no office building)	No	Partial – some new infrastruc-ture but no office building)	Yes	No	Yes
30-year lease renewal	Yes - but no new area	Yes	Yes	Yes	Yes - but for a different location	No	Yes - but no new area
Return site to pre-lease conditions (nothing on site)	No	No	No	No	Yes	Yes	No

2

Section 6.2.3.2.1, Pages 6-6 and 6-7

Revise text under “Alternative 2 Objectives Analysis,” as follows:

Alternative 2 Objectives Analysis

This alternative would meet several of the Project objectives. Under this alternative, the site would comply with its WDR and NPDES requirements and partially clean up legacy contaminants. In addition, this alternative would result in the retention of only one or two of the potentially historic buildings proposed for demolition under the proposed Project, which would result in fewer impacts to historic resources as compared to the proposed Project, but would also reduce the modernization and optimization of the site.

Alternative 2 would allow for some increased capacity at the ALBS site. Although, to what extent would depend on which structures are retained. The retention of any of the historic buildings slated for demolition would impair the ability of ALBS to modernize and expand the site to the extent planned under the proposed Project. Retention of Building C1 would reduce the space available for the boat hoists from approximately 112 feet to 70 feet. The 600-ton boat hoist has an effective width (boat hoist width plus clearance) of 59 feet with a turning radius of 93 feet for the outside wheel and 33 feet for the inside wheel (~~see Figure 6-1~~). This would preclude the 600-ton hoist from accessing the ALBS backland and land area created by the construction of the Phase 2 CDF (see Figure 6-1). Retention of Building A2 will result in a 36-foot corridor between Building A2 and Marine Railway 4 rendering the Phase 2 CDF inaccessible to the larger boat hoist. Retention of Building A3 will provide ~~only a 58-foot~~ a 76-foot access corridor, though access would still be restricted (see Figure 6.1) ~~again making the Phase 2 CDF inaccessible to the larger boat hoist.~~

In any situation, this alternative would limit the operational capacity on the site; however, any operational increase would be to a lesser degree than the proposed Project due to the loss of land area available for drydocking of vessels and access issues. Further, retention of a potentially historic building would constrain the opportunities to redesign the site to fully and most effectively comply with NPDES requirements, upgrade the existing infrastructure, constructing a new modern office space, and it would reduce the ability to clean up site legacy containments from beneath the existing pavement and buildings.

Section 6.2.3.2.1, Figure 6-1, Page 6-8

The southernmost portion of Building A2, which is part of the Office and Workshop Complex, was inadvertently omitted from the boundary delineating Building A2. Figure 6-1 has been revised to reflect the correct boundary of Building A2. Replace Figure 6-1 with the attached (next page).

Section 6.2.3.8, Table 6-2, Page 6-16

Replace Table 6-2 with the following revised table:

Table 6-2: Comparison of Proposed Project and Alternatives to the Project Objectives

Project Alternative	Does Alternative Avoid or Substantially Lessen Impacts to Potentially Historical Resources?	Key Project Objectives						
		Place ALBS in compliance with its WDR and NPDES requirements by re-contouring the site, removing three existing marine railways and constructing a stormwater collection and treatment system.	Demolish existing wharfs, piers and buildings/structures to allow for the subsequent creation and use of two CDF cells, which will sequester contaminated sediment and expand use of boat shop.	Dredge sediment to accommodate deeper draft vessels, remove contaminated sediment to improve water quality, and promote regional sediment management objectives by beneficially reusing dredged material to create two CDFs.	Remove buildings/structures in order to modernize and reconfigure the facility, to optimize and expand the existing boat shop operation at the present location and continue to meet a regional need for marine vessel repair.	Replace aging infrastructure and construct new building to support improved operations.	Clean-up site legacy contaminants from the historical use of the site as a boat shop, including contaminants located beneath existing pavement and buildings.	Enter a 30-year lease renewal between ALBS and LAHD changing the facility's leasehold from 7.7 acres (2.35 acres of land and 5.35 acres of water) to 7.3 acres (4.1 acres of land and 3.2 acres of water).
Proposed Project	NO	YES	YES	YES	YES	YES	YES	YES
Alternative 1 - Reduced Project: Water Quality Improvements	YES	Partial	NO	NO	NO	NO	NO	NO
Alternative 2 - Reduced Project: Limited Demolition	Partial	YES	~~YES~~ Partial	YES	Partial	NO	Partial	Partial
Alternative 3 - Retention of Historic Buildings	YES	YES	~~YES~~ Partial	YES	Partial	NO	NO	YES
Alternative 4 - Relocation of Historic Buildings	NO	YES	YES	YES	YES	YES	YES	YES
Alternative 5 - Alternate Site	NO	YES	NO	NO	NO	YES	YES	Partial
Alternative 6 – No Project	NO	NO	NO	NO	NO	NO	YES	NO
Alternative 7 - No Federal Action	NO	Partial	NO	NO	NO	NO	NO	NO

Section 6.3, Page 6-17

Revise the introductory paragraph as follows:

Section 3 of the Draft EIR analyzes the potential impacts associated with the construction and operation of the proposed Project for the 13 environmental resource areas. As with the proposed Project, several of the alternatives have significant and unavoidable impacts for at least one of the three significant and unavoidable environmental resources (Air Quality, Meteorology, and Greenhouse Gases, Cultural Resources, and Noise). One of the environmental resources evaluated (Biological Resources) has potentially significant impacts that can be mitigated to a less than significant level for all of the alternatives with water construction. As with the proposed Project, there are ~~remaining-ten~~nine environmental resource areas (Air Quality, Meteorology and Greenhouse Gases, Aesthetics and Visual Resources, Geology, Groundwater and Soils, Hazards and Hazardous Materials, Land Use, Population and Housing, Public Services and Utilities, Traffic and Transportation, and Water Quality, Sediments, and Oceanography) have less than significant impacts associated with the alternatives.

Section 6.3.1, Page 6-18

Revise Table 6-4, as follows:

Table 6-4: Comparison of Alternatives to the Proposed Project

Environmental Resource Area*	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7
Air Quality	-2	-1	-1	~~-1~~ +1	+1	-1	-1
Biological Resources	-1	0	0	0	0	-1	-1
Cultural Resources	-2	-1	-2	-1	-1	0	0
Noise	-2	-1	-1	+1	0	-2	-2
Total	-7	-3	-4	+1	0	-4	-4

Notes:

*

(-2) = Impact considered to be substantially less when compared with the proposed Project.

(-1) = Impact considered to be somewhat less when compared with the proposed Project.

(0) = Impact considered to be equal to the proposed Project.

(1) = Impact considered to be somewhat greater when compared with the proposed Project.

(2) = Impact considered to be substantially greater when compared with the proposed Project.

Where significant unavoidable impacts would occur across numerous alternatives but there are impact intensity differences between those alternatives, decimal points are used to differentiate alternatives (i.e., in some cases, there are differences at the individual impact level, such as differences in number of impacts or relative intensity).

Section 6.3.2.1.2, Page 6-20

Revise *Health Risk* text under “Alternative 1 – Reduced Project: Water Quality Improvements,” as follows:

~~The Proposed Project acute health risk impacts shown in Table 3.2-18 are driven by construction emissions, specifically dredging for acute impacts. Construction emissions would need to be reduced by approximately 460 percent to eliminate these impacts. The residential cancer risk significant impact in Table 3.2-18 is caused by diesel PM emissions, which would be anticipated to be reduced sufficiently in Alternative 1 to remove this impact due to the substantially reduced construction activity under Alternative 1. In addition, Under Alternative 1, it is anticipated that the acute residential and occupational risks would similarly be anticipated to be less than significant under Alternative 1 due to the reduction in dredging construction emissions.~~

Section 6.3.2.1.3, Page 6-24

Revise *Health Risk* text under “Alternative 2 – Reduced Project: Limited Demolition,” as follows:

~~The Proposed Project acute health risk impacts shown in Table 3.2-18 are driven by construction emissions. A major source of acute risk is dredging equipment. The residential cancer risk significant impact in Table 3.2-18 is caused by diesel PM emissions, which would not be anticipated to be reduced sufficiently in Alternative 2 to remove this impact. After application of Mitigation Measures MM AQ-1 through MM AQ-6, impacts would be similar to those shown in Table 3.2-24 for the proposed Project. Therefore, after mitigation, the residential cancer risk and the residential and occupational acute hazard indexes would remain significant and unavoidable for construction activities.~~

Section 6.3.2.1.4, Page 6-27

Revise *Health Risk* text under “Alternative 3 – Retention of Historic Buildings,” as follows:

The Proposed Project acute health risk impacts shown in Table 3.2-18 are driven by construction emissions. ~~A major source of acute risk is dredging equipment. The residential cancer risk significant impact in Table 3.2-18 is caused by diesel PM emissions, which would not be anticipated to be reduced sufficiently in Alternative 3 to remove this impact.~~ After application of Mitigation Measures **MM AQ-1 through MM AQ-6**, impacts would be similar to those shown in Table 3.2-20 for the proposed Project. Therefore, after mitigation, the ~~residential cancer risk and the residential and occupational acute hazard indexes~~ would remain significant and unavoidable for construction activities.

Section 6.3.2.1.5, Page 6-30

Revise *Health Risk* text under “Alternative 4 – Relocation of Historic Buildings,” as follows:

The Proposed Project acute health risk impacts shown in Table 3.2-18 are driven by construction emissions. ~~A major source of acute risk is dredging equipment. The residential cancer risk significant impact in Table 3.2-18 is caused by diesel PM emissions, which would not be anticipated to be reduced sufficiently in Alternative 4 to remove this impact given that the level of dredging that would occur is similar to that of the proposed Project.~~ With Mitigation Measures **MM AQ-1 through MM AQ-6**, impacts would be similar to those shown in Table 3.2-20 for the proposed Project. Therefore, after mitigation, the ~~residential cancer risk and the residential and occupational acute hazard indexes~~ would remain significant and unavoidable for construction activities.

Section 6.3.2.1.6, Page 6-34

Revise *Health Risk* text under “Alternative 5 – Alternative Site,” as follows:

Acute ~~h~~Health risk impacts are dependent upon the proximity of construction activities to residences, worker locations, and other sensitive uses. Construction activities associated with reassembling the relocated buildings and making the on-site improvements under this alternative would occur at a different location than for the proposed Project. ~~However if the alternative location is adjacent to Fish Harbor, along the Main Channel, or near the East Basin, significant residential impacts are still anticipated. In addition,~~ occupational impacts are still anticipated to be significant because industrial/commercial uses would be in close proximity to any other potential alternative ALBS location where construction might occur. Further, ~~while no operational impacts would occur at the existing site, demolition and dredging activities would continue to occur. M~~ore construction emissions are anticipated from Alternative 5 than the proposed Project due to the additional work needed to return the existing ALBS site to its original condition and relocated the five potentially historic buildings to the new site. Therefore it is possible that the Alternative 5 impacts are greater than the proposed Project acute health risk impacts shown in Tables 3.2-18 and 3.2-20. After mitigation, acute health risk impacts would remain significant and unavoidable for construction activities.

Section 6.3.2.1.7, Page 6-38

Revise *Health Risk* text under “Alternative 6 – No Project,” as follows:

While no operational impacts would occur under Alternative 6, demolition and dredging activities would take place. More construction emissions are anticipated from Alternative 6 than the proposed Project due to the additional work needed to return the existing ALBS site to its original condition. Thus, it is anticipated that significant ~~residential cancer risk and significant residential and occupational acute hazard index impacts~~ would still occur. While mitigation would reduce impacts, acute health risk impacts would remain significant and unavoidable for construction activities.

Section 6.3.2.1.7, Page 6-40

Revise *Health Risk* text under “Alternative 7 – No Federal Action,” as follows:

Health risk impacts under Alternative 7 are anticipated to be less than significant for all receptor types due to the reduced construction impacts (~~specifically no dredging~~) and removal of boat shop operations.

Section 6.3.4, Page 6-50

Revise the introductory paragraph as follows:

As noted above, there are ~~remaining ten~~ nine environmental resources (Air Quality, Meteorology and Greenhouse Gases, Aesthetics and Visual Resources, Geology, Groundwater and Soils, Hazards and Hazardous Materials, Land Use, Population and Housing, Public Services and Utilities, Traffic and Transportation, and Water Quality, Sediments, and Oceanography) have no potentially significant impacts associated, as analyzed in Chapter 3 for the proposed Project and following is a qualitative analysis for each alternative:

Section 6.3.4, Beginning on Page 6-51

Add as Section 6.3.4.1, Air Quality, Meteorology and Greenhouse Gases, as follows (this rennumbers the following nine analyzes by one number – i.e., Aesthetics and Visual Resources becomes Section 6.3.4.2, Geology becomes Section 6.3.4.3, etc.):

6.3.4.1 Air Quality, Meteorology, and Greenhouse Gases

6.3.4.1.1 Proposed Project

Proposed Project construction activities would involve the use of off-road construction equipment, on-road trucks, tugboats, and dredging equipment. Because these sources would primarily use diesel fuel, they would generate emissions of diesel exhaust in the form of VOC, CO, NO_x, SO_x, PM₁₀ and PM_{2.5}. In addition, off-road construction equipment traveling over unpaved surfaces and performing earthmoving activities such as site clearing or grading would generate fugitive dust emissions in the form of PM₁₀ and PM_{2.5}. Building demolition activities would also generate fugitive dust emissions. Site paving activities would generative fugitive emissions of VOCs. Worker commute trips would generate vehicle exhaust and paved road dust emissions.

Construction-related emissions would vary substantially depending on the level of activity, length of the construction period, specific construction operations, types of

equipment, number of personnel, wind and precipitation conditions, and soil moisture content.

Construction of the proposed Project is anticipated to commence in 2012 and last for approximately three years. Phase 1 would last approximately one year, employing approximately 30 people. Phase 2 would last approximately six to ten months and would employ 30 people. Phase 3 would last approximately six months and would employ 20 people. Construction would take place on the site Monday through Friday (with some Saturdays) from 7:00 am until 3:30 pm. Operation of the proposed Project would occur under a new 30-year lease. The new lease term would begin in 2012.

There would be an increase in operational emissions under the proposed Project. The new 600- and 100-ton boat hoists would be installed, therefore the capacity of the boat shop would increase, and the number and size of boats repaired would be expected to increase as well.

6.3.4.1.2 Alternative 1 – Reduced Project: Water Quality Improvements

Health Risk

Proposed Project cancer and chronic non-cancer health risk impacts for the combined construction and operational impacts shown in Table 3.2-18 are driven by operational emissions. There would be no increase in operational emissions under Alternative 1 (current operations would continue). The new 600- and 100-ton boat hoists would not be installed and the dredging would not occur, therefore the capacity of the boat shop would remain the same, and the number of boats repaired would not be expected to increase as a result of Alternative 1 improvements. In addition, ALBS would not be able to accommodate larger vessels because dredging would be required to accommodate the larger vessels. Operational emissions impacts (Alternative 1 minus the baseline) would be zero and therefore there would be no impacts under this alternative.

6.3.4.1.3 Alternative 2 – Reduced Project: Limited Demolition

Health Risk

Proposed Project cancer and chronic non-cancer health risk impacts for the combined construction and operational impacts shown in Table 3.2-18 are driven by operational emissions. Alternative 2 operations would be similar to the proposed Project, and the impacts would be comparable to the proposed Project impacts. Therefore, cancer and chronic non-cancer health risk impacts would be less than significant under Alternative 2.

6.3.4.1.4 Alternative 3 – Retention of Historic Buildings

Health Risk

Proposed Project cancer and chronic non-cancer health risk impacts for the combined construction and operational impacts shown in Table 3.2-18 are driven by operational emissions. The operational air quality emissions under this alternative would be less than the proposed Project. Under this alternative, there would not be enough room on the Project site to operate the 600-ton boat hoist. In addition, because one or two of the existing historic buildings proposed for demolition under the proposed Project would not be demolished or relocated under Alternative 3, implementation of this alternative would not result in the complete modernization of the existing boat shop facilities and would not

provide for the same level of operational efficiency that would occur under the proposed Project. As a result, the boat shop would not be able to operate at the maximum capacity, including servicing the same number and size of vessels, as proposed under the proposed Project. Therefore, cancer and chronic non-cancer health risk impacts would be less than significant under Alternative 3.

6.3.4.1.5 Alternative 4 –Relocation of Historic Buildings

Health Risk

Proposed Project cancer and chronic non-cancer health risk impacts for the combined construction and operational impacts shown in Table 3.2-18 are driven by operational emissions. The operations of Alternative 4 from a toxic air contaminant standpoint would be similar to the proposed Project. The capacity of the boat shop is assumed to be similar and there would be no difference in boat repair activities that would occur after Project completion. For purposes of this analysis, it is assumed that the relocated buildings would remain vacant and thus there would be no emissions associated with their operation. Therefore, cancer and chronic non-cancer health risk impacts would be less than significant under Alternative 4.

6.3.4.1.6 Alternative 5 – Alternate Site

Health Risk

Cancer and chronic non-cancer health risk impacts are dependent upon the proximity of construction and operational activities to residences, worker locations, and other sensitive uses. These activities under this alternative would occur at a different location than for the proposed Project. Even if the alternative location is adjacent to Fish Harbor, along the Main Channel, or near the East Basin, significant residential cancer and chronic non-cancer impacts are not anticipated. Occupational cancer and chronic non-cancer impacts are also anticipated to be less than significant because industrial/commercial uses would not likely be any closer in proximity to any other potential alternative ALBS locations.

6.3.4.1.7 Alternative 6 – No Project

Health Risk

Operational cancer and chronic non-cancer health risk impacts would be completely eliminated when compared to the proposed Project because the site would be completely cleared of structures and employees. As a result, Alternative 6 cancer and chronic non-cancer health risks would be less than the baseline and there would be no impacts.

6.3.4.1.8 Alternative 7 – No Federal Action

Health Risk

There would be no increase in operational activity under Alternative 7. The new 600- and 100-ton boat hoists would not be installed, therefore the capacity of the boat shop would remain the same, and the number and size of boats repaired would not be expected to increase under this alternative. As a result, cancer and chronic non-cancer health risk impacts under this alternative would be less than significant.

Changes Made to Chapter 9, References

Section 3.5, Geology, Page 9-15

Based on revisions to text in Section 3.5, Geology (see above), add to Printed References the following:

Environmental Resources Management (ERM). 2011. Draft Comprehensive Site Investigation and First Quarter 2011 Groundwater Monitoring Report. March.

Changes Made to Chapter 10, List of Preparers and Contributors

Section 10.2.2, Pages 10-1 to 10-2

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Changes Made to Appendix C.2, Operation Emissions

Appendix C2 is a compilation of operation emission worksheets that are generated from air quality modeling efforts. At the end of this chapter is attached the entire text of Appendix C3, including the attachments. Due to the nature of the model and output tables, the revisions cannot be shown in the typical revision-mode text (i.e., deletions are shown with ~~striketrough~~ and additions are shown with underline). The corrections provided in the attached construction emission tables are shown in **bold/underline**. Please refer to Appendix C2 of the Draft EIR for original information.

The following tables have been included in their entirety; however, on the noted pages have been revised:

- **Summary Table, Pages 1 to 3 of 3**
- **Hoist Table, Pages 1 to 3 of 3**
- **CompEngine Table, Pages 1 to 3 of 3**
- **Coating Table, Pages 1 and 2 of 2**
- **Welding Table, Page 2 of 2**
- **On-site Mobile Table, Pages 1 and 2 of 2**
- **Baseline Project Table, Pages 1 and 2 of 2**
- **Project Description Table, Pages 1 and 2 of 2**

Changes Made to Appendix C.3, Health Risk Assessment

Based on the correction to, refinement and remodeling of, the health risk assessment in response to Draft EIR Comment SCAQMD-3 (refer to Chapter 2, Response to Comments, of the Final EIR for the comment and the response to comment), various portions of Appendix C3 has been revised. At the end of this chapter is attached the entire text of Appendix C3, including the attachments. As with the changes shown in this chapter (Chapter 3, Modifications to the Draft EIR, of the Final EIR), revisions to the text are shown with ~~strikethrough~~ for deletions and underline for additions. Figures 1 to 6 have also been revised to reflect changes in the model and text. The corrections provided in the attached tables are shown in **bold/underline**. Please refer to Appendix C3 of the Draft EIR for original information.

Addition of Appendix H: Boatyard Analysis – A Review of Boatyard Market Demand Data

Based on responses to comments (Chapter 2, Response to Comments, of the Final EIR), a new appendix (Appendix H) has been added, following Appendix C3 revisions.

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Appendix C2. – Operation Emission – Modifications

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Summary

AI Larson Boat Shop (ALBS) Improvement Project										July 7, 2011
Operational Emissions										<u>Updated May 14, 2012</u>
Table 1 - Baseline Operational Emissions (100 boats/year serviced)										
	NOx (lb/day)	VOC (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	SO2 (lb/day)	CO (lb/day)	Lead (lb/day)	70-Yr Avg Diesel PM (lb/day)	Other TACs (lb/day)	CO2eq (MT/yr)
Total Project Operational Emissions:	122.00	45.54	21.80	9.10	0.11	71.02	0.00	0.267	[c]	[d]
New mobile boat hoist:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	-	-
Air compressor diesel engine(s) usage:	17.41	1.42	1.22	1.22	0.01	3.75	0.00	<u>0.214</u>	[c]	-
Coating:	-	33.50	9.74	1.95	-	-	-	-	[c]	-
Abrasive blasting:	-	-	3.72	0.37	-	-	-	-	[c]	-
Welding:	-	-	1.22	1.22	-	-	-	-	[c]	-
Pressure washer:	0.02	0.00	0.00	0.00	0.00	0.01	-	<u>0.004</u>	[c]	-
On-site mobile equipment:	5.22	1.06	0.42	0.42	0.01	4.02	-	<u>0.050</u>	[c]	-
Off-site employee trips:	3.89	4.00	1.86	0.59	0.05	38.43	-	-	[c]	-
Boat transit:	95.45	5.56	3.61	3.32	0.04	24.82	-	-	[c]	-
Baseline emissions estimates based on Project Description and 3-Year Averages from 2008, 2009 and 2010 SCAQMD Annual Emissions Reports.										
Table 2 - Future with Proposed Project Operational Emissions (304 boats/year serviced)										
	NOx (lb/day)	VOC (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	SO2 (lb/day)	CO (lb/day)	Lead (lb/day)	70-Yr Avg Diesel PM (lb/day)	Other TACs (lb/day)	CO2eq (MT/yr)
Total Project Operational Emissions:	122.78	99.63	41.96	14.14	0.18	122.97	0.00	0.633	[c]	[d]
New mobile boat hoist:	1.93	0.10	0.07	0.07	0.00	0.28	0.00	<u>0.013</u>	[c]	-
Air compressor diesel engine(s) usage:	40.72	3.32	2.86	2.86	0.01	8.77	0.00	<u>0.494</u>	[c]	-
Coating:	-	78.34	22.78	4.56	-	-	-	-	[c]	-
Abrasive blasting:	-	-	8.71	0.87	-	-	-	-	[c]	-
Welding:	-	-	2.85	2.85	-	-	-	-	[c]	-
Pressure washer:	0.05	0.00	0.01	0.01	0.00	0.01	-	<u>0.009</u>	[c]	-
On-site mobile equipment:	12.20	2.48	0.99	0.99	0.01	9.40	-	<u>0.117</u>	[c]	-
Off-site employee trips:	5.08	5.21	2.42	0.77	0.07	50.11	-	-	[c]	-
Boat transit:	62.79	10.18	1.27	1.17	0.08	<u>54.39</u>	-	-		

Summary

AI Larson Boat Shop (ALBS) Improvement Project									July 7, 2011	
Operational Emissions									Updated May 14, 2012	
Table 3 - Proposed Project Incremental Operational Emissions (Future with Project Minus CEQA Baseline Emissions)										
	NOx (lb/day)	VOC (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	SO2 (lb/day)	CO (lb/day)	Lead (lb/day)	70-Yr Avg Diesel PM (lb/day)	Other TACs (lb/day)	CO2eq (MT/yr)
Total Project Operational Emissions:	1	54	20	5	0	52	0	0.366	[c]	[d]
New mobile boat hoist:	1.93	0.10	0.07	0.07	0.00	0.28	0.00	0.013	[c]	-
Air compressor diesel engine(s) usage:	23.31	1.90	1.64	1.64	0.01	5.02	0.00	0.281	[c]	-
Coating:	-	44.84	13.04	2.61	-	-	-	-	[c]	-
Abrasive blasting:	-	-	4.98	0.50	-	-	-	-	[c]	-
Welding:	-	-	1.63	1.63	-	-	-	-	[c]	-
Pressure washer:	0.03	0.00	0.00	0.00	0.00	0.01	-	0.005	[c]	-
On-site mobile equipment:	6.98	1.42	0.57	0.57	0.01	5.38	-	0.067	[c]	-
Off-site employee trips:	1.18	1.22	0.56	0.18	0.02	11.69	-	-	[c]	-
Boat transit:	-32.66	4.62	-2.34	-2.15	0.04	29.57	-	-	[c]	-
SCAQMD Air Quality Significance Threshold [a]:	55	55	150	55	150	550	3	[b]	[b]	10,000
Project Emissions Change Significant?	No	No	No	No	No	No	No	No [b]	No	No
Table 4 – Proposed Project Operational Emissions with Mitigation										
	NOx (lb/day)	VOC (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	SO2 (lb/day)	CO (lb/day)	Lead (lb/day)	Diesel PM (lb/day)	Other TACs (lb/day)	CO2eq (MT/yr)
Total Project Operational Emissions:	19.27	86.13	37.82	10.11	0.09	59.81	0.00	0.14	[c]	[d]
New mobile boat hoist:	1.93	0.10	0.07	0.07	0.00	0.28	0.00	0.01	[c]	-
Air compressor diesel engine(s) usage:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	[c]	-
Coating:	-	78.34	22.78	4.56	-	-	-	-	0.00	-
Abrasive blasting:	-	-	8.71	0.87	-	-	-	-	[c]	-
Welding:	-	-	2.85	2.85	-	-	-	-	[c]	-
Pressure washer:	0.05	0.00	0.01	0.01	0.00	0.01	-	0.01	[c]	-
On-site mobile equipment:	12.20	2.48	0.99	0.99	0.01	9.40	-	0.12	[c]	-
Off-site employee trips:	5.08	5.21	2.42	0.77	0.07	50.11	-	-	[c]	-
Boat transit:	62.79	10.18	1.27	1.17	0.08	54.39	-	-	[c]	-
Mitigation = replacement of all diesel engine powered compressor engines with electric motors:										

Summary

Al Larson Boat Shop (ALBS) Improvement Project										July 7, 2011
Operational Emissions										Updated May 14, 2012
Table 5—Proposed Project Operational Emissions Increase with Mitigation										
	NOx (lb/day)	VOC (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	SO2 (lb/day)	CO (lb/day)	Lead (lb/day)	Diesel PM (lb/day)	Other TACs (lb/day)	CO2eq (MT/yr)
Total Project Operational Emissions:	-7.28	46.16	19.63	4.33	0.02	13.61	0.00	-0.13	{c}	{d}
New mobile boat hoist:	1.93	0.10	0.07	0.07	0.00	0.28	0.00	0.01	{c}	-
Air compressor diesel engine(s) usage:	-17.41	-1.42	-1.22	-1.22	-0.01	-3.75	0.00	-0.21	{c}	-
Coating:	-	44.84	13.04	2.61	-	-	-	-	0.00	-
Abrasive blasting:	-	-	4.98	0.50	-	-	-	-	{c}	-
Welding:	-	-	1.63	1.63	-	-	-	-	{c}	-
Pressure washer:	0.03	0.00	0.00	0.00	0.00	0.01	-	0.00	{c}	-
On-site mobile equipment:	6.98	1.42	0.57	0.57	0.01	5.38	-	0.07	{c}	-
Off-site employee trips:	1.18	1.22	0.56	0.18	0.02	11.69	-	-	{c}	-
Boat transit:	-32.66	4.62	-2.34	-2.15	0.04	29.57	-	-	{c}	-
SCAQMD Air Quality Significance Threshold [a]:	55	55	150	55	150	550	3	{b}	{b}	10,000
Project Emissions Change Significant?	No	No	No	No	No	No	No	No {b}	No	No
NOx = nitrogen oxides, VOC = volatile organic compounds, PM10 = particulate matter with an aerodynamic diameter less than or equal to 10 microns, PM2.5 = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns, SO2 = sulfur dioxide, CO = carbon monoxide, Diesel PM = diesel particulate matter (a Toxic Air Contaminant), Other TACs = Toxic Air Contaminants (TAC) other than Diesel PM.										
- = not applicable.										
[a] SCAQMD, Air Quality Significance Thresholds, from http://www.aqmd.gov/ceqa/handbook/signthres.pdf (March 2011)										
[b] Maximum incremental cancer risk >= 10 in 1 million, cancer burden > 0.5 excess cancer cases, chronic & acute hazard index >= 1.0 (project increment)										
Based on SCAQMD Rule 1401 Risk Calculator (http://www.aqmd.gov/permit/r1401_risk_assessment.htm), risk is not significant.										
{c} 'Other TACs' (TACs other than Diesel PM) have not been calculated because project risk is driven mainly by Diesel PM emissions.										
[c] See individual TAC emissions in following tables for Hoist, Comp Engine, Coating, Welding and On-Site Mobile.										
[d] Project increase in GHG emissions (as CO2eq) are well below 10,000 metric tons per year (MT/yr).										

Al Larson Boat Shop (ALBS) Improvement Project
New TravelLift 600C Mobile Boat Hoist Emissions

Hoist

July 7, 2011
Updated May 14, 2012

	NOx (lb/day)	VOC (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	SO2 (lb/day)	CO (lb/day)	Lead (lb/day)	DPM 70-yr (lb/day)	DPM 70-yr (lb/yr)
Mobile hoist emissions (baseline):	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	-
Mobile hoist emissions (increase):	1.93	0.10	0.068	0.068	0.0035	0.28	0.00014	0.013	3.37
Mobile hoist emissions (post-project):	1.93	0.10	0.068	0.068	0.0035	0.28	0.00014	0.013	3.37

<u>Parameter</u>	<u>Value</u>	<u>Basis</u>
Engine rating:	400 hp	@ 2,200 rpm. John Deere Diesel 6090HF - Tier 3 (Marine Travelift 600C Mobile Boat Hoist brochure)
Fuel usage rate:	135.39 lb/hr	Fuel usage @ peak hp (400 hp), Model HF6090, 2010 Model Year, Engine Family AJFXL09.0102 (CARB Executive Order U-R-004-0376, John Deere Power Systems)
Fuel density:	7 lb/gal	Diesel
Fuel S content:	15 ppmw	15 ppmw Ultra Low Sulfur Diesel required by SCAQMD Rule 431.2
Average engine load factor:	43%	SCAQMD 1993 CEQA Handbook, Table A9-8-D (Typical Load Factors for Mobile (Off-Road Equipment)), "Crane".
Hoist hours per ship:	1 hr/ship	Estimate
Max. ships per day:	2 ships/day	Estimate
Max. ships per year:	304 ship/yr	Project Description
Hoist operating days:	260 days/yr	Project Description
Fuel usage (Max ships/day)	16.63 gal/day	Fuel usage [gal/day] = (Fuel usage rate [lb/hr]) / (Fuel density [lb/gal]) * (Load factor [%]) * (Hours per ship [hr/ship]) * (Ships per day [ships/day])
Fuel usage (Max ships/yr)	2,528 gal/yr	Fuel usage [gal/yr] = (Fuel usage rate [lb/hr]) / (Fuel density [lb/gal]) * (Load factor [%]) * (Hours per ship [hr/ship]) * (Ships per year [ships/yr])
<i>Emission factors:</i>		
NMHC+NOx	3.6 g/kW-hr	Model HF6090, 2010 Model Year, Engine Family AJFXL09.0102 (CARB Executive Order U-R-004-0376, John Deere Power Systems)
	2.68 g/hp-hr	

Al Larson Boat Shop (ALBS) Improvement Project
New TravelLift 600C Mobile Boat Hoist Emissions

Hoist

~~July 7, 2011~~
Updated May 14, 2012

NOx	2.55 g/hp-hr	NOx = 0.95 NMHC+NOx (CARB 2008 Carl Moyer Program Guidelines, Table B-26, Pollutant Fractions NOx+NMHC Standards, Diesel Engines)
VOC	0.13 g/hp-hr	CO = 0.05 NMHC+NOx (CARB 2008 Carl Moyer Program Guidelines, Table B-26, Pollutant Fractions NOx+NMHC Standards, Diesel Engines)
PM	0.12 g/kW-hr	Model HF6090, 2010 Model Year, Engine Family AJFXL09.0102 (CARB Executive Order U-R-004-0376, John Deere Power Systems)
CO	0.09 g/hp-hr 0.5 g/kW-hr	Model HF6090, 2010 Model Year, Engine Family AJFXL09.0102 (CARB Executive Order U-R-004-0376, John Deere Power Systems)
SO2	0.37 g/hp-hr 0.21 lb/10 ³ gal	Mass balance (assumes all fuel S is converted to SO2)
Lead	0.0083 lb/10 ³ gal	Ventura County APCD AB2588 Combustion Emission Factors (5/2001)

Emissions:

NOx	1.93 lb/day	Max. ships per day
VOC	0.10 lb/day	Max. ships per day
PM10	0.068 lb/day	Max. ships per day. Assume all PM is PM10/PM2.5
CO	0.28 lb/day	Max. ships per day
SO2	0.0035 lb/day	Max. ships per day
Lead	0.00014 lb/day	Max. ships per day

TAC 1-Hour Emission Rates for Acute Risk Assessment - Organics

	<u>acetaldehyde</u>	<u>benzene</u>	<u>formaldehyde</u>	<u>methanol</u>	<u>methyl ethyl ketone (mek)</u> <u>(2-butanone)</u>	<u>styrene</u>	<u>toluene</u>	<u>xylenes, total</u>
<u>Emission Rates in lbs/hour</u>								
<u>Mobile hoist emissions (increase):</u>	9.36E-04	2.55E-04	1.87E-03	3.82E-06	1.88E-04	7.38E-06	1.87E-04	1.32E-04

TAC 1-Hour Emission Rates for Acute Risk Assessment - Inorganics

	<u>arsenic</u>	<u>chlorine</u>	<u>copper</u>	<u>manganese</u>	<u>mercury</u>	<u>nickel</u>	<u>vanadium</u>	<u>sulfates</u>
<u>Emission Rates in lbs/hour</u>								
<u>Mobile hoist emissions (increase):</u>	4.24E-08	2.92E-06	2.12E-07	3.39E-07	2.54E-07	1.61E-07	2.46E-07	1.48E-04

	NOx	VOC	PM10	PM2.5	SO2	CO	Lead	DPM 70-Yr Average	DPM 70-Yr Average
	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(lb/day) ^a	(lb/yr) ^a
Air compressor engine(s) (baseline):	17.41	1.42	1.22	1.22	0.006	3.75	0.0002	<u>0.2135</u>	<u>55.51</u>
Air compressor engine(s) (increase):	23.31	1.90	1.64	1.64	0.008	5.02	0.0003	<u>0.2809</u>	<u>73.03</u>
Air compressor engine(s) (post-project):	40.72	3.32	2.86	2.86	0.014	8.77	0.0005	<u>0.4944</u>	<u>128.54</u>

a. 70-year average emission rates estimated from SCAB Fleet Average Emission Factor (Diesel) tables developed by SCAQMD and final PM emission standard (0.01 g/hp-hr). Emission factors decline from the baseline period through 2040, then are held at 2040 levels (0.01 g/hp-hr) for the remaining years.

~~All diesel engine powered air compressors serving ship spray coating equipment (pressure pots) will be replaced with electric units.~~

Parameter	Value	Basis
Fuel usage baseline:	7,333 gal/yr	See 'Baseline->Project' sheet
Fuel usage increase:	9,815 gal/yr	See 'Baseline->Project' sheet
Fuel heat content:	140,000 Btu/gal	Typical for No. 2 diesel
Fuel density:	7 lb/gal	Typical for No. 2 diesel
Fuel S content:	15 ppmw	15 ppmw Ultra Low Sulfur Diesel required by SCAQMD Rule 431.2
Operation:	260 days/yr	Project Description
<i>Emission factors:</i>		
NOx	4.41 lb/MMBtu	EPA AP-42, Table 3.3-1 (Emission Factors for Uncontrolled Diesel Industrial Engines)
VOC	0.36 lb/MMBtu	EPA AP-42, Table 3.3-1 (Emission Factors for Uncontrolled Diesel Industrial Engines)
PM10	0.31 lb/MMBtu	EPA AP-42, Table 3.3-1 (Emission Factors for Uncontrolled Diesel Industrial Engines)
PM2.5	0.31 lb/MMBtu	EPA AP-42, Table 3.3-1 (Emission Factors for Uncontrolled Diesel Industrial Engines)
SO2	0.0015 lb/MMBtu	Mass balance (assumes all fuel S is converted to SO2)
CO	0.95 lb/MMBtu	EPA AP-42, Table 3.3-1 (Emission Factors for Uncontrolled Diesel Industrial Engines)
Lead	0.000059 lb/MMBtu	~~0.0083 lb/10³ gallons per Ventura County APCD AB2588 Combustion Emission Factors (5/2001)~~

AP-42 Table 3.3-1 emission factors applicable to diesel engines up to 600 hp.

<i>Emissions Increase (Daily Average):</i>		
NOx	23.31 lb/day	Daily fuel usage = annual fuel usage / operating days
VOC	1.90 lb/day	Daily fuel usage = annual fuel usage / operating days
PM10	1.64 lb/day	Daily fuel usage = annual fuel usage / operating days
PM2.5	1.64 lb/day	Daily fuel usage = annual fuel usage / operating days
SO2	0.0079 lb/day	Daily fuel usage = annual fuel usage / operating days
CO	5.02 lb/day	Daily fuel usage = annual fuel usage / operating days
Lead	0.00031 lb/day	~~Daily fuel usage = annual fuel usage / operating days~~

Al Larson Boat Shop (ALBS) Improvement Project
Air Compressor Diesel Engine(s) Emissions

CompEngine

~~July 7, 2011~~
Updated May 14, 2012

For 70-year average DPM Rate:

<u>Compressor Engine Size:</u>	<u>300 BHP</u>	<u>SCAQMD Permit to Operate F41657 (A/N 387435)</u>
<u>Compressor Engine Load Factor:</u>	<u>0.48</u>	<u>1993 SCAQMD CEQA Handbook (Table A9-8-D).</u>
<u>Diesel Engine PM Emission Standard:</u>	<u>0.01 g/hp-hr</u>	<u>Assumed to be met by 2040 for all non-road diesel engines</u>

<u>Baseline EF (Average of 2008, 2009, 2010)</u>	<u>0.0545</u>
<u>Baseline 70-Year Average EF</u>	<u>0.0095</u>
<u>Ratio 70-Year to Baseline</u>	<u>0.1744</u>

<u>Future (2012) EF</u>	<u>0.0469</u>
<u>Future 70-Year Average EF</u>	<u>0.0081</u>
<u>Ratio 70-Year to 2012</u>	<u>0.1727</u>

TAC 1-Hour Emission Rates for Acute Risk Assessment - Organics

	<u>acetaldehyde</u>	<u>benzene</u>	<u>formaldehyde</u>	<u>methanol</u>	<u>methyl ethyl ketone (mek) (2-butanone)</u>	<u>styrene</u>	<u>toluene</u>	<u>xylenes, total</u>
<u>Emission Rates in lbs/hour</u>								
<u>Air compressor engine(s) (baseline):</u>	<u>1.31E-02</u>	<u>3.56E-03</u>	<u>2.61E-02</u>	<u>5.33E-05</u>	<u>2.62E-03</u>	<u>1.03E-04</u>	<u>2.62E-03</u>	<u>1.85E-03</u>
<u>Air compressor engine(s) (increase):</u>	<u>1.75E-02</u>	<u>4.76E-03</u>	<u>3.50E-02</u>	<u>7.13E-05</u>	<u>3.51E-03</u>	<u>1.38E-04</u>	<u>3.50E-03</u>	<u>2.48E-03</u>
<u>Air compressor engine(s) (post-project):</u>	<u>3.06E-02</u>	<u>8.31E-03</u>	<u>6.11E-02</u>	<u>1.25E-04</u>	<u>6.14E-03</u>	<u>2.41E-04</u>	<u>6.12E-03</u>	<u>4.33E-03</u>

TAC 1-Hour Emission Rates for Acute Risk Assessment - Inorganics

	<u>arsenic</u>	<u>chlorine</u>	<u>copper</u>	<u>manganese</u>	<u>mercury</u>	<u>nickel</u>	<u>vanadium</u>	<u>sulfates</u>
<u>Emission Rates in lbs/hour</u>								
<u>Air compressor engine(s) (baseline):</u>	<u>7.65E-07</u>	<u>5.26E-05</u>	<u>3.83E-06</u>	<u>6.12E-06</u>	<u>4.59E-06</u>	<u>2.91E-06</u>	<u>4.44E-06</u>	<u>2.67E-03</u>
<u>Air compressor engine(s) (increase):</u>	<u>1.76E-07</u>	<u>1.21E-05</u>	<u>8.78E-07</u>	<u>1.40E-06</u>	<u>1.05E-06</u>	<u>6.67E-07</u>	<u>1.02E-06</u>	<u>6.12E-04</u>
<u>Air compressor engine(s) (post-project):</u>	<u>1.79E-06</u>	<u>1.23E-04</u>	<u>8.95E-06</u>	<u>1.43E-05</u>	<u>1.07E-05</u>	<u>6.80E-06</u>	<u>1.04E-05</u>	<u>6.24E-03</u>

Al Larson Boat Shop (ALBS) Improvement Project
Coating Emissions

Coating

~~July 7, 2011~~
Updated May 14, 2012

	NOx (lb/day)	VOC (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	SO2 (lb/day)	CO (lb/day)	Lead (lb/day)
Coating emissions (baseline):	-	33.50	9.74	1.95	-	-	-
Coating emissions (increase):	-	44.84	13.04	2.61	-	-	-
Coating emissions (post-project):	-	78.34	22.78	4.56	-	-	-

- = Not applicable

Coating emissions increase is based on 3-year average baseline emissions (2008-2010) and assumed to be proportional to number of ships serviced.

<u>Coating Usage/VOCs:</u>	<u>Value</u>	<u>Basis</u>
Cleaning/thinner VOC	1,614 lb/yr	Increase from 3-year baseline emissions (2008-2010)
Cleaning/thinner	448 gal/yr	Increase from 3-year baseline usage (2008-2010)
Avg VOC	3.6 lb/gal	2008-2010 AERs
Painting/epoxy VOC	5,602 lb/yr	Increase from 3-year baseline emissions (2008-2010)
Usage	2,001 gal/yr	Increase from 3-year baseline usage (2008-2010)
Avg VOC	2.8 lb/gal	2008-2010 AERs
Painting/antifouling VOC	4,367 lb/yr	Increase from 3-year baseline emissions (2008-2010)
Usage	1,560 gal/yr	Increase from 3-year baseline usage (2008-2010)
Avg VOC	2.8 lb/gal	2008-2010 AERs
Painting/enamel VOC	76 lb/yr	Increase from 3-year baseline emissions (2008-2010)
Usage	27 gal/yr	Increase from 3-year baseline usage (2008-2010)
Avg VOC	2.8 lb/gal	2008-2010 AERs
Total VOC increase:	11,659 lb/yr	Calc 11,584
Total Usage	4,036 gal/yr	Calc
Operating days per year:	260 days/yr	Project Description
<u>Spray Coating PM emissions:</u>		
Quantity of paint/epoxy applied:	3,588 gal/yr	Increase in coatings (excludes cleaner/thinner use)
Coatings spray painted:	90%	Remainder (10%) are hand applied.
Solids content:	3.0 lb/gal	Default solids content from SCAQMD's "Guidelines for Particulate Matter (PM) Emissions Calculations for Spray Coating Operations"
Transfer efficiency:	0.65	Default transfer efficiency of 65% per SCAQMD's Guidelines.
Control efficiency:	0.00	Estimate
Annual PM10 emissions:	3,390.7 lb/yr	$= (\text{Coating quantity applied [gal]}) * (\% \text{ spray coated}) * (\text{Solids content [lb/gal]}) * (1 - \text{Transfer Efficiency}) * (1 - \text{Control Efficiency})$
Daily PM10 emissions:	13.0 lb/day	Annual PM10 emissions divided by Operating days per year.
PM2.5 fraction:	20%	Estimate
Daily PM2.5 emissions:	2.6 lb/day	Calc

Spray Coating PM TAC emissions:

<u>Quantity of paint/antifouling applied:</u>	<u>1,560 gal/yr</u>
<u>Coatings spray painted:</u>	<u>90%</u>
<u>Solids content:</u>	<u>3.0 lb/gal</u>
<u>Transfer efficiency:</u>	<u>0.65</u>
<u>Control efficiency:</u>	<u>0.00</u>
<u>Annual PM10 emissions:</u>	<u>1,474 lb/yr</u>
<u>Annual Cuprous Oxide Emissions</u>	<u>688 lb/yr</u>
<u>Annual Zinc Oxide Emissions</u>	<u>393 lb/yr</u>
<u>Hourly Cuprous Oxide Emissions</u>	<u>0.33 lb/hr</u>
<u>Hourly Zinc Oxide Emissions</u>	<u>0.19 lb/hr</u>

Increase in paint/epoxy use
Remainder (10%) are hand applied.
Default solids content from SCAQMD's "Guidelines for Particulate Matter (PM) Emissions
Default transfer efficiency of 65% per SCAQMD's Guidelines.
Estimate
=(Coating quantity applied [gal]) * (% spray coated) * (Solids content [lb/gal]) * (1 - Transfer Efficiency) * (1 -
Control Efficiency)
See Baseline->Project, MSDS Info.
See Baseline->Project, MSDS Info.

Spray Coating VOC TAC emissions:

<u>Quantity of paint/epoxy applied:</u>	<u>2,001 gallons</u>
<u>Annual Painting/epoxy VOC</u>	<u>5,602 lb/yr</u>
<u>Annual Xylene Emissions</u>	<u>244 lb/yr</u>
<u>Annual N-butyl alcohol Emissions</u>	<u>1709 lb/yr</u>
<u>Hourly Xylene Emissions</u>	<u>0.12 lb/hr</u>
<u>Hourly N-butyl alcohol Emissions</u>	<u>0.82 lb/hr</u>

Increase in paint/epoxy use
Increase from 3-year baseline emissions (2008-2010)
See Baseline->Project, MSDS Info.
See Baseline->Project, MSDS Info.

<u>Quantity of paint/antifoulant applied:</u>	<u>1,560 gallons</u>
<u>Annual Painting/antifoulant VOC</u>	<u>4,367 lb/yr</u>
<u>Annual Xylene Emissions</u>	<u>1414 lb/yr</u>
<u>Annual Ethyl benzene Emissions</u>	<u>336 lb/yr</u>
<u>Hourly Xylene Emissions</u>	<u>0.68 lb/hr</u>
<u>Hourly Ethyl benzene Emissions</u>	<u>0.16 lb/hr</u>

Increase in paint/antifoulant use
Increase from 3-year baseline emissions (2008-2010)
See Baseline->Project, MSDS Info.
See Baseline->Project, MSDS Info.

<u>Quantity of thinner/cleaner applied:</u>	<u>448 gallons</u>
<u>Annual thinner/cleaner VOC</u>	<u>1,614 lb/yr</u>
<u>Annual Benzene Emissions</u>	<u>1.6 lb/yr</u>
<u>Annual Naphthalene Emissions</u>	<u>3.2 lb/yr</u>
<u>Hourly Benzene Emissions</u>	<u>0.0008 lb/hr</u>
<u>Hourly Naphthalene Emissions</u>	<u>0.0016 lb/hr</u>

Increase in thinner/cleaner use
Increase from 3-year baseline emissions (2008-2010)
See Baseline->Project, MSDS Info.
See Baseline->Project, MSDS Info.

Al Larson Boat Shop (ALBS) Improvement Project
Welding Emissions

Welding

July 7, 2011
Updated May 14, 2012

	NOx (lb/day)	VOC (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	SO2 (lb/day)	CO (lb/day)	Lead (lb/day)	Cr (lb/day)	Cr 6+ (lb/day)	Mn (lb/day)	Ni (lb/day)
Welding emissions (baseline):	-	-	1.22	1.22	-	-	-	0.00032	0.000016	0.07189	0.00040
Welding emissions (increase):	-	-	1.63	1.63	-	-	-	0.00043	0.000022	0.09623	0.00054
Welding emissions (post-project):	-	-	2.85	2.85	-	-	-	0.00075	0.000038	0.16812	0.00094

- = Not applicable

Welding emissions increase assumed to be proportional to number of ships serviced.

<u>Parameter</u>	<u>Value</u>	<u>Basis</u>
Operating days per year:	260 days/yr	Project Description
Baseline ships/yr	130 ship/yr	Project Description
Additional ships/yr	174 ship/yr	Project Description (increase from 130 ships/yr to 304 ships/yr)
Average max. daily increase:	0.67 ships/day	Calc
Rounded max. daily increase:	1.00 ship/day	Calc
Electrode usage:	6 lb/hr/welder	Estimate
Max. welding hours/ship	3 hr/welder/ship	Estimate
Max. ships/day	3 ships/day	Estimate
Max. welders/ship	2 welders/ship	Estimate
Electrode usage (increase):	108 lb/day	Calc
Fume (PM10) emission factor:	15.1 lb/1000 lb	AP-42, Table 12.19 (Flux Core Arc Welding [FCAW], E70T electrode type)
PM10 emissions:	1.63 lb/day	Calc
PM2.5 emissions:	1.63 lb/day	Assume PM2.5=PM10 (conservative)
HAPs:		
Chromium (Cr)	0.04 lb/10,000 lb	AP-42, Table 12.19-2 (FCAW welding, E70T electrode type)
Manganese (Mn)	8.91 lb/10,000 lb	AP-42, Table 12.19-2 (FCAW welding, E70T electrode type)
Nickel (Ni)	0.05 lb/10,000 lb	AP-42, Table 12.19-2 (FCAW welding, E70T electrode type)
Total HAPs:	9.00 lb/10,000 lb	Calc

PM and HAP emissions estimates assume Flux Core Arc Welding (FCAW) process and E70T electrode type are used.

Per an EPA "Shipbuilding and Ship Repair NESHAP Residual Risk Analysis" presentation (January 25, 2005), flux core arc welding (FCAW) is the most common welding process used in shipbuilding and ship repair.

According to Table 2-3 of "Development of Emission Inventory for Metal Welding, Cutting and Spraying Operations" (May 31, 2000 Final Report, Submitted by Pacific Environmental Services to South Coast Air Quality Management District), electrode types used by FCAW for mild steel include E70T and E71T.

HAP = Hazardous Air Pollutant

Al Larson Boat Shop (ALBS) Improvement Project
Welding Emissions

Welding

~~July 7, 2011~~
Updated May 14, 2012

TAC 1-Hour Emission Rates for Acute Risk Assessment

	Chromium 6+	Manganese	Nickel
Emission Rates in lbs/hour			
Welding emissions (baseline):	2.02E-06	8.99E-03	5.04E-05
Welding emissions (increase):	2.70E-06	1.20E-02	6.75E-05
Welding emissions (post-project):	4.72E-06	2.10E-02	1.18E-04

TAC Annual Emission Rates for Cancer and Chronic Non-Cancer Risk Assessment

	Chromium 6+	Manganese	Nickel
Emission Rates in lbs/year			
Welding emissions (baseline):	0.0042	18.69	0.105
Welding emissions (increase):	0.0056	25.02	0.140
Welding emissions (post-project):	0.0098	43.71	0.245

Al Larson Boat Shop (ALBS) Improvement Project

On-Site Mobile Equipment Emissions

On-site mobile

July 7, 2011

Updated May 14, 2012

	NOx (lb/day)	VOC (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	SO2 (lb/day)	CO (lb/day)	Lead (lb/day)	DPM 70-yr (lb/day)	DPM 70-yr (lb/yr)
Mobile equipment (baseline)	5.22	1.06	0.42	0.42	0.01	4.02	-	0.050	13.00
Mobile equipment (increase)	6.98	1.42	0.57	0.57	0.01	5.38	-	0.067	17.42
Mobile equipment (post-project)	12.20	2.48	0.99	0.99	0.01	9.40	-	0.117	30.42

Increase assumes activity increases by: 2.34 times from baseline (increase assumed proportional to number of ships serviced).

Equipment/Activity Descriptions

<i>Equipment/Activity</i>	<i>Hp</i> <i>Rating</i>	<i>Load</i> <i>Factor</i>	<i>Number</i> <i>Active</i>	<i>Equip-Hrs</i> <i>Day</i>	<i>Miles/</i> <i>Day</i>	<i>Equipment</i> <i>Type</i>	<i>Fuel usage</i> <i>(gal/day)</i>
Forklifts	83	0.30	5	2.0	-	Off-Road	16.43
Crane (55-ton T-Rex 2002 RT Crane)	185	0.43	1	1.0	-	Off-Road	5.25
Crane (Linkbelt RTC-8018)	110	0.43	1	1.0	-	Off-Road	3.12
Crane (Linkbelt RTC-8025)	152	0.43	1	1.0	-	Off-Road	4.31
Forklift (telescopic, rough terrain)	140	0.475	1	1.0	-	Off-Road	4.39

Notes:

Horsepower ratings from 1993 SCAQMD CEQA Handbook (Tables A9-8-C and A9-8-D) or estimated manufacturer specs.

Load factors from 1993 SCAQMD CEQA Handbook (Tables A9-8-C and A9-8-D) used to estimate fuel usage.

Fuel usage estimate assumes 0.066 gallons per horsepower-hour (1993 SCAQMD CEQA Handbook, Table A9-8-C).

Emission Factors for Off-Road Equipment

<i>Equipment/Activity</i>	<i>Emission Factors (include load factor)</i>						<i>Units</i>	<i>Reference</i>
	<i>NOx</i>	<i>VOC</i>	<i>PM10</i>	<i>PM2.5</i>	<i>SO2</i>	<i>CO</i>		
Forklifts	1.2510	0.3334	0.1148	0.115	0.0016	1.1980	g/hp-hr	1
Crane (55-ton T-Rex 2002 RT Crane)	2.1145	0.2712	0.1171	0.117	0.0023	1.1619	g/hp-hr	1
Crane (Linkbelt RTC-8018)	2.2146	0.4609	0.2062	0.206	0.0023	1.5688	g/hp-hr	1
Crane (Linkbelt RTC-8025)	2.1693	0.3194	0.1566	0.157	0.0023	1.3066	g/hp-hr	1
Forklift (telescopic, rough terrain)	2.6015	0.3858	0.2022	0.202	0.0031	1.7348	g/hp-hr	1

1 - Composite emission factor based on CARB OFFROAD Emissions Model and South Coast Air Basin Fleet Average Emission Factors for 2012.

 Composite emission factors include load factors. <http://www.aqmd.gov/ceqa/handbook/offroad/offroad.html>

TAC 1-Hour Emission Rates for Acute Risk Assessment - Organics

	<u>acetaldehyde</u>	<u>benzene</u>	<u>formaldehyde</u>	<u>methanol</u>	<u>methyl ethyl ketone (mek) (2-butanone)</u>	<u>styrene</u>	<u>toluene</u>	<u>xylene, total</u>
<u>Emission Rates in lbs/hour</u>								
<u>Air compressor engine(s) (baseline):</u>								
<u>Air compressor engine(s) (increase):</u>	<u>1.30E-02</u>	<u>3.54E-03</u>	<u>2.61E-02</u>	<u>5.31E-05</u>	<u>2.62E-03</u>	<u>1.03E-04</u>	<u>2.61E-03</u>	<u>1.84E-03</u>
<u>Air compressor engine(s) (post-project):</u>								

TAC 1-Hour Emission Rates for Acute Risk Assessment - Inorganics

	<u>arsenic</u>	<u>chlorine</u>	<u>copper</u>	<u>manganese</u>	<u>mercury</u>	<u>nickel</u>	<u>vanadium</u>	<u>sulfates</u>
<u>Emission Rates in lbs/hour</u>								
<u>Air compressor engine(s) (baseline):</u>								
<u>Air compressor engine(s) (increase):</u>	<u>4.19E-08</u>	<u>2.88E-06</u>	<u>2.09E-07</u>	<u>3.35E-07</u>	<u>2.51E-07</u>	<u>1.59E-07</u>	<u>2.43E-07</u>	<u>1.46E-04</u>
<u>Air compressor engine(s) (post-project):</u>								

Al Larson Boat Shop (ALBS) Improvement Project
Baseline Information

Baseline->Project

July 7, 2011
Updated May 14, 2012

	Baseline				Project [1]	Project Increase	Project (w/mit)
	2010	2009	2008	3-Yr Avg			
Air compressor engine:							
Diesel usage (gal/yr)	7,170	7,510	7,320	7,333	17,149	9,815	9,815
Cleaning/thinner VOC (lb/yr)	1,407.6	1,054.8	1,155.6	1,206.0	2,820	1,614	1,614
Cleaning/thinner (gal/yr)	391	293	321	335	783	448	448
Avg VOC (lb/gal)	3.60	3.60	3.60	3.60	-	-	-
Painting/epoxy VOC (lb/yr)	4,340.0	4,295.2	3,920.0	4,185.1	9,787	5,602	5,602
Usage (gal/yr)	1,550.0	1,534.0	1,400.0	1,494.7	3,495	2,001	2,001
Avg VOC (lb/gal)	2.80	2.80	2.80	2.80	-	-	-
Painting/antifouling VOC (lb/yr)	3,295.6	3,213.0	3,278.8	3,262.5	7,629	4,367	4,367
Usage (gal/yr)	1,177.0	1,147.5	1,171.0	1,165.2	2,725	1,560	1,560
Avg VOC (lb/gal)	2.80	2.80	2.80	2.80	-	-	-
Painting/enamel VOC (lb/yr)	56	11.2	102.2	56.5	132	76	76
Usage (gal/yr)	20.0	4.0	36.5	20.2	47	27	27
Avg VOC (lb/gal)	2.80	2.80	2.80	2.80	-	-	-
Sandblasting (ton/yr) [2]	701.90	701.45	701	701.5	1,640	939	939
Welding (ton/yr)	ND	ND	ND	ND	ND	ND	ND

- = Not applicable

ND = no data available.

[1] Project Total assumes throughputs/emissions are proportional to number of ships serviced:

Parameter	Value	Basis
Baseline ships serviced:	130 ships/yr	Project Description
Project ships serviced:	304 ships/yr	Project Description
Increase in ships:	174 ships/yr	Calc
Project increase:	2.34 times	

All diesel engine powered compressors will be replaced with electric units.

[2] For 2009 sandblasting throughput, the 2009 AER did not list an annual throughput, so an average of 2010 and 2008 values was assumed.

~~2008-2010 AERs state coatings did not contain TAC/ODC (Toxic Air Contaminants/Ozone Depleting Compounds).~~

MSDS Sheets obtained from tenant for antifoulant and epoxy coatings.

References:

2008, 2009, and 2010 Annual Emission Reports (AER) for Al Larson Boat Shop, Facility ID 21862.

Al Larson Boat Shop (ALBS) Improvement Project

Baseline->Project

July 7, 2011

Baseline Information

Updated May 14, 2012

MSDS Information

Paint/Antifouling

TACs	Name	Cas No.	Wt%
yes	Cuprous oxide	1317391	35.00%
no	Magnesium silicate	14807966	10.00%
no	Terpineol	8006391	2.70%
no	Butyl acetate	mixture	5.00%
no	Cyclohexanone	108941	2.00%
no	Vinyl chloride copolymer	25154842	5.00%
no	Acrylic resin	dna	5.00%
yes	Zinc oxide	1314132	20.00%
yes	Xylene	1330207	8.00%
no	Butyl acetate	123864	5.10%
yes	Ethyl benzene	100414	1.90%

Source: Ameron Coatings, MSDS for ABC #4 Blue AF (antifoulant)

99.70%

Paint/Epoxy

TACs	Name	Cas No.	Max Wt%	Est Wt%
no	Talc	14807969	30.00%	23.6%
no	Epoxy resin	25068386	30.00%	23.6%
no	Mica	12001262	13.00%	10.2%
no	Petroleum resins	64742161	13.00%	10.2%
no	Red iron oxide	1309371	7.00%	5.5%
no	Acromatic naphtha	64742956	7.00%	5.5%
no	1,2,4-trimethyl benzene	95636	5.00%	3.9%
no	Epoxy resin	67924349	5.00%	3.9%
no	Methyl ketone	110430	5.00%	3.9%
no	Mesitylene	108678	1.00%	0.8%
no	Nonylphenol	84852153	1.00%	0.8%
yes	N-butyl alcohol	71363	7.00%	7.0%
yes	xylene	1330207	1.00%	1.0%

Source: PPG Industries, MSDS for AmerCoat 235 Oxide Red 235B7821 Res

117.00% 100.0%

Thinner/Cleaner (based on Stoddard Solvent)

yes	Benzene		0.10%
yes	Naphthalene		0.20%

Toxicological Profile for Stoddard Solvent, U.S. Dept. Health & Human Services, Agency for Toxic Substances and Disease Registry, June 1995.

"Solids" - Paint/Antifouling

TACs	Name	Cas No.	Wt%	Adj Wt%
yes	Cuprous oxide	1317391	35.00%	46.7%
no	Magnesium silicate	14807966	10.00%	13.3%
no	Vinyl chloride	25154842	5.00%	6.7%
no	Acrylic resin	dna	5.00%	6.7%
yes	Zinc oxide	1314132	20.00%	26.7%
			75.00%	100.0%

Organics - Paint/Antifouling

TACs	Name	Cas No.	Wt%	Adj Wt%
no	Terpineol	8006391	2.70%	10.9%
no	Butyl acetate	mixture	5.00%	20.2%
no	Cyclohexanone	108941	2.00%	8.1%
yes	Xylene	1330207	8.00%	32.4%
no	Butyl acetate	123864	5.10%	20.6%
yes	Ethyl benzene	100414	1.90%	7.7%
			24.70%	100.0%

"Solids" - Paint/Epoxy

TACs	Name	Cas No.	Wt%	Adj Wt%
no	Talc	14807969	23.59%	30.6%
no	Epoxy resin	25068386	23.59%	30.6%
no	Mica	12001262	10.22%	13.3%
no	Petroleum resins	64742161	10.22%	13.3%
no	Red iron oxide	1309371	5.50%	7.1%
no	Epoxy resin	67924349	3.93%	5.1%
			77.06%	100.0%

Organics - Paint/Epoxy

TACs	Name	Cas No.	Est Wt%	Adj Wt%
no	Acromatic naphtha	64742956	5.5%	24.0%
no	1,2,4-trimethyl benzene	95636	3.9%	17.1%
no	Methyl ketone	110430	3.9%	17.1%
no	Mesitylene	108678	0.8%	3.4%
no	Nonylphenol	84852153	0.8%	3.4%
yes	N-butyl alcohol	71363	7.0%	30.5%
yes	xylene	1330207	1.0%	4.4%
			22.9%	100.0%

Al Larson Boat Shop (ALBS) Improvement Project
Project Description - Key Parameters

Project Description

July 7, 2011
Updated May 14, 2012

Parameter	Inputs	Existing Operation	Proposed Operation / Assumptions
Vessels	Number of vessels	120 to 130 vessels/yr. Use 130 vessel/yr.	204 to 304 vessels/yr. Use 304 vessels/yr.
Employee trips	Employee count	70 to 100 employees. Use 100 employees.	90 to 130 employees. Use 130 employees.
Off-site trips	Number of vehicles	5 (estimate)	Assume proportional to number of vessels repaired.
Operating hours	-	15 hours/day (7:45am to 4:15pm, 3:30 pm to 11pm - assuming 30 minute lunches) 5 days/week (assumption)	260 days/year maximum
New mobile boat hoist	- Horsepower: 400 hp. - Fuel type: diesel. - Emissions: Tier 3 certified.	-	Hours of operation of boat hoist per vessel (hours/vessel)
Mobile and stationary fuel burning equipment	- Horsepower rating of each fixed and portable piece of equipment (cranes, etc) - Fuel type (propane, diesel, etc)	5 - 3 Ton Forklifts (diesel, 2 hr/day each) 55 Ton T-Rex 2002 RT Crane (diesel, 1 hr/day) 25 Ton 8018 XL Linkbelt RT Crane (diesel, 1 hr/day) 25 Ton 8025S Linkbelt RT Crane (diesel, 1 hr/day) 8 Ton Telescopic Fork Liftall (diesel, 1 hr/day) Diesel-engine powered air compressor units for ship	Assume proportional to number of vessels repaired. ~~Diesel engine powered air compressors will be replaced with electric units.~~
Boiler/hot water heater	Natural gas usage (MMBtu/yr or therms/year)	2008-2010 AERs	Assume proportional to number of vessels repaired.

Al Larson Boat Shop (ALBS) Improvement Project
Project Description - Key Parameters

Project Description

July 7, 2011
Updated May 14, 2012

Parameter	Inputs	Existing Operation	Proposed Operation / Assumptions
Coating operations	- Quantity of marine coatings used (volume per ship average or volume per year total) and VOC and HAP content of each coating type; or - 2008/2009/2010 AER coating VOC/HAP emissions. - <u>MSDS Sheets for epoxy and antifoulant coatings.</u>	2008-2010 AERs	Assume proportional to number of vessels repaired.
Cleanup and preparation solvent	Type and quantity of cleanup and surface preparation solvent used (gal/yr)	2008-2010 AERs	Assume proportional to number of vessels repaired.
Welding	Quantity of welding electrode used (lb/yr or kg/yr) by electrode type (E308, E6010, ECoCr, etc) by welding process (shielded metal arc welding, gas metal arc welding, flux cored arc welding, submerged arc welding)	Assume FCAW (Flux Core Arc Welding), E70T electrode type	Assume proportional to number of vessels repaired.
Abrasive blasting	- Quantity of abrasive used per ship (lb/ship); or total quantity of abrasive used per year (lb/yr) and total number of ship repaired (ships/yr). - Blasting occurs indoors or outdoors? Control devices?	2008-2010 AERs	Assume proportional to number of vessels repaired.
Site energy usage	- kW-hr/yr electricity usage, - MMBtu/yr or therms/yr natural gas usage	Utility records	Assume proportional to number of vessels repaired.
Baseline period	-	2008-2010 (3-year average)	-

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Appendix C3. – Revised Health Risk Assessment

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Heath Risk Assessment for the Al Larson Boat Shop Improvement Project

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1.1 Introduction

A health risk assessment (HRA) was conducted to address potential public health effects from toxic air contaminant (TAC) emissions generated by the improvement of the Al Larson Boat Shop (ALBS) at the Port of Los Angeles (Port). This document describes the methods and results of the HRA.

The HRA evaluated incremental health risks from the proposed Project in comparison to the baseline. The baseline emissions are represented by the boat repair activity at ALBS between September 1, 2009 and August 31, 2010. In the baseline year, the site was used for ship repair and includes the following facilities: office and workshop complex, paint shed, wood shop, welding and machine shops, docks, piers, walls and marine railways, marine, and other ancillary buildings and structures.

The existing ALBS has the capacity to accommodate five vessels with four marine railways, one floating dry dock, and dock space for dockside repairs. Wood, welding, and machine shops, storage areas, and crew quarters support the shipyard. Existing equipment includes portable and fixed cranes, portable forklifts, welders and sand blasting equipment. The facility services on average 120 to 140 ships/vessels per year and has between 70 and 100 employees on-site daily.

The proposed Project involves improving site drainage, increasing available land, modernizing existing boat yard facilities, restoring the navigable capacity of the facility, cleaning up existing contamination, and managing on-site disposal and beneficial reuse of dredged materials.

The HRA was prepared in accordance with the *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA, 2003), *Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics “Hot Spots” Information and Assessment Act (AB2588)* (SCAQMD, 2005), and *Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Emissions* (SCAQMD, 2003). The *Hotspots Analysis and Reporting Program* (HARP) model Version 1.4c (CARB, 2010a) used in the HRA incorporates the methods in these guidance documents.

The HRA was developed using a five-step process to estimate incremental health impact results:

- Quantify project-generated and baseline emissions;
- Identify ground-level receptor locations that may be affected by emissions, including a regular receptor grid as well as specific sensitive receptor locations nearby such as schools, hospitals, convalescent homes, or daycare centers;
- Perform dispersion modeling analyses to estimate ambient TAC concentrations at each receptor location;
- Characterize the potential health risk at each receptor location; and
- Evaluate incremental health risk values to compare potential health risk posed by the proposed Project relative to the baseline.

1.2 Emission Sources

Emission sources included both construction and operational emission sources. Construction emissions were assumed to occur during the calendar years 2012~~1~~ through 2014~~3~~. Operational emissions are analyzed after project completion in 2014.

1.2.1 Construction Emission Sources

Construction emissions included in the analysis of acute risk represent the maximum daily construction emissions in any calendar quarter. Emissions included in the chronic risk analysis were developed using the peak year of construction activity, and emissions included in the 40-year and 70-year cancer risk calculations were based on the emissions from the entire construction period.

Based on the construction schedule, maximum daily, annual, and total construction emissions were calculated by individual activity. Daily emissions for overlapping activities were summed for each calendar quarter. Maximum daily construction emissions are expected to occur in 2012, and include the following simultaneous activities.

- Demolish finger piers;
- Dredge to elevation -22;
- Soil export and asphalt removals;
- Service vehicles and deliveries; and,
- Demolish structure H2.

Consistent with SCAQMD policy, only on-site construction emissions were included in the HRA. On-site emission sources for construction included the following:

- **Construction equipment and on-site vehicle activity**, including loaders, dozers, pavers, trenchers, derrick barge crane hoists, flat barges, tugboats, air compressors, cement trucks, graders, haul trucks and on-road vehicles.

1.2.2 Operational Emission Sources

Consistent with SCAQMD policy, the HRA assessed both on-site and off-site operational emission sources. The following operational emission sources were included in the health risk assessment:

- New mobile boat hoist
- Air compressor
- Painting operations
- Abrasive blasting
- Welding
- Pressure washing

- On-site offroad mobile equipment
- Harbor craft transit to ALBS
- Employee trips

1.2.3 HRA Modeling Domain

Emissions were calculated approximately one mile off-site for truck sources.

1.2.4 Activity Level Trends

The baseline and proposed Project activity are described in Table 1 below.

Table 1. Project Activity

Parameter	Inputs	Existing Operation	Proposed Operation / Assumptions
Vessels	Number of vessels	120 to 130 vessels/yr.	204 to 304 vessels/yr.
Employee trips	Employee count	70 to 100 employees.	90 to 130 employees.
Off-site trips	Number of vehicles	5 (estimate)	Assume proportional to number of vessels repaired.
Operating hours	-	15 hours/day (7:45am to 4:15pm, 3:30 pm to 11pm - assuming 30 minute lunches) 6 days/week (assumption)	260 days/year maximum
New boat hoist (largest; 600-ton)	- Horsepower: 400 hp. - Fuel type: diesel. - Emissions: Tier 3 certified.	-	Hours of operation of boat hoist per vessel (hours/vessel)
Mobile and stationary fuel burning equipment	- Horsepower rating of each fixed and portable piece of equipment (cranes, etc) - Fuel type (propane, diesel, etc)	5 - 3 Ton Forklifts (diesel, 2 hr/day each) 55 Ton T-Rex 2002 RT Crane (diesel, 1 hr/day) 25 Ton 8018 XL Linkbelt RT Crane (diesel, 1 hr/day) 25 Ton 8025S Linkbelt RT Crane (diesel, 1 hr/day) 8 Ton Telescopic Fork Liftall (diesel, 1 hr/day) Diesel engine powered air compressor units for ship spray coating pots.	Assume proportional to number of vessels repaired. ~~Diesel engine powered air compressors will be replaced with electric units.~~

Table 1. Project Activity

Parameter	Inputs	Existing Operation	Proposed Operation / Assumptions
Boiler/hot water heater	Natural gas usage (MMBtu/yr or therms/year)	2008-2010 AERs	Assume proportional to number of vessels repaired.
Coating operations	- Quantity of marine coatings used (volume per ship average or volume per year total) and, VOC and HAP content of each coating type; or - 2008/2009/2010 AER coating VOC/HAP emissions.	2008-2010 AERs	Assume proportional to number of vessels repaired.
Cleanup and preparation solvent	Type and quantity of cleanup and surface preparation solvent used (gal/yr)	2008-2010 AERs	Assume proportional to number of vessels repaired.
Welding	Quantity of welding electrode used (lb/yr or kg/yr) by electrode type (E308, E6010, ECoCr, etc) by welding process (shielded metal arc welding, gas metal arc welding, flux cored arc welding, submerged arc welding)	Assume FCAW (Flux Core Arc Welding), E70T electrode type	Assume proportional to number of vessels repaired.
Abrasive blasting	-Quantity of abrasive used per ship (lb/ship); or total quantity of abrasive used per year (lb/yr) and total number of ship repaired (ships/yr). - Blasting occurs indoors or outdoors? Control devices?	2008-2010 AERs	Assume proportional to number of vessels repaired.
Site energy usage	- kW-hr/yr electricity usage, - MMBtu/yr or therms/yr natural gas usage	Utility records	Assume proportional to number of vessels repaired.

1.2.5 TAC Emission Calculation Approach

The following averaging periods were used to determine TAC emission rates for use in the HRA:

- Cancer risk for residential, student, recreational and sensitive receptors was based on 70-year average emission rates;
- Cancer risk for occupational receptors was based on 40-year average emission rates;
- Chronic hazard index for all receptors was conservatively based on the maximum annual emission rate, as the chronic exposure period for noncancer effects is assumed to be up to 8 years; and,

- Acute hazard index for all receptors was based on the maximum 1-hour emission rate.

The proposed Project TAC emission rates used for analyzing acute and chronic hazard indices were calculated by first determining the peak hourly and annual emissions, respectively, for each emissions source. To ensure that the highest acute and chronic health hazard indices are captured, the maximum emissions from each source group over the entire Project period were combined to create a conservative composite worst-case peak hour and peak year emissions inventory.

~~Operational emissions of TACs, specifically diesel particulate matter (DPM) were less than the baseline and, therefore, not anticipated to contribute to significant health risk impacts. TAC emissions were compared to SCAQMD Rule 1401 risk levels and were determined not to require further analysis. Therefore the in-depth calculation of health risk focused on construction emissions only. The cancer risk for residential, student, recreational, and sensitive receptors was calculated using the emissions from the entire construction period. The baseline for construction is zero.~~

1.2.6 TAC Emission Rates

Attachment A contains the annual and hourly toxic emission rates for the proposed Project before and after mitigation.

1.3 Receptor Locations

Receptor and source base elevations were determined from USGS National Elevation Dataset (NED) data calculated using AERMAP, version 06341. All coordinates were referenced to UTM North American Datum 1927 (NAD27) Zone 11.

To identify the extent and location of maximum impacts, a coarse Cartesian receptor grid was placed surrounding the project area, with receptors spaced 500 meters apart out to a distance of 5 kilometers. Receptors were also placed around the property line at 100-meter intervals. On-site receptors, property line receptors bordering water, and overwater grid receptors were excluded from the analysis.

To refine the locations of maximum impacts, fine receptor grids were placed based on contours generated by maximum incremental impacts, with receptors spaced 50 meters apart out to a distance approximately 500 meters past the maximum impact location.

Maximally exposed individual (MEI) locations were selected from the modeled receptor grids for the following five receptor types: residential, occupational, sensitive, student and recreational. The MEI locations were selected as follows:

- Residential – The residential MEI was selected from all receptors in residential or zoned-residential areas, including public marinas located in Fish Harbor and the West Channel;
- Occupational – The occupational MEI was selected from all receptors outside the ALBS site area.
- Sensitive – The sensitive MEI was selected from all schools, hospitals, convalescent homes, and day care centers identified in the project vicinity.

- Recreational – The recreational MEI was selected from all on-land park and recreational facilities identified in the project vicinity.

1.4 Air Dispersion Model Selection and Inputs

Air dispersion modeling for the HRA was performed using the U.S. EPA Gaussian Plume Air Dispersion Model AERMOD version 09292. Dispersion data were then processed through HARP On-Ramp version 1 (CARB, 2010). Data were then incorporated into the HARP version 1.4d model to calculate health risk values.

1.4.1 Emission Source Representation

Construction and operational emission sources were modeled according to the parameters in Table 2. The construction area sources encompassed the each phase of construction. The operational area source encompassed the entire construction boat shop area and emissions were assumed to be uniformly distributed throughout the construction area.

Table 2. Source Release Parameters—Construction Emissions

AERMOD Source Type	Source Description	No. of Sources Represented	Release Height (m)	Source Width (m)	Initial Vertical Thickness ^a (m)
Elevated Area	~~Combustion Emissions from Coating Activity and Combustion Engines used for Operations and Construction Equipment and Vehicle Activity~~	4 ±	5	Varies ^b	5

Notes:

^aRelease height of the volume source was assumed to be 5 meters above the base elevation of 15 feet. The initial vertical dimension of the plume (σ_z) was estimated by dividing the initial vertical thickness by 4.3 for elevated releases (construction equipment and ship turning/docking).

^bArea source width varies from approximately 875-2,000 meters.

1.4.2 Meteorological Data

The surface conditions file and vertical profile data sets were generated from on-site data collected at Terminal Island Water Reclamation Plant and processed by ENVIRON between September 2006 and August 2007.

1.4.3 Model Options

Regulatory default technical options were used in AERMOD to model dispersion, in accordance with the U.S. EPA modeling guidance (USEPA, 2009).

1.4.4 Temporal Assumptions

~~Construction Emissions~~ were assumed to occur between 7:00 a.m. and 3:30 p.m. Emissions were assumed to be uniformly distributed during these time periods.

1.5 Calculation of Health Risks

The HARP model was used to calculate 70-year cancer risk, 40-year cancer risk as well as non-cancer chronic and acute risk from dispersion values calculated by AERMOD.

1.5.1 Toxicity Factors

Toxicity factors for each TAC are built into the HARP model to calculate cancer risk and hazard index values. These values are provided in Table 3.

Table 3. Toxicity Factors

Pollutant	CAS Number	Inhalation Cancer Potency Factor (mg/kg-d) ⁻¹	Chronic Inhalation REL (µg/m ³)	Target Organ for Chronic Exposure ^d	Acute Inhalation REL (µg/m ³)	Target Organ for Acute Exposure ^d
DPM ^a	9901	1.10E+00	5.00E+00	I	--	--
Arsenic ^{b,c}	7440382	1.20E+01	1.50E-02	B,C,G,I,J	2.00E-01	B,C,G
Bromine	7726956	--	--	--	--	--
Cadmium ^c	7440439	1.50E+01	2.00E-02	M,I	--	--
Chlorine	7782505	--	2.00E-01	I	2.10E+02	D,I
Chromium VI ^c	18540299	5.10E+02	2.00E-01	I	--	--
Copper	7440508	--	--	--	1.00E+02	I
Lead ^b	7439921	4.20E-02	--	--	--	--
Manganese	7439965	--	9.00E-02	G	--	--
Mercury ^c	7439976	--	3.00E-02	C,M,G	6.00E-01	C,G
Nickel ^c	7440020	9.10E-01	5.00E-02	E,I	6.00E+00	F,I
Selenium	7782492	--	2.00E+01	A,B,G	--	--
Sulfates	9960	--	--	--	1.20E+02	I
Vanadium	7440622	--	--	--	3.00E+01	D,I
1,3-Butadiene	106990	6.00E-01	2.00E+01	H	--	--
Acetaldehyde	75070	1.00E-02	1.40E+02	I	4.70E+02	D,I
Benzene	71432	1.00E-01	6.00E+01	C,E,G	1.30E+03	C,E,F,H
Chlorobenzene	108907	--	1.00E+03	A,M,H	--	--
Ethyl Benzene	100414	8.70E-03	2.00E+03	A,C,L,M	--	--
Formaldehyde	50000	2.10E-02	9.00E+00	I	5.50E+01	D
Xylenes	1330207	--	7.00E+02	G,I	2.20E+04	D,I
Methanol	67561	--	4.00E+03	C	2.80E+04	G
MEK	78933	--	--	--	1.30E+04	D,I

m-Xylene	108383	--	7.00E+02	G,I	2.20E+04	D,I
Naphthalene	91203	1.20E-01	9.00E+00	I	--	--
Hexane	110543	--	7.00E+03	G	--	--
o-Xylene	95476	--	7.00E+02	G,I	2.20E+04	D,I
Propylene	115071	--	3.00E+03	I	--	--
p-Xylene	106423	--	7.00E+02	G,I	2.20E+04	D,I
Styrene	100425	--	9.00E+02	G	2.10E+04	D,I
Toluene	108883	--	3.00E+02	C,G,I	3.70E+04	C,D,G,H,I
Acrolein	107028	--	3.50E-01	I	2.50E+00	D,I

^aDPM = Diesel Particulate Matter. For ICEs only, DPM is considered to be a surrogate for speciated compounds from diesel exhaust, and is assumed to account for combined health effects of diesel exhaust constituents.

^bArsenic and lead were also evaluated for cancer risk from oral exposure. The cancer potency factors for arsenic and lead are 1.50E+00 and 8.50E-03, respectively.

^cArsenic, cadmium, hexavalent chromium, mercury and selenium were also evaluated for non-cancer chronic effects from oral exposure. The chronic RELs are 3.5E-06, 5.00E-04, 2.00E-02, 1.60E-04 and 5.00E-02 respectively.

^dBelow is the key to non-cancer acute and chronic target organ systems (OEHHA, 2009):

A. Alimentary Tract	H. Reproductive System
B. Cardiovascular System	I. Respiratory System
C. Developmental System	J. Skin
D. Eye	K. Bone
E. Hematologic System	L. Endocrine System
F. Immune System	M. Kidney
G. Nervous System	

Cancer risk values are calculated from cancer potency factors, which are TAC-specific factors that assess the probability that an individual will develop cancer by continuously inhaling or ingesting 1 mg/kg-day over a period of 70 years.

Reference exposure levels (RELs) define the level of continuous exposure to a TAC below which the population is likely to avoid developing adverse non-cancer chronic or acute health effects.

1.5.2 Exposure Scenarios

Cancer risk calculations depend directly on the frequency and duration of exposure to TACs. Risk values were calculated based on exposure assumptions in accordance with the OEHHA HRA Guidance Manual (OEHHA, 2003) and *CARB Recommended Interim Risk Management Policy for Inhalation-Based Residential Cancer Risk* (OEHHA, 2003).

Occupational cancer risk values were adjusted by applying factors to the annual average TAC concentrations. These factors adjust for the fraction of the facility's operating schedule that coincides with a hypothetical worker's schedule. Ground-level concentration (GLC) adjustment factors were obtained from the *SCAQMD Permit Application Package "L" for Use in Conjunction with the Risk Assessment Procedures for Rules 1401 and 212*, version 7.0 (SCAQMD, 2010) and varied depending on the operating schedule emission source.

Since HARP does not directly calculate student and recreational cancer risk values, these values were scaled using the risk results for occupational or residential receptors by adjusting the exposure assumptions (exposure frequency, exposure duration, and breathing rate). Scaling for student receptors was based on occupational receptors is because student and occupational receptors share common non-inhalation exposure pathways of dermal absorption and soil ingestion. By contrast, residential and sensitive receptors include these same pathways plus home-grown produce ingestion and mother's milk ingestion. Recreational receptors were scaled to the residential cancer risk impact, due to the similarities in exposure duration.

Exposure assumptions used to calculate cancer risk values are provided in Table 4.

Table 4. Exposure Assumptions for Individual Lifetime Cancer Risk

Receptor Type	Exposure Frequency		Exposure Duration (years)	Breathing Rate (L/kg-day)	HARP Point Estimate Analysis Option ^e
	Hours/Day	Days/Year			
Residential ^a	24	350	70	302	Derived (Adjusted)
Occupational ^b	8	245	40	447	Derived (OEHHA)
Sensitive	24	350	70	302	n/a
Student ^c	6	180	6	581	n/a
Recreational ^d	2	350	70	1,097	n/a

Notes:

^aThe residential breathing rate of 302 L/kg-day represents the 80th percentile breathing rate, in accordance with the *CARB Recommended Interim Risk Management Policy for Inhalation-Based Residential Cancer Risk*

^bThe occupational exposure frequency of 245 days/year represents 5 days/week, 49 weeks/year. The occupational breathing rate of 447 L/kg-day is equal to 149 L/kg-day per 8 hour workday (OEHHA, 2003).

^cThe student breathing rate of 583 L/kg-day represents the high-end breathing rate for children (OEHHA, 2003).

^dThe recreational breathing rate of 1,097 L/kg-day represents a breathing rate for "heavy activity." It is derived from a breathing rate of 3.2 m³/hr for a 70-kg adult, as reported from the USEPA Exposure Factors Handbook (USEPA, 1997).

^eHARP does not directly calculate risks for student or recreational exposure assumptions, rather these values are scaled from the results for workers. Exposure pathways for sensitive receptors are assumed equal to residential receptors.

1.6 Predicted Incremental Health Impacts

Tables 5 and 6 show the maximum health impacts expected to occur from the increment (Unmitigated and Mitigated Project minus the baseline). Figures 1 and 2 show the maximum concentration locations associated with the unmitigated and mitigated proposed Project, respectively.

Based on significance thresholds adopted by the Los Angeles Harbor Department, the additional cancer risk above the baseline that is expected to result from the proposed Project is deemed to be less than significant if it is below 10 cases per one million persons. For non-cancer chronic and acute hazard indices, maximum predicted annual and maximum 1-hour TAC concentrations are compared to the RELs developed by OEHHA. The incremental hazard index calculated by the quotient of increased TAC concentration above baseline and the REL is said to be significant if it exceeds 1.0. Figures 3 and 4 show the isopleths of residential lifetime cancer risk and occupational cancer risk, respectively, for the unmitigated proposed Project minus the baseline. Figures 5 and 6 show the isopleths of residential lifetime cancer risk and occupational cancer risk, respectively, for the mitigated proposed Project minus the baseline.

Table 5. Maximum Health Impacts Associated With The Proposed Project Without Mitigation, ~~2012-2081~~2011 – 2080

Health Impact	Receptor Type	Maximum Predicted Impact ^{a,b}	Significance Threshold
		Increment ^c	
Cancer Risk	Residential ^d	~~29×10^{-06}~~ (29 in a million) ~~8.5×10^{-06}~~ (8.5 in a million)	10×10^{-6} 10 in a million
	Occupational	~~9×10^{-06}~~ (9 in a million) ~~3.6×10^{-06}~~ (3.6 in a million)	
	Sensitive	~~5×10^{-07}~~ (0.5 in a million) ~~5×10^{-08}~~ (0.05 in a million)	
	Student	~~3×10^{-09}~~ (0.003 in a million) ~~7×10^{-10}~~ (0.0007 in a million)	
	Recreational	~~3×10^{-07}~~ (0.3 in a million) ~~2.6×10^{-06}~~ (2.6 in a million)	
Chronic Hazard Index	Residential	<u>0.07</u> ~~0.03~~	1.0
	Occupational	<u>0.1</u> ~~0.03~~	
	Sensitive	<u>0.0003</u> ~~0.0004~~	
	Student	<u>0.001</u> ~~0.00001~~	
	Recreational	<u>0.07</u> ~~0.0002~~	
Acute Hazard Index	Residential	<u>0.7</u> ~~3.5~~	1.0
	Occupational	<u>1.7</u> ~~4.2~~	
	Sensitive	<u>0.004</u> ~~0.4~~	
	Student	<u>0.04</u> ~~0.03~~	
	Recreational	<u>0.7</u> ~~0.2~~	

^a Exceedances of the significance thresholds are in **bold**. The significance thresholds apply to the increments only.

^b Data represent the receptor locations with the maximum impacts or increments. The impacts or increments at all other receptors would be less than these values.

^c The increment represents Project minus baseline.

^d The cancer risk values reported in this table for the residential receptor are based on the 80th percentile breathing rate.

Table 6. Maximum Health Impacts Associated With The Proposed Project With Mitigation, ~~2012-2081~~2011 – 2080

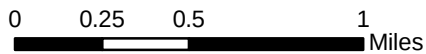
Health Impact	Receptor Type	Maximum Predicted Impact ^{a,c}	Significance Threshold
		Increment ^b	
Cancer Risk	Residential ^d	~~2×10^{-5} (22 in a million)~~ ~~8.5×10^{-6} (8.5 in a million)~~	10×10^{-6} 10 in a million
	Occupational	~~7×10^{-6} (7 in a million)~~ ~~3.6×10^{-6} (3.6 in a million)~~	
	Sensitive	~~4×10^{-07} (0.4 in a million)~~ ~~5×10^{-08} (0.05 in a million)~~	
	Student	~~3×10^{-09} (0.003 in a million)~~ ~~7×10^{-10} (0.0007 in a million)~~	
	Recreational	~~2×10^{-07} (0.2 in a million)~~ ~~2.6×10^{-06} (2.6 in a million)~~	
Chronic	Residential	<u>0.07</u> ~~0.008~~	1.0
	Occupational	<u>0.1</u> ~~0.02~~	
	Sensitive	<u>0.0003</u> ~~0.0002~~	
	Student	<u>0.0001</u> ~~0.00001~~	
	Recreational	<u>0.07</u> ~~0.0001~~	
Acute Hazard Index	Residential	<u>0.6</u> ~~1.0~~	1.0
	Occupational	<u>1.4</u> ~~2.0~~	
	Sensitive	<u>0.003</u> ~~0.2~~	
	Student	<u>0.04</u> ~~0.01~~	
	Recreational	<u>0.6</u> ~~0.1~~	

^a Exceedances of the significance criteria are in **bold**. The significance thresholds apply to the increments only.

^b The increment represents proposed Project minus baseline.

^c Data represent the receptor locations with the maximum impacts or increments. The impacts or increments at all other receptors would be less than these values.

^d The cancer risk values reported in this table for the residential receptor are based on the 80th percentile breathing rate.



Port of Los Angeles
Al Larson Boat Shop Improvement Project
Maximum Concentration Locations associated
with the Unmitigated Proposed Project
Figure 1



0 0.25 0.5 1 Miles

Port of Los Angeles
Al Larson Boat Shop Improvement Project
Maximum Concentration Locations associated
with the Mitigated Proposed Project
Figure 2



Legend

▲ Al Larson Boat Shop

Cancer Risk (per million)

5

10

15



**CDM
Smith**

0 200 400 800 Feet

**Port of Los Angeles
Al Larson Boat Shop Improvement Project**

**Isopleths of Residential Cancer Risk:
Unmitigated Proposed Project Minus Baseline**

Figure 3



Legend

▲ Al Larson Boat Shop

Cancer Risk (per million)

1

2

3



**CDM
Smith**

0 200 400 800 Feet

Port of Los Angeles
Al Larson Boat Shop Improvement Project
Isopleths of Occupational Cancer Risk:
Unmitigated Proposed Project Minus Baseline
Figure 4



0 200 400 800 Feet

**Port of Los Angeles
Al Larson Boat Shop Improvement Project**

**Isopleths of Residential Cancer Risk:
Mitigated Proposed Project Minus Baseline**

Figure 5



Legend

▲ Al Larson Boat Shop

Cancer Risk (per million)

1

2

3



**CDM
Smith**

0 200 400 800
Feet

**Port of Los Angeles
Al Larson Boat Shop Improvement Project**

**Isopleths of Occupational Cancer Risk:
Mitigated Proposed Project Minus Baseline**

Figure 6

1.7 Risk Uncertainty

There are a number of factors that contribute to uncertainty in risk calculations. These include, but are not limited to, the following: the need for estimating previous and current emissions and also projecting future emissions, the use of computer models and representative data to estimate risk at a given location, and uncertainty behind the cancer potency factors and RELs used to gauge the magnitude of adverse health effects that may occur from exposure to TACs.

To provide a margin of safety, this report has been prepared with built-in conservatism where assumptions have been made.

1.8 Conclusion

As shown in Table 5, unmitigated emissions would result in ~~significant cancer risk impacts for residential receptors and significant acute hazard impacts for residential and occupational receptors. The peak residential impact for both cancer risk and acute exposure occurs at the liveboards directly to the south of the proposed Project. The maximum occupational impact occurs on the west side of Seaside Avenue, 80 feet west of the proposed Project at a marine fueling station (currently operated by ExxonMobil/General Petroleum) directly north of the proposed Project.~~ Mitigation measures would reduce the significant residential acute risk ~~cancer risk~~ impacts to less than significant, but the occupational acute hazard index would remain significant and unavoidable. These impacts will be addressed in the Statement of Findings and Overriding Considerations that will be prepared for the proposed Project.

1.9 References

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USEPA, 2009. *AERMOD Implementation Guide*. March.

Summary

Maximum Health Impacts Associated With The Proposed Project Without Mitigation, 2012 – 2081

Health Impact	Receptor Type	Maximum Predicted Impact ^{a,b} Increment ^c	Significance Threshold	Location	
				X (m)	Y (m)
Cancer Risk	Residential	8.5E-06	10 × 10 ⁻⁶ 10 in a million	382,675	3,733,038
		8.5 in a million			
	Occupational	3.6E-06		382,521	3,733,264
		3.6 in a million			
	Sensitive	5.0E-08		381,429	3,733,365
		5.0 in a million			
	Student	6.8E-10		380,234	3,733,595
		0.00068 in a million			
Chronic Hazard Index	Residential	2.6E-06	1	382,675	3,733,038
		2.6 in a million			
	Occupational	0.07		382,521	3,733,264
		0.1			
	Sensitive	0.0003		381,429	3,733,365
		0.0001			
	Student	0.07		380,234	3,733,595
		0.07			
Acute Hazard Index	Residential	0.7	1	382,675	3,733,038
		1.7			
	Occupational	0.004		382,481	3,733,130
		0.04			
	Sensitive	0.04		380,102	3,739,333
		0.7			
	Student	0.04		389,250	3,740,250
		0.7			
Acute Hazard Index	Recreational	0.7	1	382,675	3,733,038
		0.7			
	Occupational	0.7		382,481	3,733,130
		1.7			
	Sensitive	0.004		380,102	3,739,333
		0.04			
	Student	0.04		389,250	3,740,250
		0.7			

^a Exceedances of the significance thresholds are in **bold**. The significance thresholds apply to the increments only.

^b Data represent the receptor locations with the maximum impacts or increments. The impacts or increments at all other receptors would be less than these values.

^c The increment represents Project minus baseline.

^d The cancer risk values reported in this table for the residential receptor are based on the 80th percentile breathing rate.

Summary

Maximum Health Impacts Associated With The Proposed Project With Mitigation, 2012 – 2081

Health Impact	Receptor Type	Maximum Predicted Impact ^{a,b}	Significance Threshold	Location	
		Increment ^c		X (m)	Y (m)
Cancer Risk	Residential	8.5E-06	10 × 10 ⁻⁶ 10 in a million	382,675	3,733,038
		8.5 in a million			
	Occupational	3.6E-06		382,521	3,733,264
		3.6 in a million			
	Sensitive	4.9E-08		381,429	3,733,365
		5.0 in a million			
	Student	6.7E-10		380,234	3,733,595
		0.00068 in a million			
Chronic Hazard Index	Residential	2.6E-06	1	382,675	3,733,038
		2.6 in a million			
	Occupational	0.07		382,675	3,733,038
	Occupational	0.1		382,521	3,733,264
	Sensitive	0.0003		381,429	3,733,365
	Student	0.0001		380,234	3,733,595
Acute Hazard Index	Recreational	0.07	1	382,675	3,733,038
	Residential	0.6		382,675	3,733,038
	Occupational	1.4		382,481	3,733,130
	Sensitive	0.003		380,102	3,739,333
	Student	0.04		389,250	3,740,250
	Recreational	0.6		382,675	3,733,038

^a Exceedances of the significance thresholds are in **bold**. The significance thresholds apply to the increments only.

^b Data represent the receptor locations with the maximum impacts or increments. The impacts or increments at all other receptors would be less than these values.

^c The increment represents Project minus baseline.

^d The cancer risk values reported in this table for the residential receptor are based on the 80th percentile breathing rate.

HRA Appendix - Attachment A

Al Larson Boat Shop Upgrade																
Revised April 2012																
Table 1. Peak Daily Toxic Emissions by Phase																
Construction Diesel PM ARSENIC BROMINE CADMIUM CHLORINE CHROMIUM VI COPPER LEAD MANGANESE MERCURY NICKEL SELENIUM SULFUR SULFATES VANADIUM																
9901 7440382 7726956 7440439 7782505 18540299 7440508 7439921 7439965 7439976 7440020 7782492 7704349 9960 7440622																
lbs/hr lbs/hr lbs/hr lbs/hr lbs/hr lbs/hr lbs/hr lbs/hr lbs/hr lbs/hr lbs/hr lbs/hr lbs/hr lbs/hr lbs/hr lbs/hr lbs/hr																
Phase 1 0.912 1.57E-05 3.07E-05 5.18E-05 2.48E-03 7.10E-06 8.96E-05 2.29E-03 2.61E-04 3.90E-05 5.22E-05 1.30E-05 1.72E-02 2.33E-02 1.89E-04																
Phase 2 0.834 1.57E-05 3.22E-05 4.69E-05 2.70E-03 7.18E-06 9.12E-05 3.30E-03 6.24E-04 3.15E-05 5.37E-05 1.04E-05 1.39E-02 1.90E-02 1.89E-04																
Phase 3 1.022 1.77E-05 3.74E-05 6.08E-05 2.64E-03 7.33E-06 1.01E-04 4.03E-04 6.52E-04 4.11E-05 5.92E-05 1.18E-05 1.56E-02 2.16E-02 2.00E-04																
tons tons tons tons tons tons tons tons tons tons tons tons tons tons tons tons tons																
Phase 1 0.164 2.79E-07 4.25E-07 4.44E-07 5.15E-05 1.50E-07 1.66E-06 8.02E-06 1.35E-05 2.32E-07 8.91E-07 3.51E-08 4.38E-05 8.77E-05 3.79E-06																
Phase 2 0.101 2.54E-07 3.88E-07 4.03E-07 4.71E-05 1.36E-07 1.52E-06 7.29E-06 1.23E-05 2.11E-07 8.11E-07 3.19E-08 3.99E-05 8.16E-05 3.45E-06																
Phase 3 0.283 2.92E-07 4.52E-07 4.57E-07 5.46E-05 1.55E-07 1.78E-06 8.29E-06 1.42E-05 2.42E-07 9.30E-07 3.68E-08 4.62E-05 1.01E-04 3.92E-06																
Revised April 2012																
Phase 1 Construction (2011)																
Unmitigated																
Diesel PM ARSENIC BROMINE CADMIUM CHLORINE CHROMIUM VI COPPER LEAD MANGANESE MERCURY NICKEL SELENIUM SULFUR																
lbs/hr lbs/hr lbs/hr lbs/hr lbs/hr lbs/hr lbs/hr lbs/hr lbs/hr lbs/hr lbs/hr lbs/hr lbs/hr lbs/hr lbs/hr lbs/hr lbs/hr																
Demolish 200' creosote timber wharf																
Demolish buildings D, C1, & H1																
Install 24" Octagonal Prestressed Concrete Piles																
Construct finger piers																
Install owner furnished 600 ton travel lift																
F & I steel sheet pile wall (CDF Cell #1)																
Dredge to elevation -22																
Stabilize dredge material																
Dispose of Dredge material into CDF #1																
Import clean soil to bring upland elevation to street level																
Storm Water System w/ oil-water separator																
Soil Export and Asphalt Removals																
Grading																
Paving																
Lighting Improvements																
Service Truck (Small Deliveries, Port-a-Potties, Utilities)																
3.1699 3.21E-05 8.94E-05 1.70E-04 3.93E-03 9.18E-06 1.79E-04 3.77E-03 1.15E-03 1.23E-04 1.14E-04 3.92E-05 5.19E-02																
Peak Daily Construction --> 0.9117 1.57E-05 3.07E-05 5.18E-05 2.48E-03 7.10E-06 8.96E-05 2.29E-03 2.61E-04 3.90E-05 5.22E-05 1.30E-05 1.72E-02 2.33E-02 1.89E-04																

HRA Appendix - Attachment A

[illegible]

HRA Appendix - Attachment A

Phase 2 Construction															
Demolish finger piers			0.17	8.85E-07	3.23E-06	6.67E-06	8.55E-05	1.13E-07	4.95E-06	7.50E-06	1.01E-05	5.03E-06	3.40E-06	1.67E-06	2.22E-03
Dredge to elevation -22			0.36	2.82E-06	1.02E-05	2.21E-05	2.26E-04	3.47E-07	1.48E-05	2.38E-05	2.65E-05	1.66E-05	1.08E-05	5.52E-06	7.33E-03
Stabilize dredge material			0.26	2.33E-06	8.40E-06	1.80E-05	1.92E-04	2.87E-07	1.25E-05	0.00	2.37E-05	1.35E-05	8.85E-06	4.50E-06	5.98E-03
Dispose of Dredge material into CDF #1			0.19	1.98E-06	7.20E-06	1.53E-05	1.68E-04	2.46E-07	1.06E-05	1.67E-05	1.98E-05	1.15E-05	7.58E-06	3.84E-06	5.10E-03
F & I steel sheet pile wall (CDF Cell #2)			0.19	9.90E-07	3.61E-06	7.51E-06	9.27E-05	1.25E-07	5.48E-06	8.38E-06	1.09E-05	5.66E-06	3.80E-06	1.88E-06	2.50E-03
Demolish building H2			0.13	7.39E-07	2.58E-06	5.23E-06	7.32E-05	1.05E-07	4.27E-06	6.91E-06	1.07E-05	3.94E-06	2.76E-06	1.30E-06	1.73E-03
Import clean soil to bring upland elevation to cell elevation and T			0.15	9.01E-07	3.02E-06	6.13E-06	7.90E-05	1.08E-07	5.53E-06	7.72E-06	1.47E-05	4.67E-06	3.17E-06	1.55E-06	2.06E-03
Storm Water System w/ oil-water separator			0.15	8.05E-07	4.53E-06	5.95E-06	3.06E-04	1.83E-07	6.23E-06	6.83E-06	1.16E-05	4.49E-06	4.68E-06	1.49E-06	1.98E-03
Soil Export and Asphalt Removals			0.18	1.34E-06	4.00E-06	7.47E-06	1.22E-04	1.53E-07	9.62E-06	1.17E-05	3.31E-05	5.82E-06	4.19E-06	1.91E-06	2.55E-03
Grading			0.34	1.39E-05	2.40E-05	3.33E-05	2.30E-03	6.86E-06	7.91E-05	3.70E-04	6.00E-04	2.03E-05	4.52E-05	4.90E-06	6.37E-03
Paving			0.14	7.81E-07	2.88E-06	5.67E-06	8.83E-05	1.03E-07	4.64E-06	6.65E-06	1.05E-05	4.29E-06	3.02E-06	1.43E-06	1.89E-03
Lighting Improvements			0.10	5.19E-07	1.90E-06	3.82E-06	5.54E-05	6.74E-08	3.01E-06	4.41E-06	6.57E-06	2.89E-06	2.00E-06	9.60E-07	1.27E-03
Service Vehicles and Deliveries			0.00	3.77E-08	7.91E-08	1.37E-07	2.01E-06	3.37E-09	3.24E-07	3.41E-07	1.44E-06	1.14E-07	8.24E-08	3.63E-08	4.90E-05
		Total	2.34	2.80E-05	7.57E-05	1.37E-04	3.79E-03	8.70E-06	1.61E-04	3.74E-03	7.80E-04	9.88E-05	9.95E-05	3.10E-05	4.10E-02
		Peak Daily Construction -->	0.83	1.57E-05	3.22E-05	4.69E-05	2.70E-03	7.18E-06	9.12E-05	3.30E-03	6.24E-04	3.15E-05	5.37E-05	1.04E-05	1.39E-02
Phase 3 Construction															
Demolish buildings A2 & A3			0.13	1.02E-06	3.02E-06	5.67E-06	1.27E-04	2.55E-07	5.98E-06	1.49E-05	2.43E-05	4.17E-06	3.66E-06	1.34E-06	1.78E-03
Import clean soil to bring upland elevation to street level, trench			0.16	9.95E-07	3.22E-06	6.48E-06	8.40E-05	1.16E-07	6.34E-06	8.57E-06	1.83E-05	4.96E-06	3.38E-06	1.64E-06	2.18E-03
Storm Water System w/ oil-water separator			0.15	8.05E-07	2.99E-06	5.95E-06	9.02E-05	1.06E-07	4.69E-06	6.83E-06	1.01E-05	4.49E-06	3.14E-06	1.49E-06	1.98E-03
Soil Export and Asphalt Removals			0.18	1.43E-06	4.20E-06	7.82E-06	1.27E-04	1.61E-07	1.04E-05	1.25E-05	3.67E-05	6.11E-06	4.39E-06	2.00E-06	2.67E-03
Grading			0.34	1.39E-05	2.40E-05	3.33E-05	2.30E-03	6.86E-06	7.91E-05	3.70E-04	6.00E-04	2.03E-05	4.52E-05	4.90E-06	6.37E-03
Paving			0.14	7.81E-07	2.88E-06	5.67E-06	8.83E-05	1.03E-07	4.64E-06	6.65E-06	1.05E-05	4.29E-06	3.02E-06	1.43E-06	1.89E-03
Lighting Improvements			0.10	5.03E-07	1.83E-06	3.82E-06	4.69E-05	6.36E-08	2.78E-06	4.26E-06	5.54E-06	2.88E-06	1.93E-06	9.57E-07	1.27E-03
Existing Utility Protection			0.10	5.03E-07	1.83E-06	3.82E-06	4.69E-05	6.36E-08	2.78E-06	4.26E-06	5.54E-06	2.88E-06	1.93E-06	9.57E-07	1.27E-03
Construct Buildings to replace buildings A2, A3, C1, & D			0.37	1.97E-06	7.09E-06	1.49E-05	1.72E-04	2.45E-07	1.09E-05	1.67E-05	2.20E-05	1.13E-05	7.46E-06	3.74E-06	4.97E-03
Service Vehicles and Deliveries			0.00	3.77E-08	7.91E-08	1.37E-07	2.01E-06	3.37E-09	3.24E-07	3.41E-07	1.44E-06	1.14E-07	8.24E-08	3.63E-08	4.90E-05
		Total	1.66	2.20E-05	5.12E-05	8.76E-05	3.08E-03	7.98E-06	1.28E-04	4.46E-04	7.35E-04	6.14E-05	7.42E-05	1.85E-05	2.44E-02
		Peak Daily Construction -->	1.02	1.77E-05	3.74E-05	6.08E-05	2.64E-03	7.33E-06	1.01E-04	4.03E-04	6.52E-04	4.11E-05	5.92E-05	1.18E-05	1.56E-02

HRA Appendix - Attachment A

3.08E-03	5.12E-06	8.72E-04	3.31E-02	9.08E-03	1.41E-03	6.63E-02	1.39E-04	6.65E-03	2.86E-03	3.84E-04	7.56E-04	1.55E-03	1.18E-02	4.28E-04	2.65E-04	6.81E-03	4.11E-06	
9.84E-03	1.64E-05	1.77E-03	6.77E-02	2.59E-02	3.09E-03	1.36E-01	2.81E-04	1.36E-02	7.30E-03	1.02E-03	6.94E-03	4.19E-03	3.96E-02	8.74E-04	5.39E-04	2.11E-02	5.35E-06	
8.06E-03	1.35E-05	1.25E-03	4.73E-02	2.04E-02	2.24E-03	9.51E-02	1.98E-04	9.51E-03	5.61E-03	7.88E-04	6.50E-03	3.27E-03	3.24E-02	6.12E-04	3.78E-04	1.71E-02	5.35E-06	
6.90E-03	1.15E-05	9.74E-04	3.68E-02	1.75E-02	1.81E-03	7.41E-02	1.55E-04	7.40E-03	4.74E-03	6.67E-04	6.28E-03	2.79E-03	2.87E-02	4.76E-04	2.95E-04	1.50E-02	5.35E-06	
3.45E-03	5.72E-06	9.60E-04	3.65E-02	1.00E-02	1.55E-03	7.30E-02	1.53E-04	7.33E-03	3.14E-03	4.23E-04	8.29E-04	1.70E-03	1.30E-02	4.71E-04	2.92E-04	7.49E-03	4.11E-06	
2.40E-03	4.51E-06	5.49E-04	2.07E-02	5.70E-03	8.86E-04	4.15E-02	8.76E-05	4.17E-03	1.81E-03	2.41E-04	4.82E-04	9.76E-04	7.40E-03	2.68E-04	1.67E-04	4.30E-03	3.29E-06	
2.82E-03	5.18E-06	6.39E-04	2.42E-02	6.65E-03	1.03E-03	4.85E-02	1.02E-04	4.86E-03	2.10E-03	2.81E-04	5.57E-04	1.13E-03	8.62E-03	3.13E-04	1.94E-04	4.99E-03	3.29E-06	
4.22E-03	4.65E-06	6.66E-04	2.42E-02	6.76E-03	1.08E-03	4.84E-02	1.08E-04	4.85E-03	2.28E-03	2.83E-04	6.39E-04	1.20E-03	8.76E-03	3.12E-04	2.00E-04	5.28E-03	1.03E-05	
3.57E-03	7.61E-06	6.95E-04	2.59E-02	7.17E-03	1.12E-03	5.19E-02	1.11E-04	5.21E-03	2.32E-03	3.02E-04	6.27E-04	1.24E-03	9.30E-03	3.35E-04	2.10E-04	5.46E-03	6.05E-06	
9.01E-03	1.78E-04	1.47E-03	5.62E-02	1.54E-02	2.36E-03	1.12E-01	2.32E-04	1.13E-02	4.76E-03	6.51E-04	1.24E-03	2.59E-03	1.99E-02	7.26E-04	4.46E-04	1.14E-02	3.29E-06	
2.72E-03	4.51E-06	6.13E-04	2.29E-02	6.33E-03	2.51E-03	4.59E-02	9.83E-05	4.60E-03	2.04E-03	2.67E-04	5.52E-04	3.53E-03	8.21E-03	2.96E-04	1.86E-04	9.04E-03	5.23E-06	
1.80E-03	3.00E-06	4.22E-04	1.58E-02	4.36E-03	6.81E-04	3.17E-02	6.75E-05	3.17E-03	1.40E-03	1.84E-04	3.77E-04	7.51E-04	5.66E-03	2.04E-04	1.28E-04	3.31E-03	3.29E-06	
6.20E-05	2.12E-07	1.05E-05	4.08E-04	1.11E-04	1.69E-05	8.17E-04	1.67E-06	8.20E-05	3.39E-05	4.72E-06	8.72E-06	1.86E-05	1.44E-04	5.27E-06	3.22E-06	8.18E-05	0.00E+00	
5.79E-02	2.60E-04	1.09E-02	4.12E-01	1.35E-01	1.98E-02	8.26E-01	1.73E-03	8.27E-02	4.04E-02	5.50E-03	2.58E-02	2.49E-02	1.93E-01	5.32E-03	3.30E-03	1.11E-01	5.90E-05	
1.90E-02	1.89E-04	3.90E-03	1.48E-01	4.80E-02	6.52E-03	2.96E-01	6.20E-04	2.97E-02	1.43E-02	1.95E-03	1.34E-02	7.97E-03	6.99E-02	1.91E-03	1.18E-03	3.78E-02	1.88E-05	
2.51E-03	8.29E-06	5.53E-04	2.07E-02	5.72E-03	8.93E-04	4.15E-02	8.84E-05	4.17E-03	1.83E-03	2.41E-04	4.92E-04	9.83E-04	7.42E-03	2.68E-04	1.67E-04	4.33E-03	4.11E-06	
2.98E-03	5.71E-06	6.65E-04	2.52E-02	6.93E-03	1.07E-03	5.05E-02	1.06E-04	5.07E-03	2.18E-03	2.93E-04	5.78E-04	1.18E-03	8.99E-03	3.26E-04	2.02E-04	5.20E-03	3.29E-06	
2.83E-03	4.65E-06	6.45E-04	2.41E-02	6.67E-03	1.04E-03	4.84E-02	1.03E-04	4.85E-03	2.15E-03	2.81E-04	5.78E-04	1.15E-03	8.65E-03	3.12E-04	1.95E-04	5.06E-03	5.23E-06	
3.72E-03	8.14E-06	7.21E-04	2.70E-02	7.45E-03	1.17E-03	5.40E-02	1.16E-04	5.41E-03	2.40E-03	3.14E-04	6.48E-04	1.28E-03	9.66E-03	3.48E-04	2.18E-04	5.66E-03	6.05E-06	
9.01E-03	1.78E-04	1.47E-03	5.62E-02	1.54E-02	2.36E-03	1.12E-01	2.32E-04	1.13E-02	4.76E-03	6.51E-04	1.24E-03	2.59E-03	1.99E-02	7.26E-04	4.46E-04	1.14E-02	3.29E-06	
2.72E-03	4.51E-06	6.13E-04	2.29E-02	6.33E-03	2.51E-03	4.59E-02	9.83E-05	4.60E-03	2.04E-03	2.67E-04	5.52E-04	3.53E-03	8.21E-03	2.96E-04	1.86E-04	9.04E-03	5.23E-06	
1.75E-03	2.91E-06	4.17E-04	1.58E-02	4.34E-03	6.72E-04	3.16E-02	6.64E-05	3.17E-03	1.37E-03	1.83E-04	3.62E-04	7.39E-04	5.63E-03	2.04E-04	1.27E-04	3.25E-03	2.06E-06	
1.75E-03	2.91E-06	4.17E-04	1.58E-02	4.34E-03	6.72E-04	3.16E-02	6.64E-05	3.17E-03	1.37E-03	1.83E-04	3.62E-04	7.39E-04	5.63E-03	2.04E-04	1.27E-04	3.25E-03	2.06E-06	
6.77E-03	1.14E-05	1.63E-03	6.20E-02	1.70E-02	2.62E-03	1.24E-01	2.59E-04	1.25E-02	5.32E-03	7.19E-04	1.40E-03	2.88E-03	2.21E-02	8.01E-04	4.95E-04	1.27E-02	6.17E-06	
6.20E-05	2.12E-07	1.05E-05	4.08E-04	1.11E-04	1.69E-05	8.17E-04	1.67E-06	8.20E-05	3.39E-05	4.72E-06	8.72E-06	1.86E-05	1.44E-04	5.27E-06	3.22E-06	8.18E-05	0.00E+00	
3.41E-02	2.27E-04	7.14E-03	2.70E-01	7.42E-02	1.30E-02	5.41E-01	1.14E-03	5.43E-02	2.35E-02	3.14E-03	6.22E-03	1.51E-02	9.63E-02	3.49E-03	2.17E-03	6.00E-02	3.75E-05	
2.16E-02	2.00E-04	4.41E-03	1.68E-01	4.61E-02	7.11E-03	3.36E-01	7.02E-04	3.37E-02	1.44E-02	1.95E-03	3.80E-03	7.82E-03	5.97E-02	2.17E-03	1.34E-03	3.44E-02	1.84E-05	

HRA Appendix - Attachment A

Table 1. Peak Daily Toxic Emissions by Phase After Mitigation (No electric dredging)

Construction	Diesel PM	ARSENIC	BROMINE	CADMIUM	CHLORINE	CHROMIUM VI	COPPER	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM
	9901	7440382	7726956	7440439	7782505	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622
	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr
Phase 1	0.881	6.61E-06	2.38E-05	5.07E-05	5.54E-04	1.03E-06	3.56E-05	2.29E-03	2.61E-04	3.82E-05	2.51E-05	1.27E-05	1.69E-02	2.28E-02	3.82E-05
Phase 2	0.803	5.67E-06	1.96E-05	4.03E-05	7.06E-04	1.10E-06	3.32E-05	3.30E-03	9.29E-05	3.06E-05	2.06E-05	1.01E-05	1.35E-02	1.84E-02	3.32E-05
Phase 3	0.857	5.93E-06	1.84E-05	3.64E-05	6.46E-04	1.25E-06	3.42E-05	4.02E+03	2.06E+03	2.70E-05	2.14E-05	8.79E-06	1.17E-02	1.61E-02	4.40E-05
	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr
Phase 1	0.145	5.96E-08	1.05E-07	8.79E-08	1.27E-05	3.05E-08	4.00E-07	1.61E-06	2.96E-06	4.87E-08	1.96E-07	7.63E-09	9.77E-06	3.38E-05	7.68E-07
Phase 2	0.092	3.45E-08	6.85E-08	4.70E-08	8.26E-06	1.68E-08	2.57E-07	8.80E-07	1.77E-06	2.79E-08	1.16E-07	4.51E-09	5.91E-06	2.77E-05	4.22E-07
Phase 3	0.274	7.26E-08	1.32E-07	1.01E-07	1.58E-05	3.54E-08	5.19E-07	1.88E-06	3.68E-06	5.88E-08	2.35E-07	9.42E-09	1.23E-05	4.68E-05	8.99E-07

Revised April 2012

Phase 1 Construction (2011)

	Mitigated														Mitigated													
	Diesel PM	ARSENIC	BROMINE	CADMIUM	CHLORINE	CHROMIUM VI	COPPER	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	SULFUR		Diesel PM	ARSENIC	BROMINE	CADMIUM	CHLORINE	CHROMIUM VI	COPPER	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	SULFUR	
	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr		lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	
Demolish 200' creosote timber wharf	0.1951	1.09E-06	3.99E-06	7.83E-06	1.24E-04	1.43E-07	6.58E-06	9.31E-06	1.54E-05	5.93E-06	4.19E-06	1.97E-06	2.62E-03		0.1951	1.09E-06	3.99E-06	7.83E-06	1.24E-04	1.43E-07	6.58E-06	9.31E-06	1.54E-05	5.93E-06	4.19E-06	1.97E-06	2.62E-03	
Demolish buildings D, C1, & H1	0.1191	7.36E-07	2.52E-06	4.96E-06	1.26E-04	1.48E-07	4.09E-06	8.71E-06	1.20E-05	3.69E-06	2.85E-06	1.21E-06	1.60E-03		0.1191	7.36E-07	2.52E-06	4.96E-06	1.26E-04	1.48E-07	4.09E-06	8.71E-06	1.20E-05	3.69E-06	2.85E-06	1.21E-06	1.60E-03	
Install 24" Octagonal Prestressed Concrete Piles	0.3096	1.59E-06	5.74E-06	1.24E-05	1.26E-04	1.95E-07	8.29E-06	1.34E-05	1.48E-05	9.31E-06	6.05E-06	3.10E-06	4.12E-03		0.3096	1.59E-06	5.74E-06	1.24E-05	1.26E-04	1.95E-07	8.29E-06	1.34E-05	1.48E-05	9.31E-06	6.05E-06	3.10E-06	4.12E-03	
Construct finger piers	0.2961	1.48E-06	5.52E-06	1.18E-05	1.28E-04	1.87E-07	7.59E-06	1.24E-05	1.20E-05	8.88E-06	5.81E-06	2.96E-06	3.93E-03		0.2961	1.48E-06	5.52E-06	1.18E-05	1.28E-04	1.87E-07	7.59E-06	1.24E-05	1.20E-05	8.88E-06	5.81E-06	2.96E-06	3.93E-03	
Install owner furnished 600 ton travel lift	0.1451	7.62E-07	2.78E-06	5.81E-06	6.97E-05	9.60E-08	4.18E-06	0.00E+00	0.00E+00	4.38E-06	2.92E-06	1.46E-06	1.93E-03		0.1451	7.62E-07	2.78E-06	5.81E-06	6.97E-05	9.60E-08	4.18E-06	0.00E+00	0.00E+00	4.38E-06	2.92E-06	1.46E-06	1.93E-03	
F & I steel sheet pile wall (CDF Cell #1)	0.1874	9.90E-07	3.61E-06	7.51E-06	9.27E-05	1.25E-07	5.48E-06	8.38E-06	1.09E-05	5.66E-06	3.80E-06	1.88E-06	2.50E-03		0.1874	9.90E-07	3.61E-06	7.51E-06	9.27E-05	1.25E-07	5.48E-06	8.38E-06	1.09E-05	5.66E-06	3.80E-06	1.88E-06	2.50E-03	
Dredge to elevation -22	0.3576	2.82E-06	1.02E-05	2.21E-05	2.26E-04	3.47E-07	1.48E-05	2.38E-05	2.65E-05	1.66E-05	1.08E-05	5.52E-06	7.33E-03		0.3576	2.82E-06	1.02E-05	2.21E-05	2.26E-04	3.47E-07	1.48E-05	2.38E-05	2.65E-05	1.66E-05	1.08E-05	5.52E-06	7.33E-03	
Stabilize dredge material	0.2489	2.29E-06	8.28E-06	1.77E-05	1.89E-04	2.83E-07	1.22E-05	0.00	0.00	1.33E-05	8.72E-06	4.44E-06	5.89E-03		0.2489	2.29E-06	8.28E-06	1.77E-05	1.89E-04	2.83E-07	1.22E-05	0.00	0.00	1.33E-05	8.72E-06	4.44E-06	5.89E-03	
Dispose of Dredge material into CDF #1	0.1894	1.98E-06	7.20E-06	1.53E-05	1.68E-04	2.46E-07	1.06E-05	1.67E-05	1.98E-05	1.15E-05	7.58E-06	3.84E-06	5.10E-03		0.1894	1.98E-06	7.20E-06	1.53E-05	1.68E-04	2.46E-07	1.06E-05	1.67E-05	1.98E-05	1.15E-05	7.58E-06	3.84E-06	5.10E-03	
Import clean soil to bring upland elevation to street	0.1298	7.11E-07	2.51E-06	5.11E-06	6.77E-05	8.87E-08	4.18E-06	6.06E-06	9.81E-06	3.87E-06	2.64E-06	1.28E-06	1.71E-03		0.1298	7.11E-07	2.51E-06	5.11E-06	6.77E-05	8.87E-08	4.18E-06	6.06E-06	9.81E-06	3.87E-06	2.64E-06	1.28E-06	1.71E-03	
Storm Water System w/ oil-water separator	0.1108	6.18E-07	2.32E-06	4.45E-06	7.73E-05	8.37E-08	3.76E-06	5.26E-06	8.61E-06	3.37E-06	2.43E-06	1.12E-06	1.49E-03		0.1108	6.18E-07	2.32E-06	4.45E-06	7.73E-05	8.37E-08	3.76E-06	5.26E-06	8.61E-06	3.37E-06	2.43E-06	1.12E-06	1.49E-03	
Soil Export and Asphalt Removals	0.1273	8.61E-07	2.89E-06	5.40E-06	9.57E-05	1.08E-07	5.82E-06	7.45E-06	1.74E-05	4.15E-06	3.02E-06	1.37E-06	1.82E-03		0.1273	8.61E-07	2.89E-06	5.40E-06	9.57E-05	1.08E-07	5.82E-06	7.45E-06	1.74E-05	4.15E-06	3.02E-06	1.37E-06	1.82E-03	
Grading	0.2315	2.42E-06	6.13E-06	1.12E-05	3.18E-04	8.14E-07	1.34E-05	4.57E-05	7.04E-05	7.99E-06	8.44E-06	2.47E-06	3.27E-03		0.2315	2.42E-06	6.13E-06	1.12E-05	3.18E-04	8.14E-07	1.34E-05	4.57E-05	7.04E-05	7.99E-06	8.44E-06	2.47E-06	3.27E-03	
Paving	0.1125	6.37E-07	2.35E-06	4.52E-06	7.83E-05	8.54E-08	3.92E-06	5.43E-06	9.33E-06	3.43E-06	2.47E-06	1.14E-06	1.51E-03		0.1125	6.37E-07	2.35E-06	4.52E-06	7.83E-05	8.54E-08	3.92E-06	5.43E-06	9.33E-06	3.43E-06	2.47E-06	1.14E-06	1.51E-03	
Lighting Improvements	0.0579	3.32E-07	1.23E-06	2.32E-06	4.25E-05	4.49E-08	2.08E-06	2.84E-06	5.07E-06	1.77E-06	1.29E-06	5.85E-07	7.78E-04		0.0579	3.32E-07	1.23E-06	2.32E-06	4.25E-05	4.49E-08	2.08E-06	2.84E-06	5.07E-06	1.77E-06	1.29E-06	5.85E-07	7.78E-04	
Service Truck (Small Deliveries, Port-a-Potties, Utilities)	0.0033	3.77E-08	7.91E-08	1.37E-07	2.01E-06	3.37E-09	3.24E-07	3.41E-07	1.44E-06	1.14E-07	8.24E-08	3.63E-08	4.90E-05		0.0033	3.77E-08	7.91E-08	1.37E-07	2.01E-06	3.37E-09	3.24E-07	3.41E-07	1.44E-06	1.14E-07	8.24E-08	3.63E-08	4.90E-05	
Total	2.8214	1.94E-05	6.74E-05	1.39E-04	1.90E-03	3.00E-06	1.07E-04	3.44E-03	6.06E-04	1.04E-04	7.30E-05	3.44E-05	4.56E-02		2.8214	1.94E-05	6.74E-05	1.39E-04	1.90E-03	3.00E-06	1.07E-04	3.44E-03	6.06E-04	1.04E-04	7.30E-05	3.44E-05	4.56E-02	
Peak Daily Construction -->	0.8810	6.61E-06	2.38E-05	5.07E-05	5.54E-04	1.03E-06	3.56E-05	0.00	0.00	3.82E-05	2.51E-05	1.27E-05	1.69E-02		0.8810	6.61E-06	2.38E-05	5.07E-05	5.54E-04	1.03E-06	3.56E-05	0.00	0.00	3.82E-05	2.51E-05	1.27E-05	1.69E-02	
	0.8024	5.55E-06	1.97E-05	4.04E-05	5.37E-04	7.49E-07	3.16E-05	4.96E-05	1.44E-03	3.05E-05	2.09E-05	1.01E-05	1.34E-02		0.8024	5.55E-06	1.97E-05	4.04E-05	5.37E-04	7.49E-07	3.16E-05	4.96E-05	1.44E-03	3.05E-05	2.09E-05	1.01E-05	1.34E-02	
	0.5331	4.06E-06	1.21E-05	2.33E-05	4.90E-04	1.03E-06	5.97E-05	5.97E-05	9.14E-05	1.71E-05	1.47E-05	5.51E-06	7.31E-03		0.5331	4.06E-06	1.21E-05	2.33E-05	4.90E-04	1.03E-06	5.97E-05	5.97E-05	9.14E-05	1.71E-05	1.47E-05	5.51E-06	7.31E-03	
	0.6149	3.25E-06	1.20E-05	2.46E-05	3.20E-04	4.17E-07	1.81E-05	2.10E-05	2.79E-05	1.86E-05	1.26E-05	6.18E-06	8.20E-03		0.6149	3.25E-06	1.20E-05	2.46E-05	3.20E-04	4.17E-07	1.81E-05	2.10E-05	2.79E-05	1.86E-05	1.26E-05	6.18E-06	8.20E-03	
	0.8810	6.61E-06	2.38E-05	5.07E-05	5.54E-04	8.16E-07	3.56E-05	3.31E-03	4.18E-04	3.82E-05	2.51E-05	1.27E-05	1.69E-02		0.8810	6.61E-06	2.38E-05	5.07E-05	5.54E-04	8.16E-07	3.56E-05	3.31E-03	4.18E-04	3.82E-05	2.51E-05	1.27E-05	1.69E-02	

HRA Appendix - Attachment A

Table 1. Peak Dis

Construction	A															
	1,3-butadiene	acetaldehyde	benzene	formaldehyde	methanol	methyl ethyl ketone (mek) (2-butanone)	m-xylene	naphthalene	n-hexane	o-xylene	propene	p-xylene	styrene	toluene	acrolein (2-propenal)	
	106990	75070	71432	50000	67561	78933	108383	91203	110543	95476	115071	106423	100425	108883	107028	
	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	
Phase 1	3.68E-03	1.40E-01	5.31E-02	2.81E-01	5.86E-04	2.81E-02	1.51E-02	2.10E-03	1.40E-02	8.65E-03	8.09E-02	1.81E-03	1.12E-03	4.34E-02	2.37E-05	
Phase 2	3.21E-03	1.21E-01	4.07E-02	2.43E-01	5.11E-04	2.43E-02	1.21E-02	1.65E-03	1.30E-02	6.75E-03	6.46E-02	1.56E-03	9.73E-04	3.41E-02	1.88E-05	
Phase 3	3.40E-03	1.29E-01	3.54E-02	2.58E-01	5.42E-04	2.59E-02	1.12E-02	1.49E-03	2.97E-03	6.19E-03	4.59E-02	1.66E-03	1.03E-03	2.66E-02	1.84E-05	
	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	
Phase 1	1.91E-06	9.80E-07	8.68E-06	5.54E-06	4.29E-07	6.41E-08	1.25E-05	1.66E-07	5.61E-06	5.32E-05	1.07E-05	0.00E+00	4.31E-07	1.05E-04	4.65E-07	
Phase 2	1.35E-06	6.92E-07	6.13E-06	3.92E-06	3.03E-07	4.53E-08	8.83E-06	1.17E-07	3.96E-06	5.19E-05	7.59E-06	0.00E+00	3.04E-07	9.87E-05	3.28E-07	
Phase 3	2.95E-06	1.51E-06	1.34E-05	8.54E-06	6.61E-07	9.88E-08	1.93E-05	2.55E-07	8.65E-06	5.55E-05	1.66E-05	0.00E+00	6.64E-07	1.16E-04	7.16E-07	

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Phase 1 Construction (201

	F																	
	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	ethylbenzene	formaldehyde	methanol	methyl ethyl ketone (mek) (2-butanone)	m-xylene	naphthalene	n-hexane	o-xylene	propene	p-xylene	styrene	toluene	acrolein (2-propenal)	
	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	
Demolish 200' creosote tin	3.76E-03	6.30E-06	6.91E-04	7.08E-03	1.12E-03	5.10E-02	1.11E-04	5.11E-03	2.34E-03	2.97E-04	6.43E-04	1.24E-03	9.18E-03	3.29E-04	2.08E-04	5.46E-03	8.22E-06	
Demolish buildings D, C1, 4	2.28E-03	5.22E-06	4.05E-04	4.17E-03	6.56E-04	3.01E-02	6.51E-05	3.02E-03	1.36E-03	1.75E-04	3.71E-04	7.24E-04	5.41E-03	1.94E-04	1.22E-04	3.19E-03	4.11E-06	
Install 24" Octagonal Prest	5.52E-03	9.18E-06	1.22E-03	1.28E-02	1.96E-03	9.34E-02	1.93E-04	9.38E-03	3.96E-03	5.41E-04	1.03E-03	2.15E-03	1.66E-02	6.03E-04	3.71E-04	9.48E-03	2.88E-06	
Construct finger piers	5.33E-03	8.59E-06	1.49E-03	1.56E-02	2.40E-03	1.14E-01	2.36E-04	1.15E-02	4.85E-03	6.60E-04	1.27E-03	2.64E-03	2.02E-02	7.36E-04	4.53E-04	1.16E-02	4.11E-06	
Install owner furnished 60	2.65E-03	4.41E-06	7.41E-04	7.73E-03	1.19E-03	5.65E-02	1.18E-04	5.67E-03	2.42E-03	3.27E-04	6.37E-04	1.31E-03	1.00E-02	3.64E-04	2.25E-04	5.77E-03	2.88E-06	
F & I steel sheet pile wall (	3.45E-03	5.72E-06	8.65E-04	9.01E-03	1.39E-03	6.57E-02	1.38E-04	6.59E-03	2.84E-03	3.81E-04	7.50E-04	1.53E-03	1.17E-02	4.24E-04	2.63E-04	6.75E-03	4.11E-06	
Dredge to elevation -22	9.84E-03	1.64E-05	1.62E-03	2.44E-02	2.85E-03	1.25E-01	2.58E-04	1.25E-02	6.83E-03	9.58E-04	6.82E-03	3.93E-03	3.76E-02	8.01E-04	4.94E-04	2.00E-02	5.35E-06	
Stabilize dredge material	7.94E-03	1.33E-05	1.21E-03	2.00E-02	2.19E-03	9.25E-02	1.93E-04	9.24E-03	5.50E-03	7.73E-04	6.48E-03	3.20E-03	3.19E-02	5.94E-04	3.68E-04	1.68E-02	5.35E-06	
Dispose of Dredge materia	6.90E-03	1.15E-05	9.74E-04	1.75E-02	1.81E-03	7.41E-02	1.55E-04	7.40E-03	4.74E-03	6.67E-04	6.28E-03	2.79E-03	2.87E-02	4.76E-04	2.95E-04	1.50E-02	5.35E-06	
Import clean soil to bring u	2.37E-03	4.10E-06	2.70E-04	2.77E-03	4.38E-04	1.99E-02	4.36E-05	2.00E-03	9.14E-04	1.16E-04	2.52E-04	4.84E-04	3.59E-03	1.28E-04	8.15E-05	2.13E-03	3.29E-06	
Storm Water System w/ oi	2.18E-03	3.56E-06	3.47E-04	3.52E-03	5.64E-04	2.53E-02	5.62E-05	2.53E-03	1.19E-03	1.47E-04	3.32E-04	6.23E-04	4.57E-03	1.63E-04	1.04E-04	2.75E-03	5.23E-06	
Soil Export and Asphalt Re	2.64E-03	4.93E-06	3.39E-04	3.42E-03	5.52E-04	2.44E-02	5.52E-05	2.44E-03	1.17E-03	1.43E-04	3.33E-04	6.10E-04	4.43E-03	1.57E-04	1.01E-04	2.70E-03	6.05E-06	
Grading	4.48E-03	2.37E-05	4.53E-04	4.69E-03	7.32E-04	3.41E-02	7.25E-05	3.42E-03	1.50E-03	1.98E-04	4.03E-04	8.06E-04	6.09E-03	2.20E-04	1.37E-04	3.55E-03	3.29E-06	
Paving	2.21E-03	3.67E-06	3.52E-04	3.58E-03	2.09E-03	2.57E-02	5.70E-05	2.57E-03	1.20E-03	1.50E-04	3.36E-04	3.07E-03	4.64E-03	1.65E-04	1.06E-04	7.01E-03	5.23E-06	
Lighting Improvements	1.15E-03	1.91E-06	1.23E-04	1.22E-03	2.03E-04	8.55E-03	2.04E-05	8.55E-04	4.42E-04	5.04E-05	1.31E-04	2.25E-04	1.58E-03	5.50E-05	3.66E-05	9.95E-04	3.29E-06	
Service Truck (Small Deliv	6.20E-05	2.12E-07	1.05E-05	1.11E-04	1.69E-05	8.17E-04	1.67E-06	8.20E-05	3.39E-05	4.72E-06	8.72E-06	1.86E-05	1.44E-04	5.27E-06	3.22E-06	8.18E-05	0.00E+00	
F	6.28E-02	1.23E-04	1.11E-02	1.37E-01	2.02E-02	8.41E-01	1.77E-03	8.42E-02	4.13E-02	5.59E-03	2.61E-02	2.54E-02	1.96E-01	5.42E-03	3.37E-03	1.13E-01	6.87E-05	
	2.28E-02	3.82E-05	3.68E-03	5.31E-02	6.41E-03	2.81E-01	5.86E-04	2.81E-02	1.51E-02	2.10E-03	1.40E-02	8.65E-03	8.09E-02	1.81E-03	1.12E-03	4.34E-02	2.37E-05	
	1.86E-02	3.30E-05	3.07E-03	3.91E-02	5.20E-03	2.31E-01	4.91E-04	2.31E-02	1.17E-02	1.58E-03	8.17E-03	6.52E-03	5.68E-02	1.49E-03	9.30E-04	3.14E-02	2.37E-05	
	1.02E-02	3.32E-05	1.68E-03	1.73E-02	2.71E-03	1.26E-01	2.68E-04	1.26E-02	5.56E-03	7.31E-04	1.49E-03	2.98E-03	2.25E-02	8.12E-04	5.07E-04	1.31E-02	1.26E-05	
	1.14E-02	1.88E-05	2.72E-03	2.82E-02	5.90E-03	2.06E-01	4.33E-04	2.06E-02	8.95E-03	1.19E-03	2.38E-03	7.26E-03	3.66E-02	1.33E-03	8.24E-04	2.55E-02	1.55E-05	
	2.28E-02	3.82E-05	3.68E-03	5.31E-02	6.41E-03	2.81E-01	5.86E-04	2.81E-02	1.51E-02	2.10E-03	1.40E-02	8.65E-03	8.09E-02	1.81E-03	1.12E-03	4.34E-02	1.69E-05	

HRA Appendix - Attachment A

Phase 2 Construction

Demolish finger piers	0.16	8.59E-07	3.14E-06	6.46E-06	8.37E-05	1.09E-07	4.82E-06	7.27E-06	9.89E-06	4.87E-06	3.30E-06	1.62E-06	2.15E-03
Dredge to elevation -22	0.36	2.82E-06	1.02E-05	2.21E-05	2.26E-04	3.47E-07	1.48E-05	2.38E-05	2.65E-05	1.66E-05	1.08E-05	5.52E-06	7.33E-03
Stabilize dredge material	0.25	2.31E-06	8.32E-06	1.78E-05	1.90E-04	2.84E-07	1.24E-05	0.00	2.35E-05	1.34E-05	8.76E-06	4.45E-06	5.91E-03
Dispose of Dredge material into CDF #1	0.19	1.98E-06	7.20E-06	1.53E-05	1.68E-04	2.46E-07	1.06E-05	1.67E-05	1.98E-05	1.15E-05	7.58E-06	3.84E-06	5.10E-03
F & I steel sheet pile wall (CDF Cell #2)	0.19	9.90E-07	3.61E-06	7.51E-06	9.27E-05	1.25E-07	5.48E-06	8.38E-06	1.09E-05	5.66E-06	3.80E-06	1.88E-06	2.50E-03
Demolish building H2	0.12	6.89E-07	2.39E-06	4.83E-06	6.97E-05	9.94E-08	4.02E-06	6.48E-06	1.03E-05	3.64E-06	2.56E-06	1.20E-06	1.60E-03
Import clean soil to bring upland elevation to cell ele	0.13	7.91E-07	2.63E-06	5.26E-06	7.14E-05	9.48E-08	4.98E-06	6.80E-06	1.39E-05	4.01E-06	2.76E-06	1.33E-06	1.77E-03
Storm Water System w/ oil-water separator	0.11	6.18E-07	3.86E-06	4.45E-06	2.93E-04	1.61E-07	5.30E-06	5.26E-06	1.02E-05	3.37E-06	3.97E-06	1.12E-06	1.49E-03
Soil Export and Asphalt Removals	0.16	1.26E-06	3.72E-06	6.85E-06	1.17E-04	1.43E-07	9.23E-06	1.10E-05	3.25E-05	5.36E-06	3.89E-06	1.75E-06	2.34E-03
Grading	0.23	2.42E-06	6.13E-06	1.12E-05	3.18E-04	8.14E-07	1.34E-05	4.57E-05	7.04E-05	7.99E-06	8.44E-06	2.47E-06	3.27E-03
Paving	0.11	6.37E-07	2.35E-06	4.52E-06	7.83E-05	8.54E-08	3.92E-06	5.43E-06	9.33E-06	3.43E-06	2.47E-06	1.14E-06	1.51E-03
Lighting Improvements	0.06	3.32E-07	1.23E-06	2.32E-06	4.25E-05	4.49E-08	2.08E-06	2.84E-06	5.07E-06	1.77E-06	1.29E-06	5.85E-07	7.78E-04
Service Vehicles and Deliveries	0.00	3.77E-08	7.91E-08	1.37E-07	2.01E-06	3.37E-09	3.24E-07	3.41E-07	1.44E-06	1.14E-07	8.24E-08	3.63E-08	4.90E-05
<i>Total</i>	2.07	1.57E-05	5.49E-05	1.09E-04	1.75E-03	2.56E-06	9.13E-05	3.41E-03	2.44E-04	8.17E-05	5.97E-05	2.69E-05	3.58E-02
<i>Peak Daily Construction --></i>	0.80	5.67E-06	1.96E-05	4.03E-05	7.06E-04	1.10E-06	3.32E-05	3.30E-03	9.29E-05	3.06E-05	2.06E-05	1.01E-05	1.35E-02
	0.80	5.67E-06	1.96E-05	4.03E-05	4.98E-04	7.03E-07	3.32E-05	4.89E-05	8.06E-05	3.06E-05	2.06E-05	1.01E-05	1.35E-02
	0.53	4.06E-06	1.37E-05	2.33E-05	7.06E-04	1.10E-06	2.45E-05	5.97E-05	9.29E-05	1.71E-05	1.63E-05	5.51E-06	7.31E-03
	0.57	5.12E-06	1.82E-05	3.85E-05	4.32E-04	6.29E-07	2.83E-05	3.30E-03	5.86E-05	2.90E-05	1.92E-05	9.66E-06	1.28E-02
	0.17	1.01E-06	3.66E-06	6.98E-06	1.23E-04	1.34E-07	6.32E-06	8.61E-06	1.58E-05	5.31E-06	3.84E-06	1.76E-06	2.34E-03

Phase 3 Construction

							#DIV/0!	#DIV/0!					
Demolish buildings A2 & A3	0.12	9.69E-07	2.84E-06	5.27E-06	1.23E-04	2.49E-07	5.73E-06	1.45E-05	2.39E-05	3.87E-06	3.47E-06	1.24E-06	1.64E-03
Import clean soil to bring upland elevation to street	0.14	8.85E-07	2.83E-06	5.60E-06	7.64E-05	1.03E-07	5.79E-06	7.65E-06	1.75E-05	4.30E-06	2.96E-06	1.42E-06	1.89E-03
Storm Water System w/ oil-water separator	0.11	6.18E-07	2.32E-06	4.45E-06	7.73E-05	8.37E-08	3.76E-06	5.26E-06	8.61E-06	3.37E-06	2.43E-06	1.12E-06	1.49E-03
Soil Export and Asphalt Removals	0.16	1.35E-06	3.92E-06	7.20E-06	1.22E-04	1.52E-07	1.00E-05	1.19E-05	3.61E-05	5.64E-06	4.10E-06	1.84E-06	2.46E-03
Grading	0.23	2.42E-06	6.13E-06	1.12E-05	3.18E-04	8.14E-07	1.34E-05	3.31E+03	2.06E+03	7.99E-06	8.44E-06	2.47E-06	3.27E-03
Paving	0.11	6.37E-07	2.35E-06	4.52E-06	7.83E-05	8.54E-08	3.92E-06	4.02E+03	1.50E+03	3.43E-06	2.47E-06	1.14E-06	1.51E-03
Lighting Improvements	0.06	3.16E-07	1.16E-06	2.32E-06	3.40E-05	4.11E-08	1.84E-06	2.68E-06	4.04E-06	1.75E-06	1.22E-06	5.83E-07	7.74E-04
Existing Utility Protection	0.06	3.16E-07	1.16E-06	2.32E-06	3.40E-05	4.11E-08	1.84E-06	2.68E-06	4.04E-06	1.75E-06	1.22E-06	5.83E-07	7.74E-04
Construct Buildings to replace buildings A2, A3, C1, &	0.37	1.97E-06	7.09E-06	1.49E-05	1.72E-04	2.45E-07	1.09E-05	1.67E-05	2.20E-05	1.13E-05	7.46E-06	3.74E-06	4.97E-03
Service Vehicles and Deliveries	0.00	3.77E-08	7.91E-08	1.37E-07	2.01E-06	3.37E-09	3.24E-07	3.41E-07	1.44E-06	1.14E-07	8.24E-08	3.63E-08	4.90E-05
<i>Total</i>	1.37	9.52E-06	2.99E-05	5.80E-05	1.04E-03	1.82E-06	5.75E-05	7.32E+03	3.56E+03	4.35E-05	3.38E-05	1.42E-05	1.88E-02
<i>Peak Daily Construction --></i>	0.86	5.93E-06	1.84E-05	3.64E-05	6.46E-04	1.25E-06	3.42E-05	4.02E+03	2.06E+03	2.70E-05	2.14E-05	8.79E-06	1.17E-02
	0.72	4.65E-06	1.51E-05	2.99E-05	4.53E-04	6.90E-07	2.88E-05	4.61E-05	8.75E-05	2.26E-05	1.63E-05	7.45E-06	9.90E-03
	0.86	5.93E-06	1.84E-05	3.64E-05	6.46E-04	1.25E-06	3.42E-05	3.31E+03	2.06E+03	2.70E-05	2.14E-05	8.79E-06	1.17E-02
	0.55	2.97E-06	1.07E-05	2.19E-05	2.86E-04	3.75E-07	1.69E-05	4.02E+03	1.50E+03	1.66E-05	1.12E-05	5.50E-06	7.31E-03

HRA Appendix - Attachment A

Phase 2 Construction

Demolish finger piers	2.99E-03	4.96E-06	7.54E-04	7.84E-03	1.22E-03	5.71E-02	1.20E-04	5.73E-03	2.48E-03	3.31E-04	6.59E-04	1.34E-03	1.02E-02	3.68E-04	2.29E-04	5.89E-03	4.11E-06
Dredge to elevation -22	9.84E-03	1.64E-05	1.62E-03	2.44E-02	2.85E-03	1.25E-01	2.58E-04	1.25E-02	6.83E-03	9.58E-04	6.82E-03	3.93E-03	3.76E-02	8.01E-04	4.94E-04	2.00E-02	5.35E-06
Stabilize dredge material	7.97E-03	1.34E-05	1.22E-03	2.01E-02	2.20E-03	9.29E-02	1.93E-04	9.28E-03	5.52E-03	7.75E-04	6.48E-03	3.21E-03	3.20E-02	5.97E-04	3.70E-04	1.68E-02	5.35E-06
Dispose of Dredge material	6.90E-03	1.15E-05	9.74E-04	1.75E-02	1.81E-03	7.41E-02	1.55E-04	7.40E-03	4.74E-03	6.67E-04	6.28E-03	2.79E-03	2.87E-02	4.76E-04	2.95E-04	1.50E-02	5.35E-06
F & I steel sheet pile wall	3.45E-03	5.72E-06	8.65E-04	9.01E-03	1.39E-03	6.57E-02	1.38E-04	6.59E-03	2.84E-03	3.81E-04	7.50E-04	1.53E-03	1.17E-02	4.24E-04	2.63E-04	6.75E-03	4.11E-06
Demolish building H2	2.23E-03	4.21E-06	4.02E-04	4.15E-03	6.50E-04	3.01E-02	6.44E-05	3.02E-03	1.34E-03	1.75E-04	3.61E-04	7.16E-04	5.39E-03	1.94E-04	1.22E-04	3.16E-03	3.29E-06
Import clean soil to bring up	2.44E-03	4.54E-06	2.81E-04	2.88E-03	4.55E-04	2.07E-02	4.53E-05	2.08E-03	9.48E-04	1.21E-04	2.61E-04	5.02E-04	3.73E-03	1.34E-04	8.47E-05	2.22E-03	3.29E-06
Storm Water System w/ oil	3.57E-03	3.56E-06	3.68E-04	3.62E-03	6.04E-04	2.53E-02	6.09E-05	2.53E-03	1.32E-03	1.49E-04	3.93E-04	6.70E-04	4.68E-03	1.63E-04	1.09E-04	2.97E-03	1.03E-05
Soil Export and Asphalt Re	3.30E-03	7.16E-06	4.15E-04	4.22E-03	6.74E-04	3.03E-02	6.72E-05	3.03E-03	1.42E-03	1.77E-04	3.95E-04	7.44E-04	5.47E-03	1.95E-04	1.25E-04	3.29E-03	6.05E-06
Grading	4.48E-03	2.37E-05	4.53E-04	4.69E-03	7.32E-04	3.41E-02	7.25E-05	3.42E-03	1.50E-03	1.98E-04	4.03E-04	8.06E-04	6.09E-03	2.20E-04	1.37E-04	3.55E-03	3.29E-06
Paving	2.21E-03	3.67E-06	3.52E-04	3.58E-03	2.09E-03	2.57E-02	5.70E-05	2.57E-03	1.20E-03	1.50E-04	3.36E-04	3.07E-03	4.64E-03	1.65E-04	1.06E-04	7.01E-03	5.23E-06
Lighting Improvements	1.15E-03	1.91E-06	1.23E-04	1.22E-03	2.03E-04	8.55E-03	2.04E-05	8.55E-04	4.42E-04	5.04E-05	1.31E-04	2.25E-04	1.58E-03	5.50E-05	3.66E-05	9.95E-04	3.29E-06
Service Vehicles and Deliv	6.20E-05	2.12E-07	1.05E-05	1.11E-04	1.69E-05	8.17E-04	1.67E-06	8.20E-05	3.39E-05	4.72E-06	8.72E-06	1.86E-05	1.44E-04	5.27E-06	3.22E-06	8.18E-05	0.00E+00
F	5.06E-02	1.01E-04	7.84E-03	1.03E-01	1.49E-02	5.90E-01	1.25E-03	5.91E-02	3.06E-02	4.14E-03	2.33E-02	1.96E-02	1.52E-01	3.80E-03	2.37E-03	8.77E-02	5.90E-05
	1.84E-02	3.32E-05	3.21E-03	4.07E-02	5.41E-03	2.43E-01	5.11E-04	2.43E-02	1.21E-02	1.65E-03	1.30E-02	6.75E-03	6.46E-02	1.56E-03	9.73E-04	3.41E-02	1.88E-05
	1.84E-02	3.29E-05	3.21E-03	4.07E-02	5.41E-03	2.43E-01	5.11E-04	2.43E-02	1.21E-02	1.65E-03	8.24E-03	6.75E-03	5.88E-02	1.56E-03	9.73E-04	3.24E-02	1.88E-05
	1.16E-02	3.32E-05	1.70E-03	1.74E-02	2.75E-03	1.26E-01	2.73E-04	1.26E-02	5.70E-03	7.33E-04	1.56E-03	3.03E-03	2.26E-02	8.12E-04	5.12E-04	1.34E-02	1.77E-05
	1.74E-02	2.96E-05	2.48E-03	4.05E-02	4.48E-03	1.89E-01	3.96E-04	1.88E-02	1.12E-02	1.57E-03	1.30E-02	6.52E-03	6.46E-02	1.21E-03	7.53E-04	3.41E-02	1.40E-05
	3.42E-03	5.79E-06	4.86E-04	4.91E-03	2.31E-03	3.50E-02	7.91E-05	3.51E-03	1.68E-03	2.05E-04	4.76E-04	3.32E-03	6.36E-03	2.26E-04	1.46E-04	8.09E-03	8.52E-06

Phase 3 Construction

Demolish buildings A2 & A	2.33E-03	8.00E-06	4.05E-04	4.17E-03	6.56E-04	3.01E-02	6.51E-05	3.02E-03	1.36E-03	1.75E-04	3.71E-04	7.24E-04	5.41E-03	1.94E-04	1.22E-04	3.19E-03	4.11E-06
Import clean soil to bring up	2.59E-03	5.07E-06	3.07E-04	3.15E-03	4.98E-04	2.28E-02	4.94E-05	2.28E-03	1.03E-03	1.33E-04	2.82E-04	5.49E-04	4.09E-03	1.47E-04	9.27E-05	2.42E-03	3.29E-06
Storm Water System w/ oil	2.18E-03	3.56E-06	3.47E-04	3.52E-03	5.64E-04	2.53E-02	5.62E-05	2.53E-03	1.19E-03	1.47E-04	3.32E-04	6.23E-04	4.57E-03	1.63E-04	1.04E-04	2.75E-03	5.23E-06
Soil Export and Asphalt Re	3.45E-03	7.69E-06	4.41E-04	4.50E-03	7.17E-04	3.23E-02	7.14E-05	3.24E-03	1.50E-03	1.88E-04	4.17E-04	7.91E-04	5.83E-03	2.08E-04	1.33E-04	3.49E-03	6.05E-06
Grading	4.48E-03	2.37E-05	1.11E-03	1.16E-02	1.78E-03	8.48E-02	1.76E-04	8.51E-03	3.61E-03	4.91E-04	9.44E-04	1.96E-03	1.50E-02	5.47E-04	3.37E-04	8.62E-03	3.29E-06
Paving	2.21E-03	3.67E-06	3.52E-04	3.58E-03	2.09E-03	2.57E-02	5.70E-05	2.57E-03	1.20E-03	1.50E-04	3.36E-04	3.07E-03	4.64E-03	1.65E-04	1.06E-04	7.01E-03	5.23E-06
Lighting Improvements	1.10E-03	1.82E-06	1.18E-04	1.20E-03	1.93E-04	8.54E-03	1.93E-05	8.55E-04	4.09E-04	4.99E-05	1.16E-04	2.13E-04	1.55E-03	5.50E-05	3.55E-05	9.42E-04	2.06E-06
Existing Utility Protection	1.10E-03	1.82E-06	1.18E-04	1.20E-03	1.93E-04	8.54E-03	1.93E-05	8.55E-04	4.09E-04	4.99E-05	1.16E-04	2.13E-04	1.55E-03	5.50E-05	3.55E-05	9.42E-04	2.06E-06
Construct Buildings to repl	6.77E-03	1.14E-05	1.63E-03	1.70E-02	2.62E-03	1.24E-01	2.59E-04	1.25E-02	5.32E-03	7.19E-04	1.40E-03	2.88E-03	2.21E-02	8.01E-04	4.95E-04	1.27E-02	6.17E-06
Service Vehicles and Deliv	6.20E-05	2.12E-07	1.05E-05	1.11E-04	1.69E-05	8.17E-04	1.67E-06	8.20E-05	3.39E-05	4.72E-06	8.72E-06	1.86E-05	1.44E-04	5.27E-06	3.22E-06	8.18E-05	0.00E+00
F	2.63E-02	6.70E-05	4.84E-03	5.00E-02	9.33E-03	3.63E-01	7.74E-04	3.64E-02	1.61E-02	2.11E-03	4.32E-03	1.10E-02	6.49E-02	2.34E-03	1.46E-03	4.21E-02	3.75E-05
	1.61E-02	4.40E-05	3.40E-03	3.54E-02	5.48E-03	2.58E-01	5.42E-04	2.59E-02	1.12E-02	1.49E-03	2.97E-03	6.19E-03	4.59E-02	1.66E-03	1.03E-03	2.66E-02	1.84E-05
	1.37E-02	2.91E-05	2.60E-03	2.70E-02	4.20E-03	1.96E-01	4.16E-04	1.97E-02	8.63E-03	1.14E-03	2.31E-03	4.63E-03	3.50E-02	1.26E-03	7.89E-04	2.04E-02	1.84E-05
	1.61E-02	4.40E-05	3.40E-03	3.54E-02	5.48E-03	2.58E-01	5.42E-04	2.59E-02	1.12E-02	1.49E-03	2.97E-03	6.03E-03	4.59E-02	1.66E-03	1.03E-03	2.66E-02	1.80E-05
	1.01E-02	1.71E-05	2.11E-03	2.19E-02	4.92E-03	1.59E-01	3.37E-04	1.60E-02	6.97E-03	9.24E-04	1.86E-03	6.19E-03	2.84E-02	1.03E-03	6.39E-04	2.07E-02	1.35E-05

HRA Appendix - Attachment A

Unmitigated Proposed Project - Input for HARP Model												
	TAC	CAS	Phase 1 (lbs/hr)	Phase 2 (lbs/hr)	Phase 3 (lbs/hr)	Max (lbs/hr)		Phase 1 (lbs/70yr)	Phase 2 (lbs/70yr)	Phase 3 (lbs/70yr)	Max (lbs/70yr)	
	ARSENIC	7440382	0.000016	0.000016	0.000018	0.000018		7.98E-06	7.25E-06	8.34E-06	8.34E-06	
	BROMINE	7726956	0.000031	0.000032	0.000037	0.000037		1.21E-05	1.11E-05	1.29E-05	1.29E-05	
	CADMIUM	7440439	0.000052	0.000047	0.000061	0.000061		1.27E-05	1.15E-05	1.31E-05	1.31E-05	
	CHLORINE	7782505	0.002481	0.002697	0.002644	0.002697		1.47E-03	1.35E-03	1.56E-03	1.56E-03	
	CHROMIUM VI	18540299	0.000007	0.000007	0.000007	0.000007		4.29E-06	3.90E-06	4.43E-06	4.43E-06	
	COPPER	7440508	0.000090	0.000091	0.000101	0.000101		4.76E-05	4.34E-05	5.09E-05	5.09E-05	
	LEAD	7439921	0.002290	0.003297	0.000403	0.003297		2.29E-04	2.08E-04	2.37E-04	2.37E-04	
	MANGANESE	7439965	0.000261	0.000624	0.000652	0.000652		3.85E-04	3.51E-04	4.05E-04	4.05E-04	
	MERCURY	7439976	0.000039	0.000031	0.000041	0.000041		6.62E-06	6.02E-06	6.90E-06	6.90E-06	
	NICKEL	7440020	0.000052	0.000054	0.000059	0.000059		2.54E-05	2.32E-05	2.66E-05	2.66E-05	
	SELENIUM	7782492	0.000013	0.000010	0.000012	0.000013		1.00E-06	9.12E-07	1.05E-06	1.05E-06	
	~~SULFUR~~	~~7704349~~	~~0.017230~~	~~0.013879~~	~~0.015551~~	~~0.017230~~		~~1.25E-03~~	~~1.14E-03~~	~~1.32E-03~~	~~1.32E-03~~	not TAC
	SULFATES	9960	0.023280	0.018951	0.021649	0.023280		2.51E-03	2.33E-03	2.88E-03	2.88E-03	
	VANADIUM	7440622	0.000189	0.000189	0.000200	0.000200		1.08E-04	9.85E-05	1.12E-04	1.12E-04	
	1,3-butadiene	106990	0.004366	0.003897	0.004415	0.004415		5.47E-05	3.86E-05	8.43E-05	8.43E-05	
	acetaldehyde	75070	0.166330	0.147858	0.168031	0.168031		2.80E-05	1.98E-05	4.31E-05	4.31E-05	
	benzene	71432	0.060321	0.047953	0.046052	0.060321		2.48E-04	1.75E-04	3.82E-04	3.82E-04	
	ethylbenzene	100414	0.007509	0.006519	0.007111	0.007509		9.72E-04	9.41E-04	1.03E-03	1.03E-03	
	formaldehyde	50000	0.333654	0.296363	0.336383	0.336383		1.58E-04	1.12E-04	2.44E-04	2.44E-04	
	methanol	67561	0.000694	0.000620	0.000702	0.000702		1.23E-05	8.66E-06	1.89E-05	1.89E-05	
	methyl ethyl ketone (mek) (2-b	78933	0.033406	0.029695	0.033747	0.033747		1.83E-06	1.29E-06	2.82E-06	2.82E-06	
	m-xylene	108383	0.017345	0.014325	0.014443	0.017345		3.57E-04	2.52E-04	5.51E-04	5.51E-04	
	naphthalene	91203	0.002406	0.001954	0.001948	0.002406		4.73E-06	3.34E-06	7.29E-06	7.29E-06	
	n-hexane	110543	0.014613	0.013351	0.003804	0.014613		1.60E-04	1.13E-04	2.47E-04	2.47E-04	
	o-xylene	95476	0.009851	0.007969	0.007822	0.009851		1.52E-03	1.48E-03	1.59E-03	1.59E-03	
	propene	115071	0.090266	0.069886	0.059749	0.090266		3.07E-04	2.17E-04	4.73E-04	4.73E-04	
	p-xylene	106423	0.002149	0.001910	0.002170	0.002170		0.00E+00	0.00E+00	0.00E+00	0.00E+00	
	styrene	100425	0.001327	0.001183	0.001342	0.001342		1.23E-05	8.70E-06	1.90E-05	1.90E-05	
	toluene	108883	0.048730	0.037771	0.034435	0.048730		2.99E-03	2.82E-03	3.30E-03	3.30E-03	
	acrolein (2-propenal)	107028	0.000020	0.000019	0.000018	0.000020		1.33E-05	9.38E-06	2.05E-05	2.05E-05	
	Diesel PM	9901	0.911696	0.834321	1.022028	1.022028		4.675264	2.891033	8.093223	8.093223	

HRA Appendix - Attachment A

<i>Mitigated Proposed Project - Input for HARP Model</i>											
TAC	CAS	Phase 1 (lbs/hr)	Phase 2 (lbs/hr)	Phase 3 (lbs/hr)	Max (lbs/hr)		Phase 1 (lbs/70yr)	Phase 2 (lbs/70yr)	Phase 3 (lbs/70yr)	Max (lbs/70yr)	
ARSENIC	7440382	6.61E-06	5.67E-06	5.93E-06	6.61E-06		1.70E-06	9.87E-07	2.07E-06	2.07E-06	
BROMINE	7726956	2.38E-05	1.96E-05	1.84E-05	2.38E-05		3.00E-06	1.96E-06	3.77E-06	3.77E-06	
CADMIUM	7440439	5.07E-05	4.03E-05	3.64E-05	5.07E-05		2.51E-06	1.34E-06	2.88E-06	2.88E-06	
CHLORINE	7782505	5.54E-04	7.06E-04	6.46E-04	7.06E-04		3.63E-04	2.36E-04	4.50E-04	4.50E-04	
CHROMIUM VI	18540299	1.03E-06	1.10E-06	1.25E-06	1.25E-06		8.72E-07	4.79E-07	1.01E-06	1.01E-06	
COPPER	7440508	3.56E-05	3.32E-05	3.42E-05	3.56E-05		1.14E-05	7.35E-06	1.48E-05	1.48E-05	
LEAD	7439921	2.29E-03	3.30E-03	4.02E+03	4.02E+03		4.61E-05	2.51E-05	5.37E-05	5.37E-05	
MANGANESE	7439965	2.61E-04	9.29E-05	2.06E+03	2.06E+03		8.47E-05	5.05E-05	1.05E-04	1.05E-04	
MERCURY	7439976	3.82E-05	3.06E-05	2.70E-05	3.82E-05		1.39E-06	7.96E-07	1.68E-06	1.68E-06	
NICKEL	7440020	2.51E-05	2.06E-05	2.14E-05	2.51E-05		5.59E-06	3.32E-06	6.72E-06	6.72E-06	
SELENIUM	7782492	1.27E-05	1.01E-05	8.79E-06	1.27E-05		2.18E-07	1.29E-07	2.69E-07	2.69E-07	
SULFUR	7704349	1.69E-02	1.35E-02	1.17E-02	1.69E-02		2.79E-04	1.69E-04	3.51E-04	3.51E-04	
SULFATES	9960	2.28E-02	1.84E-02	1.61E-02	2.28E-02		9.64E-04	7.92E-04	1.34E-03	1.34E-03	
VANADIUM	7440622	3.82E-05	3.32E-05	4.40E-05	4.40E-05		2.19E-05	1.20E-05	2.57E-05	2.57E-05	
1,3-butadiene	106990	3.68E-03	3.21E-03	3.40E-03	3.68E-03		5.47E-05	3.86E-05	8.43E-05	8.43E-05	
acetaldehyde	75070	1.40E-01	1.21E-01	1.29E-01	1.40E-01		2.80E-05	1.98E-05	4.31E-05	4.31E-05	
benzene	71432	5.31E-02	4.07E-02	3.54E-02	5.31E-02		2.48E-04	1.75E-04	3.82E-04	3.82E-04	
ethylbenzene	100414	6.41E-03	5.41E-03	5.48E-03	6.41E-03		9.72E-04	9.41E-04	1.03E-03	1.03E-03	
formaldehyde	50000	2.81E-01	2.43E-01	2.58E-01	2.81E-01		1.58E-04	1.12E-04	2.44E-04	2.44E-04	
methanol	67561	5.86E-04	5.11E-04	5.42E-04	5.86E-04		1.23E-05	8.66E-06	1.89E-05	1.89E-05	
methyl ethyl ket	78933	2.81E-02	2.43E-02	2.59E-02	2.81E-02		1.83E-06	1.29E-06	2.82E-06	2.82E-06	
m-xylene	108383	1.51E-02	1.21E-02	1.12E-02	1.51E-02		3.57E-04	2.52E-04	5.51E-04	5.51E-04	
naphthalene	91203	2.10E-03	1.65E-03	1.49E-03	2.10E-03		4.73E-06	3.34E-06	7.29E-06	7.29E-06	
n-hexane	110543	1.40E-02	1.30E-02	2.97E-03	1.40E-02		1.60E-04	1.13E-04	2.47E-04	2.47E-04	
o-xylene	95476	8.65E-03	6.75E-03	6.19E-03	8.65E-03		1.52E-03	1.48E-03	1.59E-03	1.59E-03	
propene	115071	8.09E-02	6.46E-02	4.59E-02	8.09E-02		3.07E-04	2.17E-04	4.73E-04	4.73E-04	
p-xylene	106423	1.81E-03	1.56E-03	1.66E-03	1.81E-03		0.00E+00	0.00E+00	0.00E+00	0.00E+00	
styrene	100425	1.12E-03	9.73E-04	1.03E-03	1.12E-03		1.23E-05	8.70E-06	1.90E-05	1.90E-05	
toluene	108883	4.34E-02	3.41E-02	2.66E-02	4.34E-02		2.99E-03	2.82E-03	3.30E-03	3.30E-03	
acrolein (2-prop	107028	2.37E-05	1.88E-05	1.84E-05	2.37E-05		1.33E-05	9.38E-06	2.05E-05	2.05E-05	
Diesel PM	9901	8.81E-01	8.03E-01	8.57E-01	8.81E-01		4.15E+00	2.61E+00	7.82E+00	7.82E+00	

HRA Appendix - Attachment A

[illegible]

HRA Appendix - Attachment A

					Duration	Number				Offroad	Offroad	Peak Day		
	Item	Description	Quantity		Work	of	Major Equipment	Equipment	Hours/day or	Equipment	HP	ROG	PM10	Diesel PM
1					Days	Workers		#	Miles/roundrip	Category	*	lbs/hr	lbs/hr	9901
42					5		Derrick Barge Crane Hoist	1	8.0	Hoist/swing/winch	564	0.27	0.10	
43					5		Flat Barge - Main Hoist	1	8.0	Hoist/swing/winch	335	0.12	0.04	
44					5		Workers	7	0.5	LDA-TOT	NA	0.00	0.00	
45					5		Workers - Dust	7	0.5	Dust		-	0.00	
46					Subtotal							0	0	0
47	6			LF	20	10								
48		F & I steel sheet pile wall (CDF Cell #1)			20		Derrick Barge Crane Hoist	1	8.0	Hoist/swing/winch	564	0.27	0.10	
49					20		Flat Barge - Main Hoist	1	8.0	Hoist/swing/winch	335	0.12	0.04	
50					20		Pile-driving Hammer	1	8.0	Generator Sets	190	0.11	0.04	
51					20		Workers	10	0.5	LDA-TOT	NA	0.00	0.00	
52					20		Workers - Dust	10	0.5	Dust		-	0.00	
53					Subtotal							0	0	0
54	7	Dredge to elevation -22	3,000	CY	3	13								
55					3		Derrick Barge Crane Hoist	1	8.0	Hoist/swing/winch	564	0.27	0.10	
56					3		Derrick Barge Deck Winch	1	8.0	Hoist/swing/winch	238	0.12	0.04	
57					3		Derrick Barge-Generator 1	1	8.0	Generator Sets	432	0.18	0.07	
58					3		Derrick Barge-Generator 2	1	8.0	Generator Sets	135	0.12	0.05	
59					3		2 ea Flat Barges or Dump Scows	2	8.0	Hoist/swing/winch	335	0.23	0.09	
60					3		Tug Boat - (Main Engine)	1	4.0	NA	702	0.26	0.16	
61					3		Tug Boat - (Auxiliary Engine)	1	4.0	NA	50	0.08	0.03	
62					3		Workers	13	0.5	LDA-TOT	NA	0.00	0.00	
63					3		Workers - Dust	13	0.5	Dust		0.00	0.01	
64					Subtotal							1.27	0.56	0.36
65	8	Stabilize dredge material	3,000	CY	3	13								
66					3		Derrick Barge Crane Hoist	1	8.0	Hoist/swing/winch	564	0.27	0.10	
67					3		2 ea Flat Barges or Dump Scows	2	8.0	Hoist/swing/winch	335	0.23	0.09	
68					3		Excavator with Ram-Hoe	1	8.0	Excavators	175	0.14	0.06	
69					2		Cement Trucks	1	1.0	HHDT-DSL	NA	0.00	0.00	
70					2		Cement Trucks - Dust	1	1.0	Dust	NA	-	0.00	
71					3		Tug Boat - (Main Engine)	1	4.0	NA	702	0.26	0.16	
72					3		Tug Boat - (Auxiliary Engine)	1	4.0	NA	50	0.08	0.03	
73					3		Workers	13	0.5	LDA-TOT	NA	0.00	0.00	
74					3		Workers - Dust	13	0.5	Dust		-	0.01	
75					Subtotal							0.99	0.45	0.25
76	9		3,000	CY	3	13								
77		Dispose of Dredge material into CDF #1			3		Derrick Barge Crane Hoist	1	8.0	Hoist/swing/winch	564	0.27	0.10	
78					3		2 ea Flat Barges or Dump Scows	2	8.0	Hoist/swing/winch	335	0.23	0.09	
79					3		Tug Boat - (Main Engine)	1	4.0	NA	702	0.26	0.16	
80					3		Tug Boat - (Auxiliary Engine)	1	4.0	NA	50	0.08	0.03	
81					3		Workers	13	0.5	LDA-TOT	NA	0.00	0.00	
82					3		Workers - Dust	13	0.5	Dust		-	0.01	
83					Subtotal							0.85	0.39	0.19
84	10	Import clean soil to bring upland elevation to street level	1	LS	15	8								
85					15		Dump Trucks	7	1.0	HHDT-DSL	NA	0.02	0.01	
86					15		Dust	7	1.0	Dust	NA	-	0.01	

HRA Appendix - Attachment A

				Duration	Number				Offroad	Offroad	Peak Day		
							Equipment	Hours/day or	Equipment	HP			
	Item	Description	Quantity	Work	of	Major Equipment	#	Miles/roundtrip	Category	*	ROG	PM10	Diesel PM
1				Days	Workers						lbs/hr	lbs/hr	9901
87				15		Motor blade grader	1	8.0	Graders	175	0.16	0.07	
88				15		Drum roller	1	8.0	Rollers	175	0.14	0.06	
89				15		Workers	8	0.5	LDA-TOT	NA	0.00	0.00	
90				15		Workers - Dust	8	0.5	Dust		-	0.00	
91				Subtotal							0	0	0
92	11	Storm Water System w/ oil-water separator	1 LS	20	8								
93				20		Small loader (Backhoe loader)	1	8.0	Tractors/Loaders/Backhoes	175	0.11	0.05	
94				20		Trenching Machine	1	8.0	Trenchers	175	0.21	0.10	
95				20		Pick up trucks (2)	2	1.0	LDT2-TOT	NA	0.00	0.00	
96				20		Dust	2	1.0	Dust	NA	-	0.00	
97				20		Workers	8	0.5	LDA-TOT	NA	0.00	0.00	
98				20		Workers - Dust	8	0.5	Dust	NA	-	0.00	
99				Subtotal							0	0	0
100	12	Soil Export and Asphalt Removals	1 LS	14	10								
101				14		Asphalt breaker	1	8.0	Crushing/Proc. Equipment	175	0.22	0.10	
102				14		Front End (Wheel) Loader	1	8.0	Rubber Tired Loaders	175	0.14	0.06	
103				14		Dump Trucks - Soil	7	1.0	HHDT-DSL	NA	0.02	0.01	
104				14		Dust	7	1.0	Dust	NA	0.00	0.01	
103				14		Dump Trucks - Concrete	4	1.0	HHDT-DSL	NA	0.01	0.01	
104				14		Dust	4	1.0	Dust	NA	-	0.00	
105				14		Pick up trucks (2)	2	1.0	LDT2-TOT	NA	0.00	0.00	
106				14		Dust	2	1.0	Dust	NA	-	0.00	
107				14		Workers	10	0.5	LDA-TOT	NA	0.00	0.00	
108				14		Workers - Dust	10	0.5	Dust		-	0.00	
109				Subtotal							0.40	0.20	0.18
110	13	Grading	1 LS	5	8								
111				5		Blade grader	1	8.0	Graders	175	0.16	0.07	
112				5		Small dozers (2)	2	8.0	Rubber Tired Dozers	175	0.46	0.20	
113				5		Roller (Smooth drum)	1	8.0	Rollers	175	0.14	0.06	
114				5		Grading Fugitive Dust	0.2	8.0			-	0.51	
115				5		Workers	8	0.5	LDA-TOT	NA	0.00	0.00	
116				5		Workers - Dust	8	0.5	Dust		-	0.00	
117				Subtotal							1	1	0
118	14	Paving	1 LS	5	8								
119				5		Small loader (Backhoe loader)	1	8.0	Tractors/Loaders/Backhoes	175	0.11	0.05	
120				5		Asphalt paver	1	8.0	Pavers	175	0.20	0.09	
121				5		On-road Asphalt trucks	1	1.0	HHDT-DSL	NA	0.00	0.00	
122				5		Dust	1	1.0	Dust	NA	-	0.00	
123				5		Pick up trucks (2)	2	1.0	LDT2-TOT	NA	0.00	0.00	
124				5		Dust	2	1.0	Dust	NA	-	0.00	
125				5		Paving Fugitive VOC	0.2	8.0			0.07	-	
126				5		Workers	8	0.5	LDA-TOT	NA	0.00	0.00	
127				5		Workers - Dust	8	0.5	Dust	NA	-	0.00	
128				Subtotal							0	0	0
129	15	Lighting Improvements	1 LS	15	8								

HRA Appendix - Attachment A

				Duration	Number				Offroad	Offroad	Peak Day		
	Item	Description	Quantity	Work	of	Major Equipment	Equipment	Hours/day or	Equipment	HP	ROG	PM10	Diesel PM
1				Days	Workers		#	Miles/roundtrip	Category	*	lbs/hr	lbs/hr	9901
130				15		Trenching Machine	1	8.0	Trenchers	175	0.21	0.10	
131				15		Workers	8	0.5	LDA-TOT	NA	0.00	0.00	
132				15		Workers - Dust	8	0.5	Dust	NA	-	0.00	
133				Subtotal							0	0	0
134	16	Service Truck (Small Deliveries, Port-a-Potties, Utilities)		100	N/A								
135				100		Service trucks (2)	2	1.0	HHDT-DSL	NA	0.01	0.00	
136				100		Dust	2	1.0	Dust	NA	-	0.00	
137				Subtotal							0.01	0.00	0.00
138		Total		323							8.85	4.36	3.17E+00
139													
140		Phase 2 Construction											
141													
142	1	Demolish finger piers	2 each	10	10								
143				10		Derrick Barge	1	8.0	Cranes	195	0.09	0.03	
144				10		Flat Barge - Main Hoist	1	8.0	Hoist/swing/win	335	0.12	0.04	
145				10		Vibratory Hammer	1	8.0	Concrete/Industrial Saws	45	0.10	0.03	
146				10		Track Loader	1	8.0	Rubber Tired Loaders	175	0.14	0.06	
147				10		Workers	10	0.5	LDA-TOT	NA	0.00	0.00	
148				10		Workers - Dust	10	0.5	Dust	-	-	0.00	
149				Subtotal							0	0	0
150	2	Dredge to elevation -22	16,000 CY	10	13								
151				10		Derrick Barge Crane Hoist	1	8.0	Hoist/swing/win	564	0.27	0.10	
152				10		Derrick Barge Deck Winch	1	8.0	Hoist/swing/win	238	0.12	0.04	
153				10		Derrick Barge-Generator 1	1	8.0	Generator Sets	432	0.18	0.07	
154				10		Derrick Barge-Generator 2	1	8.0	Generator Sets	135	0.12	0.05	
155				10		2 ea Flat Barges or Dump Scows	2	8.0	Hoist/swing/win	335	0.23	0.09	
156				10		Tug Boat - (Main Engine)	1	4.0	NA	702	0.26	0.16	
157				10		Tug Boat - (Auxiliary Engine)	1	4.0	NA	50	0.08	0.03	
158				10		Workers	13	0.5	LDA-TOT	NA	0.00	0.00	
159				10		Workers - Dust	13	0.5	Dust	-	-	0.01	
160				Subtotal							1.27	0.56	0.36
161	3	Stabilize dredge material	16,000 CY	10	13								
162				10		Derrick Barge Crane Hoist	1	8.0	Hoist/swing/win	564	0.27	0.10	
163				10		2 ea Flat Barges or Dump Scows	2	8.0	Hoist/swing/win	335	0.23	0.09	
164				10		Excavator with Ram-Hoe	1	8.0	Excavators	175	0.14	0.06	
165				4		Cement Trucks	2	1.0	HHDT-DSL	NA	0.01	0.00	
166				4		Dust	2	1.0	Dust	NA	-	0.00	
167				10		Tug Boat - (Main Engine)	1	4.0	NA	702	0.26	0.16	
168				10		Tug Boat - (Auxiliary Engine)	1	4.0	NA	50	0.08	0.03	
169				10		Workers	13	0.5	LDA-TOT	NA	0.00	0.00	
170				10		Workers - Dust	13	0.5	Dust	-	-	0.01	
171				Subtotal							0.99	0.46	0.26
172	4		16,000 CY	10	13								
173		Dispose of Dredge material into CDF #1		10		Derrick Barge Crane Hoist	1	8.0	Hoist/swing/win	564	0.27	0.10	

HRA Appendix - Attachment A

				Duration	Number				Offroad	Offroad	Peak Day		
							Equipment	Hours/day or	Equipment	HP			
	Item	Description	Quantity	Work	of	Major Equipment	#	Miles/roundtrip	Category	*	ROG	PM10	Diesel PM
1				Days	Workers						lbs/hr	lbs/hr	9901
174				10		2 ea Flat Barges or Dump Scows	2	8.0	Hoist/swing/winch	335	0.23	0.09	
175				10		Tug Boat - (Main Engine)	1	4.0	NA	702	0.26	0.16	
176				10		Tug Boat - (Auxiliary Engine)	1	4.0	NA	50	0.08	0.03	
177				10		Workers	13	0.5	LDA-TOT	NA	0.00	0.00	
178				10		Workers - Dust	13	0.5	Dust	-	-	0.01	
179				Subtotal							0.85	0.39	0.19
180	5		LF	20	10								
181		F & I steel sheet pile wall (CDF Cell #2)		20		Derrick Barge Crane Hoist	1	8.0	Hoist/swing/winch	564	0.27	0.10	
182				20		Flat Barge - Main Hoist	1	8.0	Hoist/swing/winch	335	0.12	0.04	
183				20		Pile Driving Hammer	1	8.0	Generator Sets	190	0.11	0.04	
184				20		Workers	10	0.5	LDA-TOT	NA	0.00	0.00	
185				20		Workers - Dust	10	0.5	Dust	-	-	0.00	
186				Subtotal							0	0	0
187	6	Demolish building H2	1 each	30	8								
188				30		Excavator with Ram-Hoe	1	8.0	Excavators	175	0.14	0.06	
189				30		Front End (Wheel) Loader	1	8.0	Rubber Tired Loaders	175	0.14	0.06	
190				30		Dump Trucks (2)	2	1.0	HHDT-DSL	NA	0.01	0.00	
191				30		Dust	2	1.0	Dust	NA	-	0.00	
192				30		Demolition Dust		8.0			-	0.00	
193				30		Workers	8	0.5	LDA-TOT	NA	0.00	0.00	
194				30		Workers - Dust	8	0.5	Dust	NA	-	0.00	
195				Subtotal							0	0	0.13
196	7		1 LS	15	8								
197		Import clean soil to bring upland elevation to cell elevation and Trench back fill		15		Dump Trucks - Soil	9	1.0	HHDT-DSL	NA	0.02	0.01	
198				15		Dust	9	1.0	Dust	NA	-	0.01	
199				15		Motor blade grader	1	8.0	Graders	175	0.16	0.07	
200				15		Drum roller	1	8.0	Rollers	175	0.14	0.06	
201				15		Workers	8	0.5	LDA-TOT	NA	0.00	0.00	
202				15		Workers - Dust	8	0.5	Dust	NA	-	0.00	
203				Subtotal							0	0	0.15
204	8	Storm Water System w/ oil-water separator	1 LS	10	8								
205				10		Small Loader (Backhoe Loader)	1	8.0	Tractors/Loaders/Backhoes	175	0.11	0.05	
206				10		Trenching Machine	1	8.0	Trenchers	175	0.21	0.10	
207				10		Pick up Trucks (2)	2	1.0	LDT2-TOT	NA	0.01	0.00	
208				10		Dust	2	1.0	Dust	NA	-	0.00	
209				10		Workers	8	0.5	LDA-TOT	NA	0.00	0.00	
210				10		Workers - Dust	8	0.5	Dust	NA	-	0.00	
211				Subtotal							0	0	0
212	9	Soil Export and Asphalt Removals	LS	5	10								
213				5		Asphalt Breaker	1	8.0	Concrete/Industrial Saws	120	0.12	0.07	
214				5		Front End (Wheel) Loader	1	8.0	Rubber Tired Loaders	175	0.14	0.06	
215				5		Dump Trucks - Soil	28	1.0	HHDT-DSL	NA	0.08	0.05	
216						Dust	28	1.0	Dust	NA	-	0.02	
						Dump Trucks - Concrete	4	1.0	HHDT-DSL	NA	0.01	0.01	
						Dust	4	1.0	Dust	NA	-	0.00	
217				5		Pick up Trucks (2)	2	1.0	LDT2-TOT	NA	0.00	0.00	

HRA Appendix - Attachment A

				Duration	Number				Offroad	Offroad	Peak Day		
	Item	Description	Quantity	Work	of	Major Equipment	Equipment	Hours/day or	Equipment	HP	ROG	PM10	Diesel PM
				Days	Workers		#	Miles/roundtrip	Category	*	lbs/hr	lbs/hr	9901
1													
218						Dust	2	1.0	Dust	NA	-	0.00	
219				5		Workers	10	0.5	LDA-TOT	NA	0.00	0.00	
220				5		Workers - Dust	10	0.5	Dust	NA	-	0.00	
221						Subtotal					0.36	0.22	0.18
222	10	Grading	1 LS	5	8								
223				5		Blade grader	1	8.0	Graders	175	0.16	0.07	
224				5		Small dozers (2)	2	8.0	Rubber Tired Dozers	175	0.46	0.20	
225				5		Roller (Smooth drum)	1	8.0	Rollers	175	0.14	0.06	
226				5		Grading Fugitive Dust	0.14	8.0			-	0.51	
227				5		Workers	8	0.5	LDA-TOT	NA	0.00	0.00	
228				5		Workers - Dust	8	0.5	Dust		-	0.00	
229						Subtotal					1	1	0
230	11	Paving	1 LS	5	8								
231				5		Small Loader (Backhoe Loader)	1	8.0	Tractors/Loaders/Backhoes	175	0.11	0.05	
232				5		Asphalt Paver	1	8.0	Pavers	175	0.20	0.09	
233				5		Onroad Asphalt Trucks	1	1.0	HHDT-DSL	NA	0.00	0.00	
234				5		Dust	1	1.0	Dust	NA	-	0.00	
235				5		Pick up Trucks (2)	2	1.0	LDT2-TOT	NA	0.00	0.00	
236				5		Dust	2	1.0	Dust	NA	-	0.00	
237				5		Paving Fugitive VOC	0.14	8.0			0.07	-	
238				5		Workers	8	0.5	LDA-TOT	NA	0.00	0.00	
239				5		Workers - Dust	8	0.5	Dust		-	0.00	
240						Subtotal					0	0	0
241	12	Lighting Improvements	1 LS	15	8								
242				15		Trenching Machine	1	8.0	Trenchers	175	0.21	0.10	
243				15		Workers	8	0.5	LDA-TOT	NA	0.00	0.00	
244				15		Workers - Dust	8	0.5	Dust	NA	-	0.00	
245						Subtotal					0	0	0
246	13	Service Vehicles and Deliveries	1 LS	70	N/A								
247				70		Service Trucks (2)	2	1.0	HHDT-DSL	NA	0.01	0.00	
248				70			2	1.0	Dust	NA	-	0.00	
249						Subtotal					0	0	0.00
250		Total		215							6.74	3.54	2.34E+00
251													
252		Phase 3 Construction											
253													
254	1	Demolish buildings A2 & A3	2 each	30	10								
255				30		Excavator with Ram-Hoe	1	8.0	Excavators	175	0.14	0.06	
256				30		Front End (Wheel) Loader	1	8.0	Rubber Tired Loaders	175	0.14	0.06	
257				30		Dump Trucks (2)	2	1.0	HHDT-DSL	NA	0.01	0.00	
258				30		Dust	2	1.0	Dust	NA	-	0.00	
259				30		Demolition Dust		8.0			-	0.01	
260				30		Workers	10	0.5	LDA-TOT	NA	0.00	0.00	
261				30		Workers - Dust	10	0.5	Dust	NA	-	0.00	
262						Subtotal					0	0	0.13

HRA Appendix - Attachment A

				Duration	Number				Offroad	Offroad	Peak Day		
	Item	Description	Quantity	Work	of	Major Equipment	Equipment	Hours/day or	Equipment	HP	ROG	PM10	Diesel PM
1				Days	Workers		#	Miles/roundrip	Category	*	lbs/hr	lbs/hr	9901
263	2	Import clean soil to bring upland elevation to street level, trench backfill	1 LS	10	8							-	
264				10		Dump Trucks	14	1.0	HHDT-DSL	NA	0.04	0.02	
265				10		Dust	14	1.0	Dust	NA	-	0.01	
266				10		Motor Blade Grader	1	8.0	Graders	175	0.16	0.07	
267				10		Drum Roller	1	8.0	Rollers	175	0.14	0.06	
268				10		Workers	8	0.5	LDA-TOT	NA	0.00	0.00	
269				10		Workers - Dust	8	0.5	Dust	NA	-	0.00	
270	Subtotal												
271	3	Storm Water System w/ oil-water separator	1 LS	10	8						0	0	0
272				10		Small Loader (Backhoe Loader)	1	8.0	Tractors/Loaders/Backhoes	175	0.11	0.05	
273				10		Trenching Machine	1	8.0	Trenchers	175	0.21	0.10	
274				10		Pick Up Trucks (2)	2	1.0	LDT2-TOT	NA	0.00	0.00	
275				10		Dust	2	1.0	Dust	NA	-	0.00	
276				10		Workers	8	0.5	LDA-TOT	NA	0.00	0.00	
277				10		Workers - Dust	8	0.5	Dust	NA	-	0.00	
278	Subtotal												
279	4	Soil Export and Asphalt Removals	LS	5	10						0	0	0
280				5		Asphalt Breaker	1	8.0	Concrete/Industrial Saws	120	0.12	0.07	
281				5		Front End (Wheel) Loader	1	8.0	Rubber Tired Loaders	175	0.14	0.06	
282				5		Dump Trucks - Soil	28	1.0	HHDT-DSL	NA	0.08	0.05	
283				5		Dust	28	1.0	Dust	NA	0.00	0.02	
				5		Dump Trucks - Concrete	9	1.0	HHDT-DSL	NA	0.02	0.01	
				5		Dust	9	1.0	Dust	NA	-	0.01	
284				5		Pick Up Trucks (2)	2	1.0	LDT2-TOT	NA	0.00	0.00	
285				5		Dust	2	1.0	Dust	NA	-	0.00	
286				5		Workers	10	0.5	LDA-TOT	NA	0.00	0.00	
287				5		Workers - Dust	10	0.5	Dust	NA	-	0.00	
288	Subtotal												
289	5	Grading	1 LS	5	8						0.37	0.23	0.18
290				5		Blade Grader	1	8.0	Graders	175	0.16	0.07	
291				5		Small Dozers (2)	2	8.0	Rubber Tired Dozers	175	0.46	0.20	
292				5		Roller (Smooth Drum)	1	8.0	Rollers	175	0.14	0.06	
293				5		Grading Fugitive Dust	0.12	8.0			-	0.51	
294				5		Workers	8	0.5	LDA-TOT	NA	0.00	0.00	
295				5		Workers - Dust	8	0.5	Dust	NA	-	0.00	
296	Subtotal												
297	6	Paving	1 LS	5	8						1	1	0
298				5		Small Loader (Backhoe Loader)	1	8.0	Tractors/Loaders/Backhoes	175	0.11	0.05	
299				5		Asphalt Paver	1	8.0	Pavers	175	0.20	0.09	
300				5		Onroad Asphalt Trucks	1	1.0	HHDT-DSL	NA	0.00	0.00	
301				5		Dust	1	1.0	Dust	NA	-	0.00	
302				5		Pick Up Trucks (2)	2	1.0	LDT2-TOT	NA	0.00	0.00	
303				5		Dust	2	1.0	Dust	NA	-	0.00	
304				5		Paving Fugitive VOC	0.12	8.0			0.07	-	
305				5		Workers	8	0.5	LDA-TOT	NA	0.00	0.00	
306				5		Workers - Dust	8	0.5	Dust	NA	-	0.00	

HRA Appendix - Attachment A

					Duration	Number				Offroad	Offroad	Peak Day		
	Item	Description	Quantity		Work	of	Major Equipment	Equipment	Hours/day or	Equipment	HP	ROG	PM10	Diesel PM
1					Days	Workers		#	Miles/roundrip	Category	*	lbs/hr	lbs/hr	9901
307	Subtotal													
308	7	Lighting Improvements	1	LS	15	5						0	0	0
309					15		Trenching Machine	1	8.0	Trenchers	175	0.21	0.10	
310					15		Workers	5	0.5	LDA-TOT	NA	0.00	0.00	
311					15		Workers - Dust	5	0.5	Dust	NA	-	0.00	
312	Subtotal													
313	8	Existing Utility Protection	1	LS	5	5						0	0	0
314					5		Trenching Machine	1	8.0	Trenchers	175	0.21	0.10	
315					5		Workers	5	0.5	LDA-TOT	NA	0.00	0.00	
316					5		Workers - Dust	5	0.5	Dust	NA	-	0.00	
317	Subtotal													
318	9	Construct Buildings to replace buildings A2, A3, C1, & D	1	LS	180	15	Compressor (3)	3	8.0	Air Compressors	120	0.29	0.16	
319					20		Flatbed Truck (20 days)	1	1.0	HHDT-DSL	NA	0.00	0.00	
320					20		Dust	1	1.0	Dust	NA	-	0.00	
321					9		Cement Trucks	2	1.0	HHDT-DSL	NA	0.01	0.00	
322					9		Dust	2	1.0	Dust	NA	-	0.00	
323					90		Boom Truck (90 days)	1	8.0	Off-Highway Trucks	500	0.24	0.08	
324					180		Small Loader	1	8.0	Tractors/Loaders/Backhoes	175	0.11	0.05	
325					180		Small Crane	1	8.0	Cranes	175	0.11	0.05	
326					180		Large Fork Lift	1	8.0	Forklifts	500	0.08	0.03	
327					180		Workers	15	0.5	LDA-TOT	NA	0.00	0.00	
328					180		Workers - Dust	15	0.5	Dust	NA	-	0.01	
329	Subtotal													
330	10	Service Vehicles and Deliveries	1	LS	70	N/A						1	0	0
331					70		Service Trucks (2)	2	1.0	HHDT-DSL	NA	0.01	0.00	
332					70		Dust	2	1.0	Dust	NA	-	0.00	
333	Subtotal													
334		Total			335							3.77	2.28	1.66

HRA Appendix - Attachment A

Offroad																				
Equipment	ARSENIC	BROMINE	CADMIUM	CHLORINE	CHROMIUM VI	COPPER	LEAD	1,30E-07	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	benzene	ethylbenzene	formaldehyde	
Category	7440382	7726956	7440439	7782505	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414	50000	
Cranes	1.67E-07	6.01E-07	1.33E-06	1.15E-05	2.00E-08	8.34E-07	1.40E-06	1.33E-06	1.00E-06	6.34E-07	3.34E-07	4.43E-04	5.82E-04	9.68E-07	1.73E-04	6.71E-03	1.83E-03	2.78E-04	1.34E-02	
Hoist/swing/winch	2.22E-07	7.98E-07	1.77E-06	1.53E-05	2.66E-08	1.11E-06	1.86E-06	1.77E-06	1.33E-06	8.42E-07	4.43E-07	5.88E-04	7.73E-04	1.29E-06	2.23E-04	8.63E-03	2.35E-03	3.58E-04	1.73E-02	
Crushing/Proc. Equipment	5.11E-07	1.84E-06	4.09E-06	3.52E-05	6.13E-08	2.55E-06	4.29E-06	4.09E-06	3.07E-06	1.94E-06	1.02E-06	1.36E-03	1.78E-03	2.96E-06	4.24E-04	1.64E-02	4.47E-03	6.81E-04	3.28E-02	
Rubber Tired Loaders	3.16E-07	1.14E-06	2.53E-06	2.17E-05	3.79E-08	1.58E-06	2.65E-06	2.53E-06	1.90E-06	1.20E-06	6.32E-07	8.39E-04	1.10E-03	1.83E-06	2.64E-04	1.02E-02	2.78E-03	4.24E-04	2.05E-02	
HHDT-DSL	8.27E-09	2.98E-08	6.61E-08	5.69E-07	9.92E-10	4.13E-08	6.94E-08	6.61E-08	4.96E-08	3.14E-08	1.65E-08	2.19E-05	2.88E-05	4.79E-08	5.27E-06	2.04E-04	5.55E-05	8.47E-06	4.08E-04	
Dust	1.06E-08	9.79E-09	2.45E-09	4.35E-07	6.93E-10	1.21E-07	1.01E-07	6.53E-07	7.34E-09	9.79E-09	1.63E-09	2.55E-06	2.20E-06	5.79E-08	-	-	-	-	-	
LDA-TOT	-	1.86E-07	-	2.61E-05	9.30E-09	1.86E-07	-	1.86E-07	-	1.86E-07	-	-	1.67E-04	-	1.69E-05	8.67E-06	7.68E-05	3.26E-05	4.90E-05	
Dust	5.30E-08	4.89E-08	1.22E-08	2.17E-06	3.47E-09	6.04E-07	5.06E-07	3.26E-06	3.67E-08	4.89E-08	8.16E-09	1.28E-05	1.10E-05	2.90E-07	-	-	-	-	-	
	1.29E-06	4.65E-06	9.80E-06	1.13E-04	1.60E-07	7.03E-06	1.09E-05	1.39E-05	7.39E-06	4.89E-06	2.46E-06	3.26E-03	4.45E-03	7.45E-06	1.11E-03	4.22E-02	1.16E-02	1.78E-03	8.45E-02	
Excavators	3.13E-07	1.13E-06	2.50E-06	2.15E-05	3.76E-08	1.56E-06	2.63E-06	2.50E-06	1.88E-06	1.19E-06	6.26E-07	8.31E-04	1.09E-03	1.82E-06	2.61E-04	1.01E-02	2.75E-03	4.19E-04	2.02E-02	
Rubber Tired Loaders	3.16E-07	1.14E-06	2.53E-06	2.17E-05	3.79E-08	1.58E-06	2.65E-06	2.53E-06	1.90E-06	1.20E-06	6.32E-07	8.39E-04	1.10E-03	1.83E-06	2.64E-04	1.02E-02	2.78E-03	4.24E-04	2.05E-02	
HHDT-DSL	1.65E-08	5.95E-08	1.32E-07	1.14E-06	1.98E-09	8.27E-08	1.39E-07	1.32E-07	9.92E-08	6.28E-08	3.31E-08	4.39E-05	5.76E-05	9.59E-08	1.05E-05	4.08E-04	1.11E-04	1.69E-05	8.17E-04	
Dust	2.12E-08	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-	
	1.20E-07	1.75E-07	1.95E-07	2.13E-05	6.55E-08	6.90E-07	3.51E-06	5.75E-06	1.00E-07	3.80E-07	1.50E-08	1.86E-05	2.95E-05	1.66E-06	-	-	-	-	-	
LDA-TOT	-	1.86E-07	-	2.61E-05	9.30E-09	1.86E-07	-	1.86E-07	-	1.86E-07	-	-	1.67E-04	-	1.69E-05	8.67E-06	7.68E-05	3.26E-05	4.90E-05	
Dust	5.30E-08	4.89E-08	1.22E-08	2.17E-06	3.47E-09	6.04E-07	5.06E-07	3.26E-06	3.67E-08	4.89E-08	8.16E-09	1.28E-05	1.10E-05	2.90E-07	-	-	-	-	-	
	7.87E-07	2.70E-06	5.36E-06	9.26E-05	1.54E-07	4.35E-06	9.13E-06	1.24E-05	3.99E-06	3.04E-06	1.31E-06	1.74E-03	2.45E-03	5.51E-06	5.53E-04	2.07E-02	5.72E-03	8.93E-04	4.15E-02	
Hoist/swing/winch	5.04E-07	1.81E-06	4.03E-06	3.47E-05	6.04E-08	2.52E-06	4.23E-06	4.03E-06	3.02E-06	1.91E-06	1.01E-06	1.34E-03	1.76E-03	2.92E-06	5.06E-04	1.96E-02	5.33E-03	8.12E-04	3.92E-02	
Hoist/swing/winch	2.22E-07	7.98E-07	1.77E-06	1.53E-05	2.66E-08	1.11E-06	1.86E-06	1.77E-06	1.33E-06	8.42E-07	4.43E-07	5.88E-04	7.73E-04	1.29E-06	2.23E-04	8.63E-03	2.35E-03	3.58E-04	1.73E-02	
Hoist/swing/winch	1.77E-07	6.38E-07	1.42E-06	1.22E-05	2.13E-08	8.87E-07	1.49E-06	1.42E-06	1.06E-06	6.74E-07	3.55E-07	4.71E-04	6.18E-04	1.03E-06	1.48E-04	5.73E-03	1.56E-03	2.38E-04	1.15E-02	
Generator Sets	2.55E-07	9.19E-07	2.04E-06	1.76E-05	3.06E-08	1.28E-06	2.14E-06	2.04E-06	1.53E-06	9.70E-07	5.11E-07	6.77E-04	8.90E-04	1.48E-06	2.58E-04	9.98E-03	2.72E-03	4.14E-04	2.00E-02	
Generator Sets	1.78E-07	6.42E-07	1.43E-06	1.23E-05	2.14E-08	8.91E-07	1.50E-06	1.43E-06	1.07E-06	6.77E-07	3.56E-07	4.73E-04	6.21E-04	1.03E-06	1.53E-04	5.94E-03	1.62E-03	2.46E-04	1.19E-02	
Generator Sets	2.12E-07	7.62E-07	1.69E-06	1.46E-05	2.54E-08	1.06E-06	1.78E-06	1.69E-06	1.27E-06	8.05E-07	4.24E-07	5.62E-04	7.38E-04	1.23E-06	2.14E-04	8.28E-03	2.25E-03	3.43E-04	1.66E-02	
LDA-TOT	-	1.30E-07	-	1.82E-05	6.51E-09	1.30E-07	-	1.30E-07	-	1.30E-07	-	-	1.17E-04	-	1.19E-05	6.07E-06	5.37E-05	2.28E-05	3.43E-05	
Dust	7.42E-08	6.85E-08	1.71E-08	3.04E-06	4.85E-09	8.45E-07	7.08E-07	4.57E-06	5.14E-08	6.85E-08	1.14E-08	1.79E-05	1.54E-05	4.05E-07	-	-	-	-	-	
	1.62E-06	5.77E-06	1.24E-05	1.28E-04	1.97E-07	8.72E-06	1.37E-05	1.71E-05	9.34E-06	6.08E-06	3.11E-06	4.13E-03	5.53E-03	9.38E-06	1.51E-03	5.81E-02	1.59E-02	2.43E-03	1.16E-01	
Hoist/swing/winch	5.04E-07	1.81E-06	4.03E-06	3.47E-05	6.04E-08	2.52E-06	4.23E-06	4.03E-06	3.02E-06	1.91E-06	1.01E-06	1.34E-03	1.76E-03	2.92E-06	5.06E-04	1.96E-02	5.33E-03	8.12E-04	3.92E-02	
Hoist/swing/winch	2.22E-07	7.98E-07	1.77E-06	1.53E-05	2.66E-08	1.11E-06	1.86E-06	1.77E-06	1.33E-06	8.42E-07	4.43E-07	5.88E-04	7.73E-04	1.29E-06	2.23E-04	8.63E-03	2.35E-03	3.58E-04	1.73E-02	
Generator Sets	4.15E-07	1.49E-06	3.32E-06	2.85E-05	4.98E-08	2.07E-06	3.48E-06	3.32E-06	2.49E-06	1.58E-06	8.29E-07	1.10E-03	1.45E-03	2.40E-06	4.00E-04	1.55E-02	4.22E-03	6.43E-04	3.10E-02	
Air Compressors	3.41E-07	1.23E-06	2.73E-06	2.34E-05	4.09E-08	1.70E-06	2.86E-06	2.73E-06	2.04E-06	1.29E-06	6.81E-07	9.04E-04	1.19E-03	1.98E-06	3.44E-04	1.33E-02	3.62E-03	5.52E-04	2.66E-02	
LDA-TOT	-	1.86E-07	-	2.61E-05	9.30E-09	1.86E-07	-	1.86E-07	-	1.86E-07	-	-	1.67E-04	-	1.69E-05	8.67E-06	7.68E-05	3.26E-05	4.90E-05	
Dust	5.30E-08	4.89E-08	1.22E-08	2.17E-06	3.47E-09	6.04E-07	5.06E-07	3.26E-06	3.67E-08	4.89E-08	8.16E-09	1.28E-05	1.10E-05	2.90E-07	-	-	-	-	-	
	1.48E-06	5.52E-06	1.18E-05	1.28E-04	1.87E-07	7.59E-06	1.24E-05	1.20E-05	8.88E-06	5.81E-06	2.96E-06	3.93E-03	5.33E-03	8.59E-06	1.49E-03	5.70E-02	1.56E-02	2.40E-03	1.14E-01	

HRA Appendix - Attachment A

Offroad																			
Equipment																			
	ARSENIC	BROMINE	CADMIUM	CHLORINE	CHROMIUM VI	COPPER	LEAD	1,30E-07	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	benzene	ethylbenzene	formaldehyde
Category	7440382	7726956	7440439	7782505	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414	50000
Hoist/swing/winch	5.04E-07	1.81E-06	4.03E-06	3.47E-05	6.04E-08	2.52E-06	4.23E-06	4.03E-06	3.02E-06	1.91E-06	1.01E-06	1.34E-03	1.76E-03	2.92E-06	5.06E-04	1.96E-02	5.33E-03	8.12E-04	3.92E-02
Hoist/swing/winch	2.22E-07	7.98E-07	1.77E-06	1.53E-05	2.66E-08	1.11E-06	1.86E-06	1.77E-06	1.33E-06	8.42E-07	4.43E-07	5.88E-04	1.29E-06	2.23E-04	2.23E-04	8.63E-03	2.35E-03	3.58E-04	1.73E-02
LDA-TOT	-	1.30E-07	-	1.82E-05	6.51E-09	1.30E-07	-	1.30E-07	-	1.30E-07	-	-	1.17E-04	-	1.19E-05	6.07E-06	5.37E-05	2.28E-05	3.43E-05
Dust	3.71E-08	3.43E-08	8.57E-09	1.52E-06	2.43E-09	4.23E-07	3.54E-07	2.28E-06	2.57E-08	3.43E-08	5.71E-09	8.94E-06	7.69E-06	2.03E-07	-	-	-	-	-
	7.62E-07	2.78E-06	5.81E-06	6.97E-05	9.60E-08	4.18E-06	6.45E-06	8.22E-06	4.38E-06	2.92E-06	1.46E-06	1.93E-03	2.65E-03	4.41E-06	7.41E-04	2.82E-02	7.73E-03	1.19E-03	5.65E-02
Hoist/swing/winch	5.04E-07	1.81E-06	4.03E-06	3.47E-05	6.04E-08	2.52E-06	4.23E-06	4.03E-06	3.02E-06	1.91E-06	1.01E-06	1.34E-03	1.76E-03	2.92E-06	5.06E-04	1.96E-02	5.33E-03	8.12E-04	3.92E-02
Hoist/swing/winch	2.22E-07	7.98E-07	1.77E-06	1.53E-05	2.66E-08	1.11E-06	1.86E-06	1.77E-06	1.33E-06	8.42E-07	4.43E-07	5.88E-04	1.29E-06	2.23E-04	2.23E-04	8.63E-03	2.35E-03	3.58E-04	1.73E-02
Generator Sets	2.12E-07	7.62E-07	1.69E-06	1.46E-05	2.54E-08	1.06E-06	1.78E-06	1.69E-06	1.27E-06	8.05E-07	4.24E-07	5.62E-04	1.23E-06	2.14E-04	2.14E-04	8.28E-03	2.25E-03	3.43E-04	1.66E-02
LDA-TOT	-	1.86E-07	-	2.61E-05	9.30E-09	1.86E-07	-	1.86E-07	-	1.86E-07	-	-	1.67E-04	-	1.69E-05	8.67E-06	7.68E-05	3.26E-05	4.90E-05
Dust	5.30E-08	4.89E-08	1.22E-08	2.17E-06	3.47E-09	6.04E-07	5.06E-07	3.26E-06	3.67E-08	4.89E-08	8.16E-09	1.28E-05	1.10E-05	2.90E-07	-	-	-	-	-
	9.90E-07	3.61E-06	7.51E-06	9.27E-05	1.25E-07	5.48E-06	8.38E-06	1.09E-05	5.66E-06	3.80E-06	1.88E-06	2.50E-03	3.45E-03	5.72E-06	9.60E-04	3.65E-02	1.00E-02	1.55E-03	7.30E-02
Hoist/swing/winch	5.04E-07	1.81E-06	4.03E-06	3.47E-05	6.04E-08	2.52E-06	4.23E-06	4.03E-06	3.02E-06	1.91E-06	1.01E-06	1.34E-03	1.76E-03	2.92E-06	5.06E-04	1.96E-02	5.33E-03	8.12E-04	3.92E-02
Hoist/swing/winch	2.15E-07	7.75E-07	1.72E-06	1.48E-05	2.58E-08	1.08E-06	1.81E-06	1.72E-06	1.29E-06	8.18E-07	4.31E-07	5.72E-04	7.51E-04	1.25E-06	2.20E-04	8.53E-03	2.32E-03	3.54E-04	1.71E-02
Generator Sets	3.58E-07	1.29E-06	2.87E-06	2.46E-05	4.30E-08	1.79E-06	3.01E-06	2.87E-06	2.15E-06	1.36E-06	7.16E-07	9.51E-04	1.25E-03	2.08E-06	3.46E-04	1.34E-02	3.64E-03	5.55E-04	2.68E-02
Generator Sets	2.67E-07	9.62E-07	2.14E-06	1.84E-05	3.21E-08	1.34E-06	2.25E-06	2.14E-06	1.60E-06	1.02E-06	5.35E-07	7.09E-04	9.32E-04	1.55E-06	2.30E-04	8.91E-03	2.42E-03	3.69E-04	1.78E-02
Hoist/swing/winch	4.43E-07	1.60E-06	3.55E-06	3.05E-05	5.32E-08	2.22E-06	3.72E-06	3.55E-06	2.66E-06	1.68E-06	8.87E-07	1.18E-03	1.55E-03	2.57E-06	4.46E-04	1.73E-02	4.70E-03	7.16E-04	3.45E-02
NA	8.20E-07	2.95E-06	6.56E-06	5.64E-05	9.84E-08	4.10E-06	6.89E-06	6.56E-06	4.92E-06	3.12E-06	1.64E-06	2.18E-03	2.86E-03	4.76E-06	-	-	5.68E-03	1.84E-04	2.63E-04
NA	1.47E-07	5.29E-07	1.18E-06	1.01E-05	1.76E-08	7.34E-07	1.23E-06	1.18E-06	8.81E-07	5.58E-07	2.94E-07	3.90E-04	5.12E-04	8.52E-07	-	-	1.70E-03	5.50E-05	7.86E-05
LDA-TOT	-	2.42E-07	-	3.39E-05	1.21E-08	2.42E-07	-	2.42E-07	-	2.42E-07	-	-	2.18E-04	-	2.20E-05	1.13E-05	9.98E-05	4.23E-05	6.37E-05
Dust	6.89E-08	6.36E-08	1.59E-08	2.83E-06	4.51E-09	7.85E-07	6.57E-07	4.24E-06	4.77E-08	6.36E-08	1.06E-08	1.66E-05	1.43E-05	3.76E-07	-	-	-	-	-
	2.82E-06	1.02E-05	2.21E-05	2.26E-04	3.47E-07	1.48E-05	2.38E-05	2.65E-05	1.66E-05	1.08E-05	5.52E-06	7.33E-03	9.84E-03	1.64E-05	1.77E-03	6.77E-02	2.59E-02	3.09E-03	1.36E-01
Hoist/swing/winch	5.04E-07	1.81E-06	4.03E-06	3.47E-05	6.04E-08	2.52E-06	4.23E-06	4.03E-06	3.02E-06	1.91E-06	1.01E-06	1.34E-03	1.76E-03	2.92E-06	5.06E-04	1.96E-02	5.33E-03	8.12E-04	3.92E-02
Hoist/swing/winch	4.43E-07	1.60E-06	3.55E-06	3.05E-05	5.32E-08	2.22E-06	3.72E-06	3.55E-06	2.66E-06	1.68E-06	8.87E-07	1.18E-03	1.55E-03	2.57E-06	4.46E-04	1.73E-02	4.70E-03	7.16E-04	3.45E-02
Excavators	3.13E-07	1.13E-06	2.50E-06	2.15E-05	3.76E-08	1.56E-06	2.63E-06	2.50E-06	1.88E-06	1.19E-06	6.26E-07	8.31E-04	1.09E-03	1.82E-06	2.61E-04	1.01E-02	2.75E-03	4.19E-04	2.02E-02
HHDT-DSL	8.27E-09	2.98E-08	6.61E-08	5.69E-07	9.92E-10	4.13E-08	6.94E-08	6.61E-08	4.96E-08	3.14E-08	1.65E-08	2.19E-05	2.88E-05	4.79E-08	5.27E-06	2.04E-04	5.55E-05	8.47E-06	4.08E-04
Dust	1.06E-08	9.79E-09	2.45E-09	4.35E-07	6.93E-10	1.21E-07	1.01E-07	6.53E-07	7.34E-09	9.79E-09	1.63E-09	2.55E-06	2.20E-06	5.79E-08	-	-	-	-	-
NA	8.20E-07	2.95E-06	6.56E-06	5.64E-05	9.84E-08	4.10E-06	6.89E-06	6.56E-06	4.92E-06	3.12E-06	1.64E-06	2.18E-03	2.86E-03	4.76E-06	-	-	5.68E-03	1.84E-04	2.63E-04
NA	1.47E-07	5.29E-07	1.18E-06	1.01E-05	1.76E-08	7.34E-07	1.23E-06	1.18E-06	8.81E-07	5.58E-07	2.94E-07	3.90E-04	5.12E-04	8.52E-07	-	-	1.70E-03	5.50E-05	7.86E-05
LDA-TOT	-	2.42E-07	-	3.39E-05	1.21E-08	2.42E-07	-	2.42E-07	-	2.42E-07	-	-	2.18E-04	-	2.20E-05	1.13E-05	9.98E-05	4.23E-05	6.37E-05
Dust	6.89E-08	6.36E-08	1.59E-08	2.83E-06	4.51E-09	7.85E-07	6.57E-07	4.24E-06	4.77E-08	6.36E-08	1.06E-08	1.66E-05	1.43E-05	3.76E-07	-	-	-	-	-
	2.31E-06	8.36E-06	1.79E-05	1.91E-04	2.86E-07	1.23E-05	1.95E-05	2.30E-05	1.35E-05	8.81E-06	4.48E-06	5.95E-03	8.03E-03	1.34E-05	1.24E-03	4.71E-02	2.03E-02	2.24E-03	9.47E-02
Hoist/swing/winch	5.04E-07	1.81E-06	4.03E-06	3.47E-05	6.04E-08	2.52E-06	4.23E-06	4.03E-06	3.02E-06	1.91E-06	1.01E-06	1.34E-03	1.76E-03	2.92E-06	5.06E-04	1.96E-02	5.33E-03	8.12E-04	3.92E-02
Hoist/swing/winch	4.43E-07	1.60E-06	3.55E-06	3.05E-05	5.32E-08	2.22E-06	3.72E-06	3.55E-06	2.66E-06	1.68E-06	8.87E-07	1.18E-03	1.55E-03	2.57E-06	4.46E-04	1.73E-02	4.70E-03	7.16E-04	3.45E-02
NA	8.20E-07	2.95E-06	6.56E-06	5.64E-05	9.84E-08	4.10E-06	6.89E-06	6.56E-06	4.92E-06	3.12E-06	1.64E-06	2.18E-03	2.86E-03	4.76E-06	-	-	5.68E-03	1.84E-04	2.63E-04
NA	1.47E-07	5.29E-07	1.18E-06	1.01E-05	1.76E-08	7.34E-07	1.23E-06	1.18E-06	8.81E-07	5.58E-07	2.94E-07	3.90E-04	5.12E-04	8.52E-07	-	-	1.70E-03	5.50E-05	7.86E-05
LDA-TOT	-	2.42E-07	-	3.39E-05	1.21E-08	2.42E-07	-	2.42E-07	-	2.42E-07	-	-	2.18E-04	-	2.20E-05	1.13E-05	9.98E-05	4.23E-05	6.37E-05
Dust	6.89E-08	6.36E-08	1.59E-08	2.83E-06	4.51E-09	7.85E-07	6.57E-07	4.24E-06	4.77E-08	6.36E-08	1.06E-08	1.66E-05	1.43E-05	3.76E-07	-	-	-	-	-
	1.98E-06	7.20E-06	1.53E-05	1.68E-04	2.46E-07	1.06E-05	1.67E-05	1.98E-05	1.15E-05	7.58E-06	3.84E-06	5.10E-03	6.90E-03	1.15E-05	9.74E-04	3.68E-02	1.75E-02	1.81E-03	7.41E-02
HHDT-DSL	5.79E-08	2.08E-07	4.63E-07	3.98E-06	6.94E-09	2.89E-07	4.86E-07	4.63E-07	3.47E-07	2.20E-07	1.16E-07	1.54E-04	2.02E-04	3.36E-07	3.69E-05	1.43E-03	3.89E-04	5.93E-05	2.86E-03
Dust	7.42E-08	6.85E-08	1.71E-08	3.04E-06	4.85E-09	8.45E-07	7.08E-07	4.57E-06	5.14E-08	6.85E-08	1.14E-08	1.79E-05	1.54E-05	4.05E-07	-	-	-	-	-

HRA Appendix - Attachment A

Offroad																			
Equipment	ARSENIC	BROMINE	CADMIUM	CHLORINE	CHROMIUM VI	COPPER	LEAD	1,30E-07	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	benzene	ethylbenzene	formaldehyde
Category	7440382	7726956	7440439	7782505	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414	50000
Graders	3.72E-07	1.34E-06	2.98E-06	2.56E-05	4.47E-08	1.86E-06	3.13E-06	2.98E-06	2.23E-06	1.41E-06	7.45E-07	9.88E-04	1.30E-03	2.16E-06	3.13E-04	1.21E-02	3.29E-03	5.02E-04	2.42E-02
Rollers	3.16E-07	1.14E-06	2.53E-06	2.17E-05	3.79E-08	1.58E-06	2.65E-06	2.53E-06	1.90E-06	1.20E-06	6.32E-07	8.39E-04	1.10E-03	1.83E-06	2.65E-04	1.03E-02	2.79E-03	4.26E-04	2.05E-02
LDA-TOT	-	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05	3.92E-05
Dust	4.24E-08	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-	-
	8.63E-07	2.94E-06	6.00E-06	7.70E-05	1.05E-07	5.21E-06	7.38E-06	1.33E-05	4.56E-06	3.09E-06	1.51E-06	2.01E-03	2.76E-03	4.96E-06	6.28E-04	2.38E-02	6.54E-03	1.01E-03	4.77E-02
Tractors/Loaders/Backhoes	2.65E-07	9.53E-07	2.12E-06	1.82E-05	3.18E-08	1.32E-06	2.22E-06	2.12E-06	1.59E-06	1.01E-06	5.30E-07	7.03E-04	9.23E-04	1.54E-06	2.15E-04	8.34E-03	2.27E-03	3.46E-04	1.67E-02
Trenchers	4.77E-07	1.72E-06	3.81E-06	3.28E-05	5.72E-08	2.38E-06	4.00E-06	3.81E-06	2.86E-06	1.81E-06	9.53E-07	1.26E-03	1.66E-03	2.76E-06	4.08E-04	1.58E-02	4.30E-03	6.55E-04	3.16E-02
LDT2-TOT	-	1.12E-07	-	1.57E-05	5.62E-09	1.12E-07	-	1.12E-07	-	1.12E-07	-	-	1.01E-04	-	7.99E-06	4.09E-06	3.62E-05	1.54E-05	2.31E-05
Dust	2.12E-08	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
LDA-TOT	-	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05	3.92E-05
Dust	4.24E-08	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-	-
	8.05E-07	2.99E-06	5.95E-06	9.02E-05	1.06E-07	4.69E-06	6.83E-06	1.01E-05	4.49E-06	3.14E-06	1.49E-06	1.98E-03	2.83E-03	4.65E-06	6.45E-04	2.41E-02	6.67E-03	1.04E-03	4.84E-02
Crushing/Proc. Equipment	5.11E-07	1.84E-06	4.09E-06	3.52E-05	6.13E-08	2.55E-06	4.29E-06	4.09E-06	3.07E-06	1.94E-06	1.02E-06	1.36E-03	1.78E-03	2.96E-06	4.24E-04	1.64E-02	4.47E-03	6.81E-04	3.28E-02
Rubber Tired Loaders	3.16E-07	1.14E-06	2.53E-06	2.17E-05	3.79E-08	1.58E-06	2.65E-06	2.53E-06	1.90E-06	1.20E-06	6.32E-07	8.39E-04	1.10E-03	1.83E-06	2.64E-04	1.02E-02	2.78E-03	4.24E-04	2.05E-02
HHDT-DSL	5.79E-08	2.08E-07	4.63E-07	3.98E-06	6.94E-09	2.89E-07	4.86E-07	4.63E-07	3.47E-07	2.20E-07	1.16E-07	1.54E-04	2.02E-04	3.36E-07	3.69E-05	1.43E-03	3.89E-04	5.93E-05	2.86E-03
Dust	7.42E-08	6.85E-08	1.71E-08	3.04E-06	4.85E-09	8.45E-07	7.08E-07	4.57E-06	5.14E-08	6.85E-08	1.14E-08	1.79E-05	1.54E-05	4.05E-07	-	-	-	-	-
HHDT-DSL	3.31E-08	1.19E-07	2.65E-07	2.28E-06	3.97E-09	1.65E-07	2.78E-07	2.65E-07	1.98E-07	1.26E-07	6.61E-08	8.78E-05	1.15E-04	1.92E-07	2.11E-05	8.16E-04	2.22E-04	3.39E-05	1.63E-03
Dust	4.24E-08	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-	-
LDT2-TOT	-	1.12E-07	-	1.57E-05	5.62E-09	1.12E-07	-	1.12E-07	-	1.12E-07	-	-	1.01E-04	-	7.99E-06	4.09E-06	3.62E-05	1.54E-05	2.31E-05
Dust	2.12E-08	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
LDA-TOT	-	1.86E-07	-	2.61E-05	9.30E-09	1.86E-07	-	1.86E-07	-	1.86E-07	-	-	1.67E-04	-	1.69E-05	8.67E-06	7.68E-05	3.26E-05	4.90E-05
Dust	5.30E-08	4.89E-08	1.22E-08	2.17E-06	3.47E-09	6.04E-07	5.06E-07	3.26E-06	3.67E-08	4.89E-08	8.16E-09	1.28E-05	1.10E-05	2.90E-07	-	-	-	-	-
	1.11E-06	3.78E-06	7.39E-06	1.13E-04	1.38E-07	7.06E-06	9.53E-06	1.94E-05	5.64E-06	3.96E-06	1.87E-06	2.48E-03	3.51E-03	6.37E-06	7.71E-04	2.89E-02	7.97E-03	1.25E-03	5.79E-02
Graders	3.72E-07	1.34E-06	2.98E-06	2.56E-05	4.47E-08	1.86E-06	3.13E-06	2.98E-06	2.23E-06	1.41E-06	7.45E-07	9.88E-04	1.30E-03	2.16E-06	3.13E-04	1.21E-02	3.29E-03	5.02E-04	2.42E-02
Rubber Tired Dozers	9.97E-07	3.59E-06	7.97E-06	6.86E-05	1.20E-07	4.98E-06	8.37E-06	7.97E-06	5.98E-06	3.79E-06	1.99E-06	2.64E-03	3.47E-03	5.78E-06	8.74E-04	3.38E-02	9.21E-03	1.40E-03	6.77E-02
Rollers	3.16E-07	1.14E-06	2.53E-06	2.17E-05	3.79E-08	1.58E-06	2.65E-06	2.53E-06	1.90E-06	1.20E-06	6.32E-07	8.39E-04	1.10E-03	1.83E-06	2.65E-04	1.03E-02	2.79E-03	4.26E-04	2.05E-02
	1.22E-05	1.78E-05	1.98E-05	2.16E-03	6.65E-06	7.01E-05	3.56E-04	5.84E-04	1.02E-05	3.86E-05	1.52E-06	1.89E-03	2.99E-03	1.68E-04	-	-	-	-	-
LDA-TOT	-	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05	3.92E-05
Dust	4.24E-08	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-	-
	1.39E-05	2.40E-05	3.33E-05	2.30E-03	6.86E-06	7.91E-05	3.70E-04	6.00E-04	2.03E-05	4.52E-05	4.90E-06	6.37E-03	9.01E-03	1.78E-04	1.47E-03	5.62E-02	1.54E-02	2.36E-03	1.12E-01
Tractors/Loaders/Backhoes	2.65E-07	9.53E-07	2.12E-06	1.82E-05	3.18E-08	1.32E-06	2.22E-06	2.12E-06	1.59E-06	1.01E-06	5.30E-07	7.03E-04	9.23E-04	1.54E-06	2.15E-04	8.34E-03	2.27E-03	3.46E-04	1.67E-02
Pavers	4.34E-07	1.56E-06	3.47E-06	2.99E-05	5.21E-08	2.17E-06	3.65E-06	3.47E-06	2.60E-06	1.65E-06	8.68E-07	1.15E-03	1.51E-03	2.52E-06	3.71E-04	1.44E-02	3.91E-03	5.96E-04	2.87E-02
HHDT-DSL	8.27E-09	2.98E-08	6.61E-08	5.69E-07	9.92E-10	4.13E-08	6.94E-08	6.61E-08	4.96E-08	3.14E-08	1.65E-08	2.19E-05	2.88E-05	4.79E-08	5.27E-06	2.04E-04	5.55E-05	8.47E-06	4.08E-04
Dust	1.06E-08	9.79E-09	2.45E-09	4.35E-07	6.93E-10	1.21E-07	1.01E-07	6.53E-07	7.34E-09	9.79E-09	1.63E-09	2.55E-06	2.20E-06	5.79E-08	-	-	-	-	-
LDT2-TOT	-	1.12E-07	-	1.57E-05	5.62E-09	1.12E-07	-	1.12E-07	-	1.12E-07	-	-	1.01E-04	-	7.99E-06	4.09E-06	3.62E-05	1.54E-05	2.31E-05
Dust	2.12E-08	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.52E-03	-
LDA-TOT	-	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05	3.92E-05
Dust	4.24E-08	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-	-
	7.81E-07	2.88E-06	5.67E-06	8.83E-05	1.03E-07	4.64E-06	6.65E-06	1.05E-05	4.29E-06	3.02E-06	1.43E-06	1.89E-03	2.72E-03	4.51E-06	6.13E-04	2.29E-02	6.33E-03	2.51E-03	4.59E-02

HRA Appendix - Attachment A

Offroad																			
Equipment	ARSENIC	BROMINE	CADMIUM	CHLORINE	CHROMIUM VI	COPPER	LEAD	1,30E-07	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	benzene	ethylbenzene	formaldehyde
Category	7440382	7726956	7440439	7782505	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414	50000
Trenchers	4.77E-07	1.72E-06	3.81E-06	3.28E-05	5.72E-08	2.38E-06	4.00E-06	3.81E-06	2.86E-06	1.81E-06	9.53E-07	1.26E-03	1.66E-03	2.76E-06	4.08E-04	1.58E-02	4.30E-03	6.55E-04	3.16E-02
LDA-TOT	-	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05	3.92E-05
Dust	4.24E-08	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-	-
	5.19E-07	1.90E-06	3.82E-06	5.54E-05	6.74E-08	3.01E-06	4.41E-06	6.57E-06	2.89E-06	2.00E-06	9.60E-07	1.27E-03	1.80E-03	3.00E-06	4.22E-04	1.58E-02	4.36E-03	6.81E-04	3.17E-02
HHDT-DSL	1.65E-08	5.95E-08	1.32E-07	1.14E-06	1.98E-09	8.27E-08	1.39E-07	1.32E-07	9.92E-08	6.28E-08	3.31E-08	4.39E-05	5.76E-05	9.59E-08	1.05E-05	4.08E-04	1.11E-04	1.69E-05	8.17E-04
Dust	2.12E-08	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
	3.77E-08	7.91E-08	1.37E-07	2.01E-06	3.37E-09	3.24E-07	3.41E-07	1.44E-06	1.14E-07	8.24E-08	3.63E-08	4.90E-05	6.20E-05	2.12E-07	1.05E-05	4.08E-04	1.11E-04	1.69E-05	8.17E-04
	3.21E-05	8.94E-05	1.70E-04	3.93E-03	9.18E-06	1.79E-04	5.27E-04	8.05E-04	1.23E-04	1.14E-04	3.92E-05	5.19E-02	7.13E-02	2.84E-04	1.49E-02	5.67E-01	1.77E-01	2.62E-02	1.14E+00
Cranes	1.67E-07	6.01E-07	1.33E-06	1.15E-05	2.00E-08	8.34E-07	1.40E-06	1.33E-06	1.00E-06	6.34E-07	3.34E-07	4.43E-04	5.82E-04	9.68E-07	1.73E-04	6.71E-03	1.83E-03	2.78E-04	1.34E-02
Hoist/swing/winch	2.22E-07	7.98E-07	1.77E-06	1.53E-05	2.66E-08	1.11E-06	1.86E-06	1.77E-06	1.33E-06	8.42E-07	4.43E-07	5.88E-04	7.73E-04	1.29E-06	2.23E-04	8.63E-03	2.35E-03	3.58E-04	1.73E-02
Concrete/Industrial Saws	1.28E-07	4.60E-07	1.02E-06	8.79E-06	1.53E-08	6.39E-07	1.07E-06	1.02E-06	7.67E-07	4.86E-07	2.56E-07	3.39E-04	4.45E-04	7.41E-07	1.95E-04	7.53E-03	2.05E-03	3.12E-04	1.51E-02
Rubber Tired Loaders	3.16E-07	1.14E-06	2.53E-06	2.17E-05	3.79E-08	1.58E-06	2.65E-06	2.53E-06	1.90E-06	1.20E-06	6.32E-07	8.39E-04	1.10E-03	1.83E-06	2.64E-04	1.02E-02	2.78E-03	4.24E-04	2.05E-02
LDA-TOT	-	1.86E-07	-	2.61E-05	9.30E-09	1.86E-07	-	1.86E-07	-	1.86E-07	-	-	1.67E-04	-	1.69E-05	8.67E-06	7.68E-05	3.26E-05	4.90E-05
Dust	5.30E-08	4.89E-08	1.22E-08	2.17E-06	3.47E-09	6.04E-07	5.06E-07	3.26E-06	3.67E-08	4.89E-08	8.16E-09	1.28E-05	1.10E-05	2.90E-07	-	-	-	-	-
	8.85E-07	3.23E-06	6.67E-06	8.55E-05	1.13E-07	4.95E-06	7.50E-06	1.01E-05	5.03E-06	3.40E-06	1.67E-06	2.22E-03	3.08E-03	5.12E-06	8.72E-04	3.31E-02	9.08E-03	1.41E-03	6.63E-02
Hoist/swing/winch	5.04E-07	1.81E-06	4.03E-06	3.47E-05	6.04E-08	2.52E-06	4.23E-06	4.03E-06	3.02E-06	1.91E-06	1.01E-06	1.34E-03	1.76E-03	2.92E-06	5.06E-04	1.96E-02	5.33E-03	8.12E-04	3.92E-02
Hoist/swing/winch	2.15E-07	7.75E-07	1.72E-06	1.48E-05	2.58E-08	1.08E-06	1.81E-06	1.72E-06	1.29E-06	8.18E-07	4.31E-07	5.72E-04	7.51E-04	1.25E-06	2.20E-04	8.53E-03	2.32E-03	3.54E-04	1.71E-02
Generator Sets	3.58E-07	1.29E-06	2.87E-06	2.46E-05	4.30E-08	1.79E-06	3.01E-06	2.87E-06	2.15E-06	1.36E-06	7.16E-07	9.51E-04	1.25E-03	2.08E-06	3.46E-04	1.34E-02	3.64E-03	5.55E-04	2.68E-02
Generator Sets	2.67E-07	9.62E-07	2.14E-06	1.84E-05	3.21E-08	1.34E-06	2.25E-06	2.14E-06	1.60E-06	1.02E-06	5.35E-07	7.09E-04	9.32E-04	1.55E-06	2.30E-04	8.91E-03	2.42E-03	3.69E-04	1.78E-02
Hoist/swing/winch	4.43E-07	1.60E-06	3.55E-06	3.05E-05	5.32E-08	2.22E-06	3.72E-06	3.55E-06	2.66E-06	1.68E-06	8.87E-07	1.18E-03	1.55E-03	2.57E-06	4.46E-04	1.73E-02	4.70E-03	7.16E-04	3.45E-02
NA	8.20E-07	2.95E-06	6.56E-06	5.64E-05	9.84E-08	4.10E-06	6.89E-06	6.56E-06	4.92E-06	3.12E-06	1.64E-06	2.18E-03	2.86E-03	4.76E-06	_____	_____	5.68E-03	1.84E-04	2.63E-04
NA	1.47E-07	5.29E-07	1.18E-06	1.01E-05	1.76E-08	7.34E-07	1.23E-06	1.18E-06	8.81E-07	5.58E-07	2.94E-07	3.90E-04	5.12E-04	8.52E-07	_____	_____	1.70E-03	5.50E-05	7.86E-05
LDA-TOT	-	2.42E-07	-	3.39E-05	1.21E-08	2.42E-07	-	2.42E-07	-	2.42E-07	-	-	2.18E-04	-	2.20E-05	1.13E-05	9.98E-05	4.23E-05	6.37E-05
Dust	6.89E-08	6.36E-08	1.59E-08	2.83E-06	4.51E-09	7.85E-07	6.57E-07	4.24E-06	4.77E-08	6.36E-08	1.06E-08	1.66E-05	1.43E-05	3.76E-07	-	-	-	-	-
	2.82E-06	1.02E-05	2.21E-05	2.26E-04	3.47E-07	1.48E-05	2.38E-05	2.65E-05	1.66E-05	1.08E-05	5.52E-06	7.33E-03	9.84E-03	1.64E-05	1.77E-03	6.77E-02	2.59E-02	3.09E-03	1.36E-01
Hoist/swing/winch	5.04E-07	1.81E-06	4.03E-06	3.47E-05	6.04E-08	2.52E-06	4.23E-06	4.03E-06	3.02E-06	1.91E-06	1.01E-06	1.34E-03	1.76E-03	2.92E-06	5.06E-04	1.96E-02	5.33E-03	8.12E-04	3.92E-02
Hoist/swing/winch	4.43E-07	1.60E-06	3.55E-06	3.05E-05	5.32E-08	2.22E-06	3.72E-06	3.55E-06	2.66E-06	1.68E-06	8.87E-07	1.18E-03	1.55E-03	2.57E-06	4.46E-04	1.73E-02	4.70E-03	7.16E-04	3.45E-02
Excavators	3.13E-07	1.13E-06	2.50E-06	2.15E-05	3.76E-08	1.56E-06	2.63E-06	2.50E-06	1.88E-06	1.19E-06	6.26E-07	8.31E-04	1.09E-03	1.82E-06	2.61E-04	1.01E-02	2.75E-03	4.19E-04	2.02E-02
HHDT-DSL	1.65E-08	5.95E-08	1.32E-07	1.14E-06	1.98E-09	8.27E-08	1.39E-07	1.32E-07	9.92E-08	6.28E-08	3.31E-08	4.39E-05	5.76E-05	9.59E-08	1.05E-05	4.08E-04	1.11E-04	1.69E-05	8.17E-04
Dust	2.12E-08	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
NA	8.20E-07	2.95E-06	6.56E-06	5.64E-05	9.84E-08	4.10E-06	6.89E-06	6.56E-06	4.92E-06	3.12E-06	1.64E-06	2.18E-03	2.86E-03	4.76E-06	_____	_____	5.68E-03	1.84E-04	2.63E-04
NA	1.47E-07	5.29E-07	1.18E-06	1.01E-05	1.76E-08	7.34E-07	1.23E-06	1.18E-06	8.81E-07	5.58E-07	2.94E-07	3.90E-04	5.12E-04	8.52E-07	_____	_____	1.70E-03	5.50E-05	7.86E-05
LDA-TOT	-	2.42E-07	-	3.39E-05	1.21E-08	2.42E-07	-	2.42E-07	-	2.42E-07	-	-	2.18E-04	-	2.20E-05	1.13E-05	9.98E-05	4.23E-05	6.37E-05
Dust	6.89E-08	6.36E-08	1.59E-08	2.83E-06	4.51E-09	7.85E-07	6.57E-07	4.24E-06	4.77E-08	6.36E-08	1.06E-08	1.66E-05	1.43E-05	3.76E-07	-	-	-	-	-
	2.33E-06	8.40E-06	1.80E-05	1.92E-04	2.87E-07	1.25E-05	1.97E-05	2.37E-05	1.35E-05	8.85E-06	4.50E-06	5.98E-03	8.06E-03	1.35E-05	1.25E-03	4.73E-02	2.04E-02	2.24E-03	9.51E-02
Hoist/swing/winch	5.04E-07	1.81E-06	4.03E-06	3.47E-05	6.04E-08	2.52E-06	4.23E-06	4.03E-06	3.02E-06	1.91E-06	1.01E-06	1.34E-03	1.76E-03	2.92E-06	5.06E-04	1.96E-02	5.33E-03	8.12E-04	3.92E-02

HRA Appendix - Attachment A

Offroad																			
Equipment	ARSENIC	BROMINE	CADMIUM	CHLORINE	CHROMIUM VI	COPPER	LEAD	1,30E-07	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	benzene	ethylbenzene	formaldehyde
Category	7440382	7726956	7440439	7782505	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414	50000
Hoist/swing/winch	4.43E-07	1.60E-06	3.55E-06	3.05E-05	5.32E-08	2.22E-06	3.72E-06	3.55E-06	2.66E-06	1.68E-06	8.87E-07	1.18E-03	1.55E-03	2.57E-06	4.46E-04	1.73E-02	4.70E-03	7.16E-04	3.45E-02
NA	<u>8.20E-07</u>	<u>2.95E-06</u>	<u>6.56E-06</u>	<u>5.64E-05</u>	<u>9.84E-08</u>	<u>4.10E-06</u>	<u>6.89E-06</u>	<u>6.56E-06</u>	<u>4.92E-06</u>	<u>3.12E-06</u>	<u>1.64E-06</u>	<u>2.18E-03</u>	<u>2.86E-03</u>	<u>4.76E-06</u>	-	-	<u>5.68E-03</u>	<u>1.84E-04</u>	<u>2.63E-04</u>
NA	<u>1.47E-07</u>	<u>5.29E-07</u>	<u>1.18E-06</u>	<u>1.01E-05</u>	<u>1.76E-08</u>	<u>7.34E-07</u>	<u>1.23E-06</u>	<u>1.18E-06</u>	<u>8.81E-07</u>	<u>5.58E-07</u>	<u>2.94E-07</u>	<u>3.90E-04</u>	<u>5.12E-04</u>	<u>8.52E-07</u>	-	-	<u>1.70E-03</u>	<u>5.50E-05</u>	<u>7.86E-05</u>
LDA-TOT	-	2.42E-07	-	3.39E-05	1.21E-08	2.42E-07	-	2.42E-07	-	2.42E-07	-	-	2.18E-04	-	2.20E-05	1.13E-05	9.98E-05	4.23E-05	6.37E-05
Dust	6.89E-08	6.36E-08	1.59E-08	2.83E-06	4.51E-09	7.85E-07	6.57E-07	4.24E-06	4.77E-08	6.36E-08	1.06E-08	1.66E-05	1.43E-05	3.76E-07	-	-	-	-	-
	<u>1.98E-06</u>	<u>7.20E-06</u>	<u>1.53E-05</u>	<u>1.68E-04</u>	<u>2.46E-07</u>	<u>1.06E-05</u>	<u>1.67E-05</u>	<u>1.98E-05</u>	<u>1.15E-05</u>	<u>7.58E-06</u>	<u>3.84E-06</u>	<u>5.10E-03</u>	<u>6.90E-03</u>	<u>1.15E-05</u>	<u>9.74E-04</u>	<u>3.68E-02</u>	<u>1.75E-02</u>	<u>1.81E-03</u>	<u>7.41E-02</u>
Hoist/swing/winch	5.04E-07	1.81E-06	4.03E-06	3.47E-05	6.04E-08	2.52E-06	4.23E-06	4.03E-06	3.02E-06	1.91E-06	1.01E-06	1.34E-03	1.76E-03	2.92E-06	5.06E-04	1.96E-02	5.33E-03	8.12E-04	3.92E-02
Hoist/swing/winch	2.22E-07	7.98E-07	1.77E-06	1.53E-05	2.66E-08	1.11E-06	1.86E-06	1.77E-06	1.33E-06	8.42E-07	4.43E-07	5.88E-04	7.73E-04	1.29E-06	2.23E-04	8.63E-03	2.35E-03	3.58E-04	1.73E-02
Generator Sets	2.12E-07	7.62E-07	1.69E-06	1.46E-05	2.54E-08	1.06E-06	1.78E-06	1.69E-06	1.27E-06	8.05E-07	4.24E-07	5.62E-04	7.38E-04	1.23E-06	2.14E-04	8.28E-03	2.25E-03	3.43E-04	1.66E-02
LDA-TOT	-	1.86E-07	-	2.61E-05	9.30E-09	1.86E-07	-	1.86E-07	-	1.86E-07	-	1.67E-04	-	1.67E-04	-	1.69E-05	8.67E-06	7.68E-05	4.90E-05
Dust	5.30E-08	4.89E-08	1.22E-08	2.17E-06	3.47E-09	6.04E-07	5.06E-07	3.26E-06	3.67E-08	4.89E-08	8.16E-09	1.28E-05	1.10E-05	2.90E-07	-	-	-	-	-
	<u>9.90E-07</u>	<u>3.61E-06</u>	<u>7.51E-06</u>	<u>9.27E-05</u>	<u>1.25E-07</u>	<u>5.48E-06</u>	<u>8.38E-06</u>	<u>1.09E-05</u>	<u>5.66E-06</u>	<u>3.80E-06</u>	<u>1.88E-06</u>	<u>2.50E-03</u>	<u>3.45E-03</u>	<u>5.72E-06</u>	<u>9.60E-04</u>	<u>3.65E-02</u>	<u>1.00E-02</u>	<u>1.55E-03</u>	<u>7.30E-02</u>
Excavators	3.13E-07	1.13E-06	2.50E-06	2.15E-05	3.76E-08	1.56E-06	2.63E-06	2.50E-06	1.88E-06	1.19E-06	6.26E-07	8.31E-04	1.09E-03	1.82E-06	2.61E-04	1.01E-02	2.75E-03	4.19E-04	2.02E-02
Rubber Tired Loaders	3.16E-07	1.14E-06	2.53E-06	2.17E-05	3.79E-08	1.58E-06	2.65E-06	2.53E-06	1.90E-06	1.20E-06	6.32E-07	8.39E-04	1.10E-03	1.83E-06	2.64E-04	1.02E-02	2.78E-03	4.24E-04	2.05E-02
HHDT-DSL	1.65E-08	5.95E-08	1.32E-07	1.14E-06	1.98E-09	8.27E-08	1.39E-07	1.32E-07	9.92E-08	6.28E-08	3.31E-08	4.39E-05	5.76E-05	9.59E-08	1.05E-05	4.08E-04	1.11E-04	1.69E-05	8.17E-04
Dust	2.12E-08	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
	3.00E-08	4.38E-08	4.88E-08	5.31E-06	1.64E-08	1.73E-07	8.76E-07	1.44E-06	2.50E-08	9.50E-08	3.75E-09	4.64E-06	7.37E-06	4.14E-07	-	-	-	-	-
LDA-TOT	-	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05	3.92E-05	3.92E-05
Dust	4.24E-08	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-	-
	<u>7.39E-07</u>	<u>2.58E-06</u>	<u>5.23E-06</u>	<u>7.32E-05</u>	<u>1.05E-07</u>	<u>4.27E-06</u>	<u>6.91E-06</u>	<u>1.07E-05</u>	<u>3.94E-06</u>	<u>2.76E-06</u>	<u>1.30E-06</u>	<u>1.73E-03</u>	<u>2.40E-03</u>	<u>4.51E-06</u>	<u>5.49E-04</u>	<u>2.07E-02</u>	<u>5.70E-03</u>	<u>8.86E-04</u>	<u>4.15E-02</u>
HHDT-DSL	7.44E-08	2.68E-07	5.95E-07	5.12E-06	8.93E-09	3.72E-07	6.25E-07	5.95E-07	4.46E-07	2.83E-07	1.49E-07	1.97E-04	2.59E-04	4.32E-07	4.75E-05	1.84E-03	5.00E-04	7.62E-05	3.68E-03
Dust	9.54E-08	8.81E-08	2.20E-08	3.91E-06	6.24E-09	1.09E-06	9.10E-07	5.87E-06	6.61E-08	8.81E-08	1.47E-08	2.30E-05	1.98E-05	5.21E-07	-	-	-	-	-
Graders	3.72E-07	1.34E-06	2.98E-06	2.56E-05	4.47E-08	1.86E-06	3.13E-06	2.98E-06	2.23E-06	1.41E-06	7.45E-07	9.88E-04	1.30E-03	2.16E-06	3.13E-04	1.21E-02	3.29E-03	5.02E-04	2.42E-02
Rollers	3.16E-07	1.14E-06	2.53E-06	2.17E-05	3.79E-08	1.58E-06	2.65E-06	2.53E-06	1.90E-06	1.20E-06	6.32E-07	8.39E-04	1.10E-03	1.83E-06	2.65E-04	1.03E-02	2.79E-03	4.26E-04	2.05E-02
LDA-TOT	-	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05	3.92E-05	3.92E-05
Dust	4.24E-08	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-	-
	<u>9.01E-07</u>	<u>3.02E-06</u>	<u>6.13E-06</u>	<u>7.90E-05</u>	<u>1.08E-07</u>	<u>5.53E-06</u>	<u>7.72E-06</u>	<u>1.47E-05</u>	<u>4.67E-06</u>	<u>3.17E-06</u>	<u>1.55E-06</u>	<u>2.06E-03</u>	<u>2.82E-03</u>	<u>5.18E-06</u>	<u>6.39E-04</u>	<u>2.42E-02</u>	<u>6.65E-03</u>	<u>1.03E-03</u>	<u>4.85E-02</u>
Tractors/Loaders/Backhoes	2.65E-07	9.53E-07	2.12E-06	1.82E-05	3.18E-08	1.32E-06	2.22E-06	2.12E-06	1.59E-06	1.01E-06	5.30E-07	7.03E-04	9.23E-04	1.54E-06	2.15E-04	8.34E-03	2.27E-03	3.46E-04	1.67E-02
Trenchers	4.77E-07	1.72E-06	3.81E-06	3.28E-05	5.72E-08	2.38E-06	4.00E-06	3.81E-06	2.86E-06	1.81E-06	9.53E-07	1.26E-03	1.66E-03	2.76E-06	4.08E-04	1.58E-02	4.30E-03	6.55E-04	3.16E-02
LDT2-TOT	-	1.65E-06	-	2.31E-04	8.27E-08	1.65E-06	-	1.65E-06	-	1.65E-06	-	-	1.49E-03	-	2.87E-05	1.47E-05	1.30E-04	5.52E-05	8.32E-05
Dust	2.12E-08	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
LDA-TOT	-	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05	3.92E-05	3.92E-05
Dust	4.24E-08	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-	-
	<u>8.05E-07</u>	<u>4.53E-06</u>	<u>5.95E-06</u>	<u>3.06E-04</u>	<u>1.83E-07</u>	<u>6.23E-06</u>	<u>6.83E-06</u>	<u>1.16E-05</u>	<u>4.49E-06</u>	<u>4.68E-06</u>	<u>1.49E-06</u>	<u>1.98E-03</u>	<u>4.22E-03</u>	<u>4.65E-06</u>	<u>6.66E-04</u>	<u>2.42E-02</u>	<u>6.76E-03</u>	<u>1.08E-03</u>	<u>4.84E-02</u>
Concrete/Industrial Saws	3.42E-07	1.23E-06	2.73E-06	2.35E-05	4.10E-08	1.71E-06	2.87E-06	2.73E-06	2.05E-06	1.30E-06	6.84E-07	9.07E-04	1.19E-03	1.98E-06	2.37E-04	9.16E-03	2.49E-03	3.80E-04	1.83E-02
Rubber Tired Loaders	3.16E-07	1.14E-06	2.53E-06	2.17E-05	3.79E-08	1.58E-06	2.65E-06	2.53E-06	1.90E-06	1.20E-06	6.32E-07	8.39E-04	1.10E-03	1.83E-06	2.64E-04	1.02E-02	2.78E-03	4.24E-04	2.05E-02
HHDT-DSL	2.31E-07	8.33E-07	1.85E-06	1.59E-05	2.78E-08	1.16E-06	1.94E-06	1.85E-06	1.39E-06	8.80E-07	4.63E-07	6.14E-04	8.07E-04	1.34E-06	1.48E-04	5.71E-03	1.56E-03	2.37E-04	1.14E-02
Dust	2.97E-07	2.74E-07	6.85E-08	1.22E-05	1.94E-08	3.38E-06	2.83E-06	1.83E-05	2.06E-07	2.74E-07	4.57E-08	7.15E-05	6.15E-05	1.62E-06	-	-	-	-	-
HHDT-DSL	<u>3.31E-08</u>	<u>1.19E-07</u>	<u>2.65E-07</u>	<u>2.28E-06</u>	<u>3.97E-09</u>	<u>1.65E-07</u>	<u>2.78E-07</u>	<u>2.65E-07</u>	<u>1.98E-07</u>	<u>1.26E-07</u>	<u>6.61E-08</u>	<u>8.78E-05</u>	<u>1.15E-04</u>	<u>1.92E-07</u>	<u>2.11E-05</u>	<u>8.16E-04</u>	<u>2.22E-04</u>	<u>3.39E-05</u>	<u>1.63E-03</u>
Dust	4.24E-08	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-	-
LDT2-TOT	-	1.12E-07	-	1.57E-05	5.62E-09	1.12E-07	-	1.12E-07	-	1.12E-07	-	-	1.01E-04	-	7.99E-06	4.09E-06	3.62E-05	1.54E-05	2.31E-05

HRA Appendix - Attachment A

Offroad																			
Equipment																			
	ARSENIC	BROMINE	CADMIUM	CHLORINE	CHROMIUM VI	COPPER	LEAD	1,30E-07	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	benzene	ethylbenzene	formaldehyde
Category	7440382	7726956	7440439	7782505	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414	50000
Dust	2.12E-08	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
LDA-TOT	-	1.86E-07	-	2.61E-05	9.30E-09	1.86E-07	-	1.86E-07	-	1.86E-07	-	-	1.67E-04	-	1.69E-05	8.67E-06	7.68E-05	3.26E-05	4.90E-05
Dust	5.30E-08	4.89E-08	1.22E-08	2.17E-06	3.47E-09	6.04E-07	5.06E-07	3.26E-06	3.67E-08	4.89E-08	8.16E-09	1.28E-05	1.10E-05	2.90E-07	-	-	-	-	-
	1.34E-06	4.00E-06	7.47E-06	1.22E-04	1.53E-07	9.62E-06	1.17E-05	3.31E-05	5.82E-06	4.19E-06	1.91E-06	2.55E-03	3.57E-03	7.61E-06	6.95E-04	2.59E-02	7.17E-03	1.12E-03	5.19E-02
Graders	3.72E-07	1.34E-06	2.98E-06	2.56E-05	4.47E-08	1.86E-06	3.13E-06	2.98E-06	2.23E-06	1.41E-06	7.45E-07	9.88E-04	1.30E-03	2.16E-06	3.13E-04	1.21E-02	3.29E-03	5.02E-04	2.42E-02
Rubber Tired Dozers	9.97E-07	3.59E-06	7.97E-06	6.86E-05	1.20E-07	4.98E-06	8.37E-06	7.97E-06	5.98E-06	3.79E-06	1.99E-06	2.64E-03	3.47E-03	5.78E-06	8.74E-04	3.38E-02	9.21E-03	1.40E-03	6.77E-02
Rollers	3.16E-07	1.14E-06	2.53E-06	2.17E-05	3.79E-08	1.58E-06	2.65E-06	2.53E-06	1.90E-06	1.20E-06	6.32E-07	8.39E-04	1.10E-03	1.83E-06	2.65E-04	1.03E-02	2.79E-03	4.26E-04	2.05E-02
	1.22E-05	1.78E-05	1.98E-05	2.16E-03	6.65E-06	7.01E-05	3.56E-04	5.84E-04	1.02E-05	3.86E-05	1.52E-06	1.89E-03	2.99E-03	1.68E-04	-	-	-	-	-
LDA-TOT	-	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05	3.92E-05
Dust	4.24E-08	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-	-
	1.39E-05	2.40E-05	3.33E-05	2.30E-03	6.86E-06	7.91E-05	3.70E-04	6.00E-04	2.03E-05	4.52E-05	4.90E-06	6.37E-03	9.01E-03	1.78E-04	1.47E-03	5.62E-02	1.54E-02	2.36E-03	1.12E-01
Tractors/Loaders/Backhoes	2.65E-07	9.53E-07	2.12E-06	1.82E-05	3.18E-08	1.32E-06	2.22E-06	2.12E-06	1.59E-06	1.01E-06	5.30E-07	7.03E-04	9.23E-04	1.54E-06	2.15E-04	8.34E-03	2.27E-03	3.46E-04	1.67E-02
Pavers	4.34E-07	1.56E-06	3.47E-06	2.99E-05	5.21E-08	2.17E-06	3.65E-06	3.47E-06	2.60E-06	1.65E-06	8.68E-07	1.15E-03	1.51E-03	2.52E-06	3.71E-04	1.44E-02	3.91E-03	5.96E-04	2.87E-02
HHDT-DSL	8.27E-09	2.98E-08	6.61E-08	5.69E-07	9.92E-10	4.13E-08	6.94E-08	6.61E-08	4.96E-08	3.14E-08	1.65E-08	2.19E-05	2.88E-05	4.79E-08	5.27E-06	2.04E-04	5.55E-05	8.47E-06	4.08E-04
Dust	1.06E-08	9.79E-09	2.45E-09	4.35E-07	6.93E-10	1.21E-07	1.01E-07	6.53E-07	7.34E-09	9.79E-09	1.63E-09	2.55E-06	2.20E-06	5.79E-08	-	-	-	-	-
LDT2-TOT	-	1.12E-07	-	1.57E-05	5.62E-09	1.12E-07	-	1.12E-07	-	1.12E-07	-	-	1.01E-04	-	7.99E-06	4.09E-06	3.62E-05	1.54E-05	2.31E-05
Dust	2.12E-08	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.52E-03	-
LDA-TOT	-	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05	3.92E-05
Dust	4.24E-08	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-	-
	7.81E-07	2.88E-06	5.67E-06	8.83E-05	1.03E-07	4.64E-06	6.65E-06	1.05E-05	4.29E-06	3.02E-06	1.43E-06	1.89E-03	2.72E-03	4.51E-06	6.13E-04	2.29E-02	6.33E-03	2.51E-03	4.59E-02
Trenchers	4.77E-07	1.72E-06	3.81E-06	3.28E-05	5.72E-08	2.38E-06	4.00E-06	3.81E-06	2.86E-06	1.81E-06	9.53E-07	1.26E-03	1.66E-03	2.76E-06	4.08E-04	1.58E-02	4.30E-03	6.55E-04	3.16E-02
LDA-TOT	-	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05	3.92E-05
Dust	4.24E-08	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-	-
	5.19E-07	1.90E-06	3.82E-06	5.54E-05	6.74E-08	3.01E-06	4.41E-06	6.57E-06	2.89E-06	2.00E-06	9.60E-07	1.27E-03	1.80E-03	3.00E-06	4.22E-04	1.58E-02	4.36E-03	6.81E-04	3.17E-02
HHDT-DSL	1.65E-08	5.95E-08	1.32E-07	1.14E-06	1.98E-09	8.27E-08	1.39E-07	1.32E-07	9.92E-08	6.28E-08	3.31E-08	4.39E-05	5.76E-05	9.59E-08	1.05E-05	4.08E-04	1.11E-04	1.69E-05	8.17E-04
Dust	2.12E-08	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
	3.77E-08	7.91E-08	1.37E-07	2.01E-06	3.37E-09	3.24E-07	3.41E-07	1.44E-06	1.14E-07	8.24E-08	3.63E-08	4.90E-05	6.20E-05	2.12E-07	1.05E-05	4.08E-04	1.11E-04	1.69E-05	8.17E-04
	2.80E-05	7.57E-05	1.37E-04	3.79E-03	8.70E-06	1.61E-04	4.91E-04	7.80E-04	9.88E-05	9.95E-05	3.10E-05	4.10E-02	5.79E-02	2.60E-04	1.09E-02	4.12E-01	1.35E-01	1.98E-02	8.26E-01
Excavators	3.13E-07	1.13E-06	2.50E-06	2.15E-05	3.76E-08	1.56E-06	2.63E-06	2.50E-06	1.88E-06	1.19E-06	6.26E-07	8.31E-04	1.09E-03	1.82E-06	2.61E-04	1.01E-02	2.75E-03	4.19E-04	2.02E-02
Rubber Tired Loaders	3.16E-07	1.14E-06	2.53E-06	2.17E-05	3.79E-08	1.58E-06	2.65E-06	2.53E-06	1.90E-06	1.20E-06	6.32E-07	8.39E-04	1.10E-03	1.83E-06	2.64E-04	1.02E-02	2.78E-03	4.24E-04	2.05E-02
HHDT-DSL	1.65E-08	5.95E-08	1.32E-07	1.14E-06	1.98E-09	8.27E-08	1.39E-07	1.32E-07	9.92E-08	6.28E-08	3.31E-08	4.39E-05	5.76E-05	9.59E-08	1.05E-05	4.08E-04	1.11E-04	1.69E-05	8.17E-04
Dust	2.12E-08	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
	3.00E-07	4.38E-07	4.88E-07	5.31E-05	1.64E-07	1.73E-06	8.76E-06	1.44E-05	2.50E-07	9.50E-07	3.75E-08	4.64E-05	7.37E-05	4.14E-06	-	-	-	-	-
LDA-TOT	-	1.86E-07	-	2.61E-05	9.30E-09	1.86E-07	-	1.86E-07	-	1.86E-07	-	-	1.67E-04	-	1.69E-05	8.67E-06	7.68E-05	3.26E-05	4.90E-05
Dust	5.30E-08	4.89E-08	1.22E-08	2.17E-06	3.47E-09	6.04E-07	5.06E-07	3.26E-06	3.67E-08	4.89E-08	8.16E-09	1.28E-05	1.10E-05	2.90E-07	-	-	-	-	-
	1.02E-06	3.02E-06	5.67E-06	1.27E-04	2.55E-07	5.98E-06	1.49E-05	2.43E-05	4.17E-06	3.66E-06	1.34E-06	1.78E-03	2.51E-03	8.29E-06	5.53E-04	2.07E-02	5.72E-03	8.93E-04	4.15E-02

HRA Appendix - Attachment A

Offroad																			
Equipment	ARSENIC	BROMINE	CADMIUM	CHLORINE	CHROMIUM VI	COPPER	LEAD	1,30E-07	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	benzene	ethylbenzene	formaldehyde
Category	7440382	7726956	7440439	7782505	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414	50000
HHDT-DSL	1.16E-07	4.17E-07	9.26E-07	7.96E-06	1.39E-08	5.79E-07	9.72E-07	9.26E-07	6.94E-07	4.40E-07	2.31E-07	3.07E-04	4.03E-04	6.71E-07	7.38E-05	2.86E-03	7.78E-04	1.19E-04	5.72E-03
Dust	1.48E-07	1.37E-07	3.43E-08	6.09E-06	9.71E-09	1.69E-06	1.42E-06	9.14E-06	1.03E-07	1.37E-07	2.28E-08	3.58E-05	3.07E-05	8.11E-07	-	-	-	-	-
Graders	3.72E-07	1.34E-06	2.98E-06	2.56E-05	4.47E-08	1.86E-06	3.13E-06	2.98E-06	2.23E-06	1.41E-06	7.45E-07	9.88E-04	1.30E-03	2.16E-06	3.13E-04	1.21E-02	3.29E-03	5.02E-04	2.42E-02
Rollers	3.16E-07	1.14E-06	2.53E-06	2.17E-05	3.79E-08	1.58E-06	2.65E-06	2.53E-06	1.90E-06	1.20E-06	6.32E-07	8.39E-04	1.10E-03	1.83E-06	2.65E-04	1.03E-02	2.79E-03	4.26E-04	2.05E-02
LDA-TOT	-	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05	3.92E-05
Dust	4.24E-08	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-	-
	9.95E-07	3.22E-06	6.48E-06	8.40E-05	1.16E-07	6.34E-06	8.57E-06	1.83E-05	4.96E-06	3.38E-06	1.64E-06	2.18E-03	2.98E-03	5.71E-06	6.65E-04	2.52E-02	6.93E-03	1.07E-03	5.05E-02
Tractors/Loaders/Backhoes	2.65E-07	9.53E-07	2.12E-06	1.82E-05	3.18E-08	1.32E-06	2.22E-06	2.12E-06	1.59E-06	1.01E-06	5.30E-07	7.03E-04	9.23E-04	1.54E-06	2.15E-04	8.34E-03	2.27E-03	3.46E-04	1.67E-02
Trenchers	4.77E-07	1.72E-06	3.81E-06	3.28E-05	5.72E-08	2.38E-06	4.00E-06	3.81E-06	2.86E-06	1.81E-06	9.53E-07	1.26E-03	1.66E-03	2.76E-06	4.08E-04	1.58E-02	4.30E-03	6.55E-04	3.16E-02
LDT2-TOT	-	1.12E-07	-	1.57E-05	5.62E-09	1.12E-07	-	1.12E-07	-	1.12E-07	-	-	1.01E-04	-	7.99E-06	4.09E-06	3.62E-05	1.54E-05	2.31E-05
Dust	2.12E-08	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
LDA-TOT	-	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05	3.92E-05
Dust	4.24E-08	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-	-
	8.05E-07	2.99E-06	5.95E-06	9.02E-05	1.06E-07	4.69E-06	6.83E-06	1.01E-05	4.49E-06	3.14E-06	1.49E-06	1.98E-03	2.83E-03	4.65E-06	6.45E-04	2.41E-02	6.67E-03	1.04E-03	4.84E-02
Concrete/Industrial Saws	3.42E-07	1.23E-06	2.73E-06	2.35E-05	4.10E-08	1.71E-06	2.87E-06	2.73E-06	2.05E-06	1.30E-06	6.84E-07	9.07E-04	1.19E-03	1.98E-06	2.37E-04	9.16E-03	2.49E-03	3.80E-04	1.83E-02
Rubber Tired Loaders	3.16E-07	1.14E-06	2.53E-06	2.17E-05	3.79E-08	1.58E-06	2.65E-06	2.53E-06	1.90E-06	1.20E-06	6.32E-07	8.39E-04	1.10E-03	1.83E-06	2.64E-04	1.02E-02	2.78E-03	4.24E-04	2.05E-02
HHDT-DSL	2.31E-07	8.33E-07	1.85E-06	1.59E-05	2.78E-08	1.16E-06	1.94E-06	1.85E-06	1.39E-06	8.80E-07	4.63E-07	6.14E-04	8.07E-04	1.34E-06	1.48E-04	5.71E-03	1.56E-03	2.37E-04	1.14E-02
Dust	2.97E-07	2.74E-07	6.85E-08	1.22E-05	1.94E-08	3.38E-06	2.83E-06	1.83E-05	2.06E-07	2.74E-07	4.57E-08	7.15E-05	6.15E-05	1.62E-06	-	-	-	-	-
HHDT-DSL	7.44E-08	2.68E-07	5.95E-07	5.12E-06	8.93E-09	3.72E-07	6.25E-07	5.95E-07	4.46E-07	2.83E-07	1.49E-07	1.97E-04	2.59E-04	4.32E-07	4.75E-05	1.84E-03	5.00E-04	7.62E-05	3.68E-03
Dust	9.54E-08	8.81E-08	2.20E-08	3.91E-06	6.24E-09	1.09E-06	9.10E-07	5.87E-06	6.61E-08	8.81E-08	1.47E-08	2.30E-05	1.98E-05	5.21E-07	-	-	-	-	-
LDT2-TOT	-	1.12E-07	-	1.57E-05	5.62E-09	1.12E-07	-	1.12E-07	-	1.12E-07	-	-	1.01E-04	-	7.99E-06	4.09E-06	3.62E-05	1.54E-05	2.31E-05
Dust	2.12E-08	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
LDA-TOT	-	1.86E-07	-	2.61E-05	9.30E-09	1.86E-07	-	1.86E-07	-	1.86E-07	-	-	1.67E-04	-	1.69E-05	8.67E-06	7.68E-05	3.26E-05	4.90E-05
Dust	5.30E-08	4.89E-08	1.22E-08	2.17E-06	3.47E-09	6.04E-07	5.06E-07	3.26E-06	3.67E-08	4.89E-08	8.16E-09	1.28E-05	1.10E-05	2.90E-07	-	-	-	-	-
	1.43E-06	4.20E-06	7.82E-06	1.27E-04	1.61E-07	1.04E-05	1.25E-05	3.67E-05	6.11E-06	4.39E-06	2.00E-06	2.67E-03	3.72E-03	8.14E-06	7.21E-04	2.70E-02	7.45E-03	1.17E-03	5.40E-02
Graders	3.72E-07	1.34E-06	2.98E-06	2.56E-05	4.47E-08	1.86E-06	3.13E-06	2.98E-06	2.23E-06	1.41E-06	7.45E-07	9.88E-04	1.30E-03	2.16E-06	3.13E-04	1.21E-02	3.29E-03	5.02E-04	2.42E-02
Rubber Tired Dozers	9.97E-07	3.59E-06	7.97E-06	6.86E-05	1.20E-07	4.98E-06	8.37E-06	7.97E-06	5.98E-06	3.79E-06	1.99E-06	2.64E-03	3.47E-03	5.78E-06	8.74E-04	3.38E-02	9.21E-03	1.40E-03	6.77E-02
Rollers	3.16E-07	1.14E-06	2.53E-06	2.17E-05	3.79E-08	1.58E-06	2.65E-06	2.53E-06	1.90E-06	1.20E-06	6.32E-07	8.39E-04	1.10E-03	1.83E-06	2.65E-04	1.03E-02	2.79E-03	4.26E-04	2.05E-02
	1.22E-05	1.78E-05	1.98E-05	2.16E-03	6.65E-06	7.01E-05	3.56E-04	5.84E-04	1.02E-05	3.86E-05	1.52E-06	1.89E-03	2.99E-03	1.68E-04	-	-	-	-	-
LDA-TOT	-	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05	3.92E-05
Dust	4.24E-08	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-	-
	1.39E-05	2.40E-05	3.33E-05	2.30E-03	6.86E-06	7.91E-05	3.70E-04	6.00E-04	2.03E-05	4.52E-05	4.90E-06	6.37E-03	9.01E-03	1.78E-04	1.47E-03	5.62E-02	1.54E-02	2.36E-03	1.12E-01
Tractors/Loaders/Backhoes	2.65E-07	9.53E-07	2.12E-06	1.82E-05	3.18E-08	1.32E-06	2.22E-06	2.12E-06	1.59E-06	1.01E-06	5.30E-07	7.03E-04	9.23E-04	1.54E-06	2.15E-04	8.34E-03	2.27E-03	3.46E-04	1.67E-02
Pavers	4.34E-07	1.56E-06	3.47E-06	2.99E-05	5.21E-08	2.17E-06	3.65E-06	3.47E-06	2.60E-06	1.65E-06	8.68E-07	1.15E-03	1.51E-03	2.52E-06	3.71E-04	1.44E-02	3.91E-03	5.96E-04	2.87E-02
HHDT-DSL	8.27E-09	2.98E-08	6.61E-08	5.69E-07	9.92E-10	4.13E-08	6.94E-08	6.61E-08	4.96E-08	3.14E-08	1.65E-08	2.19E-05	2.88E-05	4.79E-08	5.27E-06	2.04E-04	5.55E-05	8.47E-06	4.08E-04
Dust	1.06E-08	9.79E-09	2.45E-09	4.35E-07	6.93E-10	1.21E-07	1.01E-07	6.53E-07	7.34E-09	9.79E-09	1.63E-09	2.55E-06	2.20E-06	5.79E-08	-	-	-	-	-
LDT2-TOT	-	1.12E-07	-	1.57E-05	5.62E-09	1.12E-07	-	1.12E-07	-	1.12E-07	-	-	1.01E-04	-	7.99E-06	4.09E-06	3.62E-05	1.54E-05	2.31E-05
Dust	2.12E-08	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.52E-03	-
LDA-TOT	-	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05	3.92E-05
Dust	4.24E-08	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-	-

HRA Appendix - Attachment A

Offroad																			
Equipment	ARSENIC	BROMINE	CADMIUM	CHLORINE	CHROMIUM VI	COPPER	LEAD	1,30E-07	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	benzene	ethylbenzene	formaldehyde
Category	7440382	7726956	7440439	7782505	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414	50000
	7.81E-07	2.88E-06	5.67E-06	8.83E-05	1.03E-07	4.64E-06	6.65E-06	1.05E-05	4.29E-06	3.02E-06	1.43E-06	1.89E-03	2.72E-03	4.51E-06	6.13E-04	2.29E-02	6.33E-03	2.51E-03	4.59E-02
Trenchers	4.77E-07	1.72E-06	3.81E-06	3.28E-05	5.72E-08	2.38E-06	4.00E-06	3.81E-06	2.86E-06	1.81E-06	9.53E-07	1.26E-03	1.66E-03	2.76E-06	4.08E-04	1.58E-02	4.30E-03	6.55E-04	3.16E-02
LDA-TOT	-	9.30E-08	-	1.30E-05	4.65E-09	9.30E-08	-	9.30E-08	-	9.30E-08	-	-	8.37E-05	-	8.46E-06	4.33E-06	3.84E-05	1.63E-05	2.45E-05
Dust	2.65E-08	2.45E-08	6.12E-09	1.09E-06	1.73E-09	3.02E-07	2.53E-07	1.63E-06	1.84E-08	2.45E-08	4.08E-09	6.39E-06	5.49E-06	1.45E-07	-	-	-	-	-
	5.03E-07	1.83E-06	3.82E-06	4.69E-05	6.36E-08	2.78E-06	4.26E-06	5.54E-06	2.88E-06	1.93E-06	9.57E-07	1.27E-03	1.75E-03	2.91E-06	4.17E-04	1.58E-02	4.34E-03	6.72E-04	3.16E-02
Trenchers	4.77E-07	1.72E-06	3.81E-06	3.28E-05	5.72E-08	2.38E-06	4.00E-06	3.81E-06	2.86E-06	1.81E-06	9.53E-07	1.26E-03	1.66E-03	2.76E-06	4.08E-04	1.58E-02	4.30E-03	6.55E-04	3.16E-02
LDA-TOT	-	9.30E-08	-	1.30E-05	4.65E-09	9.30E-08	-	9.30E-08	-	9.30E-08	-	-	8.37E-05	-	8.46E-06	4.33E-06	3.84E-05	1.63E-05	2.45E-05
Dust	2.65E-08	2.45E-08	6.12E-09	1.09E-06	1.73E-09	3.02E-07	2.53E-07	1.63E-06	1.84E-08	2.45E-08	4.08E-09	6.39E-06	5.49E-06	1.45E-07	-	-	-	-	-
	5.03E-07	1.83E-06	3.82E-06	4.69E-05	6.36E-08	2.78E-06	4.26E-06	5.54E-06	2.88E-06	1.93E-06	9.57E-07	1.27E-03	1.75E-03	2.91E-06	4.17E-04	1.58E-02	4.34E-03	6.72E-04	3.16E-02
Air Compressors	7.85E-07	2.83E-06	6.28E-06	5.40E-05	9.42E-08	3.93E-06	6.60E-06	6.28E-06	4.71E-06	2.98E-06	1.57E-06	2.08E-03	2.74E-03	4.55E-06	5.45E-04	2.11E-02	5.74E-03	8.74E-04	4.22E-02
HHDT-DSL	8.27E-09	2.98E-08	6.61E-08	5.69E-07	9.92E-10	4.13E-08	6.94E-08	6.61E-08	4.96E-08	3.14E-08	1.65E-08	2.19E-05	2.88E-05	4.79E-08	5.27E-06	2.04E-04	5.55E-05	8.47E-06	4.08E-04
Dust	1.06E-08	9.79E-09	2.45E-09	4.35E-07	6.93E-10	1.21E-07	1.01E-07	6.53E-07	7.34E-09	9.79E-09	1.63E-09	2.55E-06	2.20E-06	5.79E-08	-	-	-	-	-
HHDT-DSL	1.65E-08	5.95E-08	1.32E-07	1.14E-06	1.98E-09	8.27E-08	1.39E-07	1.32E-07	9.92E-08	6.28E-08	3.31E-08	4.39E-05	5.76E-05	9.59E-08	1.05E-05	4.08E-04	1.11E-04	1.69E-05	8.17E-04
Dust	2.12E-08	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
Off-Highway Trucks	3.92E-07	1.41E-06	3.14E-06	2.70E-05	4.71E-08	1.96E-06	3.30E-06	3.14E-06	2.35E-06	1.49E-06	7.85E-07	1.04E-03	1.37E-03	2.28E-06	4.50E-04	1.74E-02	4.74E-03	7.23E-04	3.49E-02
Tractors/Loaders/Backhoes	2.65E-07	9.53E-07	2.12E-06	1.82E-05	3.18E-08	1.32E-06	2.22E-06	2.12E-06	1.59E-06	1.01E-06	5.30E-07	7.03E-04	9.23E-04	1.54E-06	2.15E-04	8.34E-03	2.27E-03	3.46E-04	1.67E-02
Cranes	2.57E-07	9.25E-07	2.06E-06	1.77E-05	3.08E-08	1.29E-06	2.16E-06	2.06E-06	1.54E-06	9.77E-07	5.14E-07	6.82E-04	8.96E-04	1.49E-06	2.18E-04	8.44E-03	2.30E-03	3.50E-04	1.69E-02
Forklifts	1.39E-07	5.01E-07	1.11E-06	9.58E-06	1.67E-08	6.96E-07	1.17E-06	1.11E-06	8.36E-07	5.29E-07	2.79E-07	3.70E-04	4.85E-04	8.08E-07	1.59E-04	6.14E-03	1.67E-03	2.55E-04	1.23E-02
LDA-TOT	-	2.79E-07	-	3.91E-05	1.40E-08	2.79E-07	-	2.79E-07	-	2.79E-07	-	-	2.51E-04	-	2.54E-05	1.30E-05	1.15E-04	4.88E-05	7.36E-05
Dust	7.95E-08	7.34E-08	1.84E-08	3.26E-06	5.20E-09	9.05E-07	7.59E-07	4.89E-06	5.51E-08	7.34E-08	1.22E-08	1.92E-05	1.65E-05	4.34E-07	-	-	-	-	-
	1.97E-06	7.09E-06	1.49E-05	1.72E-04	2.45E-07	1.09E-05	1.67E-05	2.20E-05	1.13E-05	7.46E-06	3.74E-06	4.97E-03	6.77E-03	1.14E-05	1.63E-03	6.20E-02	1.70E-02	2.62E-03	1.24E-01
HHDT-DSL	1.65E-08	5.95E-08	1.32E-07	1.14E-06	1.98E-09	8.27E-08	1.39E-07	1.32E-07	9.92E-08	6.28E-08	3.31E-08	4.39E-05	5.76E-05	9.59E-08	1.05E-05	4.08E-04	1.11E-04	1.69E-05	8.17E-04
Dust	2.12E-08	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
	3.77E-08	7.91E-08	1.37E-07	2.01E-06	3.37E-09	3.24E-07	3.41E-07	1.44E-06	1.14E-07	8.24E-08	3.63E-08	4.90E-05	6.20E-05	2.12E-07	1.05E-05	4.08E-04	1.11E-04	1.69E-05	8.17E-04
	2.20E-05	5.12E-05	8.76E-05	3.08E-03	7.98E-06	1.28E-04	4.46E-04	7.35E-04	6.14E-05	7.42E-05	1.85E-05	2.44E-02	3.41E-02	2.27E-04	7.14E-03	2.70E-01	7.42E-02	1.30E-02	5.41E-01

HRA Appendix - Attachment A

Offroad												Annual						
Equipment	mechanol	methyl ethyl ketone (mek) (2-butanone)	m-xylene	naphthalene	n-hexane	o-xylene	propene	p-xylene	styrene	toluene	acrolein (2-propenal)	ROG	PM10	Diesel PM	ARSENIC	BROMINE		
Category	67561	78933	108383	91203	110543	95476	115071	106423	100425	108883	107028	tons/yr	tons/yr	9901	7440382	7726956		
Cranes	2.74E-05	1.35E-03	5.58E-04	7.76E-05	1.43E-04	3.06E-04	2.37E-03	8.67E-05	5.29E-05	1.34E-03	-	7.30E-03	2.67E-03	-	-	-		
Hoist/swing/winch	3.52E-05	1.73E-03	7.17E-04	9.97E-05	1.84E-04	3.93E-04	3.05E-03	1.11E-04	6.81E-05	1.73E-03	-	9.39E-03	3.55E-03	-	-	-		
Crushing/Proc. Equipment	6.70E-05	3.30E-03	1.36E-03	1.90E-04	3.50E-04	7.48E-04	5.80E-03	2.12E-04	1.29E-04	3.29E-03	-	1.79E-02	8.17E-03	-	-	-		
Rubber Tired Loaders	4.17E-05	2.05E-03	8.50E-04	1.18E-04	2.18E-04	4.66E-04	3.61E-03	1.32E-04	8.07E-05	2.05E-03	-	1.11E-02	5.06E-03	-	-	-		
HHDT-DSL	8.33E-07	4.10E-05	1.70E-05	2.36E-06	4.36E-06	9.30E-06	7.21E-05	2.64E-06	1.61E-06	4.09E-05	-	2.78E-05	1.65E-05	-	-	-		
Dust	-	-	-	-	-	-	-	-	-	-	-	-	8.16E-06	-	1.06E-10	9.79E-11		
LDA-TOT	3.79E-06	5.67E-07	1.11E-04	1.46E-06	4.96E-05	3.84E-05	9.51E-05	-	3.81E-06	1.79E-04	4.11E-06	3.27E-05	3.72E-06	-	-	1.86E-09		
Dust	-	-	-	-	-	-	-	-	-	-	-	-	4.08E-05	-	5.30E-10	4.89E-10		
	1.76E-04	8.47E-03	3.62E-03	4.89E-04	9.50E-04	1.96E-03	1.50E-02	5.45E-04	3.37E-04	8.63E-03	4.11E-06	4.57E-02	1.95E-02	1.95E-02	6.36E-10	2.45E-09		
Excavators	4.12E-05	2.03E-03	8.39E-04	1.17E-04	2.16E-04	4.60E-04	3.57E-03	1.30E-04	7.97E-05	2.02E-03	-	3.30E-02	1.50E-02	-	-	-		
Rubber Tired Loaders	4.17E-05	2.05E-03	8.50E-04	1.18E-04	2.18E-04	4.66E-04	3.61E-03	1.32E-04	8.07E-05	2.05E-03	-	3.34E-02	1.52E-02	-	-	-		
HHDT-DSL	1.67E-06	8.20E-05	3.39E-05	4.72E-06	8.72E-06	1.86E-05	1.44E-04	5.27E-06	3.22E-06	8.18E-05	-	1.67E-04	9.92E-05	-	-	-		
Dust	-	-	-	-	-	-	-	-	-	-	-	-	4.89E-05	-	6.36E-10	5.87E-10		
	-	-	-	-	-	-	-	-	-	-	-	-	1.20E-03	-	2.88E-08	4.20E-08		
LDA-TOT	3.79E-06	5.67E-07	1.11E-04	1.46E-06	4.96E-05	3.84E-05	9.51E-05	-	3.81E-06	1.79E-04	4.11E-06	9.82E-05	1.12E-05	-	-	5.58E-09		
Dust	-	-	-	-	-	-	-	-	-	-	-	-	1.22E-04	-	1.59E-09	1.47E-09		
	8.84E-05	4.17E-03	1.83E-03	2.41E-04	4.92E-04	9.83E-04	7.42E-03	2.68E-04	1.67E-04	4.33E-03	4.11E-06	6.66E-02	3.17E-02	3.03E-02	2.94E-08	4.82E-08		
Hoist/swing/winch	7.99E-05	3.93E-03	1.63E-03	2.26E-04	4.18E-04	8.92E-04	6.91E-03	2.53E-04	1.54E-04	3.92E-03	-	1.60E-02	6.04E-03	-	-	-		
Hoist/swing/winch	3.52E-05	1.73E-03	7.17E-04	9.97E-05	1.84E-04	3.93E-04	3.05E-03	1.11E-04	6.81E-05	1.73E-03	-	7.04E-03	2.66E-03	-	-	-		
Hoist/swing/winch	2.34E-05	1.15E-03	4.76E-04	6.63E-05	1.22E-04	2.61E-04	2.02E-03	7.41E-05	4.52E-05	1.15E-03	-	4.68E-03	2.13E-03	-	-	-		
Generator Sets	4.07E-05	2.00E-03	8.29E-04	1.15E-04	2.13E-04	4.55E-04	3.52E-03	1.29E-04	7.87E-05	2.00E-03	-	8.14E-03	3.06E-03	-	-	-		
Generator Sets	2.42E-05	1.19E-03	4.93E-04	6.86E-05	1.27E-04	2.71E-04	2.10E-03	7.67E-05	4.68E-05	1.19E-03	-	4.85E-03	2.14E-03	-	-	-		
Generator Sets	3.38E-05	1.66E-03	6.88E-04	9.57E-05	1.77E-04	3.77E-04	2.92E-03	1.07E-04	6.53E-05	1.66E-03	-	6.76E-03	2.54E-03	-	-	-		
LDA-TOT	2.66E-06	3.97E-07	7.74E-05	1.02E-06	3.48E-05	2.69E-05	6.66E-05	-	2.67E-06	1.25E-04	2.88E-06	1.72E-05	1.95E-06	-	-	9.77E-10		
Dust	-	-	-	-	-	-	-	-	-	-	-	-	2.14E-05	-	2.78E-10	2.57E-10		
	2.40E-04	1.17E-02	4.91E-03	6.73E-04	1.28E-03	2.68E-03	2.06E-02	7.51E-04	4.61E-04	1.18E-02	2.88E-06	4.74E-02	1.86E-02	1.86E-02	2.78E-10	1.23E-09		
Hoist/swing/winch	7.99E-05	3.93E-03	1.63E-03	2.26E-04	4.18E-04	8.92E-04	6.91E-03	2.53E-04	1.54E-04	3.92E-03	-	2.13E-02	8.06E-03	-	-	-		
Hoist/swing/winch	3.52E-05	1.73E-03	7.17E-04	9.97E-05	1.84E-04	3.93E-04	3.05E-03	1.11E-04	6.81E-05	1.73E-03	-	7.04E-03	2.66E-03	-	-	-		
Generator Sets	6.32E-05	3.11E-03	1.29E-03	1.79E-04	3.31E-04	7.06E-04	5.47E-03	2.00E-04	1.22E-04	3.10E-03	-	1.69E-02	6.63E-03	-	-	-		
Air Compressors	5.43E-05	2.67E-03	1.11E-03	1.54E-04	2.84E-04	6.06E-04	4.70E-03	1.72E-04	1.05E-04	2.67E-03	-	1.45E-02	5.45E-03	-	-	-		
LDA-TOT	3.79E-06	5.67E-07	1.11E-04	1.46E-06	4.96E-05	3.84E-05	9.51E-05	-	3.81E-06	1.79E-04	4.11E-06	3.27E-05	3.72E-06	-	-	1.86E-09		
Dust	-	-	-	-	-	-	-	-	-	-	-	-	4.08E-05	-	5.30E-10	4.89E-10		
	2.36E-04	1.15E-02	4.85E-03	6.60E-04	1.27E-03	2.64E-03	2.02E-02	7.36E-04	4.53E-04	1.16E-02	4.11E-06	5.97E-02	2.28E-02	2.28E-02	0.00E+00	1.86E-09		

HRA Appendix - Attachment A

Offroad												Annual				
Equipment	Acetone	Diesel PM				ARSENIC				BROMINE						
		methanol	methyl ethyl ketone (mek)	m-xylene	naphthalene	n-hexane	o-xylene	propene	p-xylene	styrene	toluene	acrolein (2-propenal)	ROG	PM10		
Category	67561	78933	108383	91203	110543	95476	115071	106423	100425	108883	107028	tons/yr	tons/yr	9901	7440382	7726956
Hoist/swing/win	7.99E-05	3.93E-03	1.63E-03	2.26E-04	4.18E-04	8.92E-04	6.91E-03	2.53E-04	1.54E-04	3.92E-03	-	5.32E-03	2.01E-03		-	-
Hoist/swing/win	3.52E-05	1.73E-03	7.17E-04	9.97E-05	1.84E-04	3.93E-04	3.05E-03	1.11E-04	6.81E-05	1.73E-03	-	2.35E-03	8.87E-04		-	-
LDA-TOT	2.66E-06	3.97E-07	7.74E-05	1.02E-06	3.48E-05	2.69E-05	6.66E-05	-	2.67E-06	1.25E-04	2.88E-06	5.73E-06	6.51E-07		-	3.26E-10
Dust	-	-	-	-	-	-	-	-	-	-	-	-	7.14E-06		9.28E-11	8.57E-11
	1.18E-04	5.67E-03	2.42E-03	3.27E-04	6.37E-04	1.31E-03	1.00E-02	3.64E-04	2.25E-04	5.77E-03	2.88E-06	7.68E-03	2.91E-03	2.90E-03	9.28E-11	4.11E-10
Hoist/swing/win	7.99E-05	3.93E-03	1.63E-03	2.26E-04	4.18E-04	8.92E-04	6.91E-03	2.53E-04	1.54E-04	3.92E-03	-	2.13E-02	8.06E-03		-	-
Hoist/swing/win	3.52E-05	1.73E-03	7.17E-04	9.97E-05	1.84E-04	3.93E-04	3.05E-03	1.11E-04	6.81E-05	1.73E-03	-	9.39E-03	3.55E-03		-	-
Generator Sets	3.38E-05	1.66E-03	6.88E-04	9.57E-05	1.77E-04	3.77E-04	2.92E-03	1.07E-04	6.53E-05	1.66E-03	-	9.01E-03	3.39E-03		-	-
LDA-TOT	3.79E-06	5.67E-07	1.11E-04	1.46E-06	4.96E-05	3.84E-05	9.51E-05	-	3.81E-06	1.79E-04	4.11E-06	3.27E-05	3.72E-06		-	1.86E-09
Dust	-	-	-	-	-	-	-	-	-	-	-	-	4.08E-05		5.30E-10	4.89E-10
	1.53E-04	7.33E-03	3.14E-03	4.23E-04	8.29E-04	1.70E-03	1.30E-02	4.71E-04	2.92E-04	7.49E-03	4.11E-06	3.97E-02	1.50E-02	1.50E-02	5.30E-10	2.35E-09
Hoist/swing/win	7.99E-05	3.93E-03	1.63E-03	2.26E-04	4.18E-04	8.92E-04	6.91E-03	2.53E-04	1.54E-04	3.92E-03	-	3.19E-03	1.21E-03		-	-
Hoist/swing/win	3.48E-05	1.71E-03	7.09E-04	9.86E-05	1.82E-04	3.89E-04	3.01E-03	1.10E-04	6.73E-05	1.71E-03	-	1.39E-03	5.17E-04		-	-
Generator Sets	5.46E-05	2.69E-03	1.11E-03	1.55E-04	2.86E-04	6.10E-04	4.73E-03	1.73E-04	1.06E-04	2.68E-03	-	2.18E-03	8.60E-04		-	-
Generator Sets	3.63E-05	1.79E-03	7.40E-04	1.03E-04	1.90E-04	4.06E-04	3.15E-03	1.15E-04	7.03E-05	1.78E-03	-	1.45E-03	6.42E-04		-	-
Hoist/swing/win	7.04E-05	3.47E-03	1.43E-03	1.99E-04	3.68E-04	7.86E-04	6.09E-03	2.23E-04	1.36E-04	3.46E-03	-	2.82E-03	1.06E-03		-	-
NA	-	-	1.18E-03	1.84E-04	4.18E-03	8.15E-04	1.20E-02	-	-	5.65E-03	-	1.58E-03	9.84E-04		-	-
NA	-	-	3.54E-04	5.50E-05	1.25E-03	2.44E-04	3.59E-03	-	-	1.69E-03	-	4.72E-04	1.76E-04		-	-
LDA-TOT	4.93E-06	7.37E-07	1.44E-04	1.90E-06	6.45E-05	5.00E-05	1.24E-04	-	4.96E-06	2.32E-04	5.35E-06	6.38E-06	7.26E-07		-	3.63E-10
Dust	-	-	-	-	-	-	-	-	-	-	-	-	7.95E-06		1.03E-10	9.54E-11
	2.81E-04	1.36E-02	7.30E-03	1.02E-03	6.94E-03	4.19E-03	3.96E-02	8.74E-04	5.39E-04	2.11E-02	5.35E-06	1.31E-02	5.46E-03	4.29E-03	1.03E-10	4.58E-10
Hoist/swing/win	7.99E-05	3.93E-03	1.63E-03	2.26E-04	4.18E-04	8.92E-04	6.91E-03	2.53E-04	1.54E-04	3.92E-03	-	3.19E-03	1.21E-03		-	-
Hoist/swing/win	7.04E-05	3.47E-03	1.43E-03	1.99E-04	3.68E-04	7.86E-04	6.09E-03	2.23E-04	1.36E-04	3.46E-03	-	2.82E-03	1.06E-03		-	-
Excavators	4.12E-05	2.03E-03	8.39E-04	1.17E-04	2.16E-04	4.60E-04	3.57E-03	1.30E-04	7.97E-05	2.02E-03	-	1.65E-03	7.51E-04		-	-
HHDT-DSL	8.33E-07	4.10E-05	1.70E-05	2.36E-06	4.36E-06	9.30E-06	7.21E-05	2.64E-06	1.61E-06	4.09E-05	-	2.78E-06	1.65E-06		-	-
Dust	-	-	-	-	-	-	-	-	-	-	-	-	8.16E-07		1.06E-11	9.79E-12
NA	-	-	1.18E-03	1.84E-04	4.18E-03	8.15E-04	1.20E-02	-	-	5.65E-03	-	1.58E-03	9.84E-04		-	-
NA	-	-	3.54E-04	5.50E-05	1.25E-03	2.44E-04	3.59E-03	-	-	1.69E-03	-	4.72E-04	1.76E-04		-	-
LDA-TOT	4.93E-06	7.37E-07	1.44E-04	1.90E-06	6.45E-05	5.00E-05	1.24E-04	-	4.96E-06	2.32E-04	5.35E-06	6.38E-06	7.26E-07		-	3.63E-10
Dust	-	-	-	-	-	-	-	-	-	-	-	-	7.95E-06		1.03E-10	9.54E-11
	1.97E-04	9.47E-03	5.60E-03	7.86E-04	6.50E-03	3.26E-03	3.23E-02	6.09E-04	3.77E-04	1.70E-02	5.35E-06	9.72E-03	4.20E-03	3.03E-03	1.14E-10	4.68E-10
Hoist/swing/win	7.99E-05	3.93E-03	1.63E-03	2.26E-04	4.18E-04	8.92E-04	6.91E-03	2.53E-04	1.54E-04	3.92E-03	-	3.19E-03	1.21E-03		-	-
Hoist/swing/win	7.04E-05	3.47E-03	1.43E-03	1.99E-04	3.68E-04	7.86E-04	6.09E-03	2.23E-04	1.36E-04	3.46E-03	-	2.82E-03	1.06E-03		-	-
NA	-	-	1.18E-03	1.84E-04	4.18E-03	8.15E-04	1.20E-02	-	-	5.65E-03	-	1.58E-03	9.84E-04		-	-
NA	-	-	3.54E-04	5.50E-05	1.25E-03	2.44E-04	3.59E-03	-	-	1.69E-03	-	4.72E-04	1.76E-04		-	-
LDA-TOT	4.93E-06	7.37E-07	1.44E-04	1.90E-06	6.45E-05	5.00E-05	1.24E-04	-	4.96E-06	2.32E-04	5.35E-06	6.38E-06	7.26E-07		-	3.63E-10
Dust	-	-	-	-	-	-	-	-	-	-	-	-	7.95E-06		1.03E-10	9.54E-11
	1.55E-04	7.40E-03	4.74E-03	6.67E-04	6.28E-03	2.79E-03	2.87E-02	4.76E-04	2.95E-04	1.50E-02	5.35E-06	8.07E-03	3.44E-03	2.27E-03	1.03E-10	4.58E-10
HHDT-DSL	5.83E-06	2.87E-04	1.19E-04	1.65E-05	3.05E-05	6.51E-05	5.05E-04	1.85E-05	1.13E-05	2.86E-04	-	1.46E-04	8.68E-05		-	-
Dust	-	-	-	-	-	-	-	-	-	-	-	-	4.28E-05		5.57E-10	5.14E-10

HRA Appendix - Attachment A

Offroad												Annual							
Equipment	Acetone	methanol	methyl ethyl ketone (mek) (2-butanone)				o-xylene	propene	p-xylene	styrene	toluene	acrolein (2-propenal)	ROG		PM10		Diesel PM	ARSENIC	BROMINE
			tons/yr	tons/yr	9901	7440382							7726956						
Category	67561	78933	108383	91203	110543	95476	115071	106423	100425	108883	107028	tons/yr	tons/yr	9901	7440382	7726956			
Graders	4.94E-05	2.43E-03	1.01E-03	1.40E-04	2.58E-04	5.51E-04	4.27E-03	1.56E-04	9.54E-05	2.42E-03	-	9.87E-03	4.47E-03	-	-	-			
Rollers	4.19E-05	2.06E-03	8.53E-04	1.19E-04	2.19E-04	4.68E-04	3.63E-03	1.33E-04	8.10E-05	2.06E-03	-	8.38E-03	3.79E-03	-	-	-			
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	1.96E-05	2.23E-06	-	-	1.12E-09			
Dust	-	-	-	-	-	-	-	-	-	-	-	-	2.45E-05	-	3.18E-10	2.94E-10			
	1.00E-04	4.78E-03	2.07E-03	2.76E-04	5.48E-04	1.11E-03	8.48E-03	3.07E-04	1.91E-04	4.91E-03	3.29E-06	1.84E-02	8.42E-03	8.39E-03	8.75E-10	1.92E-09			
Tractors/Loaders/Backhoes	3.40E-05	1.67E-03	6.93E-04	9.64E-05	1.78E-04	3.80E-04	2.94E-03	1.08E-04	6.58E-05	1.67E-03	-	9.07E-03	4.24E-03	-	-	-			
Trenchers	6.45E-05	3.17E-03	1.31E-03	1.83E-04	3.37E-04	7.20E-04	5.58E-03	2.04E-04	1.25E-04	3.16E-03	-	1.72E-02	7.62E-03	-	-	-			
LDT2-TOT	1.79E-06	2.67E-07	5.22E-05	6.91E-07	2.34E-05	1.81E-05	4.49E-05	-	1.80E-06	8.43E-05	1.94E-06	1.54E-05	2.25E-06	-	-	1.12E-09			
Dust	-	-	-	-	-	-	-	-	-	-	-	-	1.63E-05	-	2.12E-10	1.96E-10			
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	2.62E-05	2.98E-06	-	-	1.49E-09			
Dust	-	-	-	-	-	-	-	-	-	-	-	-	3.26E-05	-	4.24E-10	3.92E-10			
	1.03E-04	4.85E-03	2.15E-03	2.81E-04	5.78E-04	1.15E-03	8.65E-03	3.12E-04	1.95E-04	5.06E-03	5.23E-06	2.63E-02	1.19E-02	1.19E-02	6.36E-10	3.20E-09			
Crushing/Proc. Equipment	6.70E-05	3.30E-03	1.36E-03	1.90E-04	3.50E-04	7.48E-04	5.80E-03	2.12E-04	1.29E-04	3.29E-03	-	1.25E-02	5.72E-03	-	-	-			
Rubber Tired Loaders	4.17E-05	2.05E-03	8.50E-04	1.18E-04	2.18E-04	4.66E-04	3.61E-03	1.32E-04	8.07E-05	2.05E-03	-	7.79E-03	3.54E-03	-	-	-			
HHDT-DSL	5.83E-06	2.87E-04	1.19E-04	1.65E-05	3.05E-05	6.51E-05	5.05E-04	1.85E-05	1.13E-05	2.86E-04	-	1.36E-04	8.10E-05	-	-	-			
Dust	-	-	-	-	-	-	-	-	-	-	-	-	4.00E-05	-	5.20E-10	4.80E-10			
HHDT-DSL	3.33E-06	1.64E-04	6.78E-05	9.44E-06	1.74E-05	3.72E-05	2.88E-04	1.05E-05	6.44E-06	1.64E-04	-	-	-	-	-	-			
Dust	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
LDT2-TOT	1.79E-06	2.67E-07	5.22E-05	6.91E-07	2.34E-05	1.81E-05	4.49E-05	-	1.80E-06	8.43E-05	1.94E-06	1.08E-05	1.57E-06	-	-	7.87E-10			
Dust	-	-	-	-	-	-	-	-	-	-	-	-	1.14E-05	-	1.48E-10	1.37E-10			
LDA-TOT	3.79E-06	5.67E-07	1.11E-04	1.46E-06	4.96E-05	3.84E-05	9.51E-05	-	3.81E-06	1.79E-04	4.11E-06	2.29E-05	2.61E-06	-	-	1.30E-09			
Dust	-	-	-	-	-	-	-	-	-	-	-	-	2.86E-05	-	3.71E-10	3.43E-10			
	1.23E-04	5.80E-03	2.56E-03	3.36E-04	6.90E-04	1.37E-03	1.03E-02	3.73E-04	2.33E-04	6.05E-03	6.05E-06	2.05E-02	9.43E-03	9.34E-03	1.04E-09	3.05E-09			
Graders	4.94E-05	2.43E-03	1.01E-03	1.40E-04	2.58E-04	5.51E-04	4.27E-03	1.56E-04	9.54E-05	2.42E-03	-	3.29E-03	1.49E-03	-	-	-			
Rubber Tired Dozers	1.38E-04	6.80E-03	2.81E-03	3.91E-04	7.22E-04	1.54E-03	1.19E-02	4.37E-04	2.67E-04	6.78E-03	-	9.20E-03	3.99E-03	-	-	-			
Rollers	4.19E-05	2.06E-03	8.53E-04	1.19E-04	2.19E-04	4.68E-04	3.63E-03	1.33E-04	8.10E-05	2.06E-03	-	2.79E-03	1.26E-03	-	-	-			
	-	-	-	-	-	-	-	-	-	-	-	-	1.02E-02	-	2.44E-07	3.55E-07			
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	6.54E-06	7.44E-07	-	-	3.72E-10			
Dust	-	-	-	-	-	-	-	-	-	-	-	-	8.16E-06	-	1.06E-10	9.79E-11			
	2.32E-04	1.13E-02	4.76E-03	6.51E-04	1.24E-03	2.59E-03	1.99E-02	7.26E-04	4.46E-04	1.14E-02	3.29E-06	1.53E-02	1.69E-02	6.74E-03	2.44E-07	3.56E-07			
Tractors/Loaders/Backhoes	3.40E-05	1.67E-03	6.93E-04	9.64E-05	1.78E-04	3.80E-04	2.94E-03	1.08E-04	6.58E-05	1.67E-03	-	2.27E-03	1.06E-03	-	-	-			
Pavers	5.86E-05	2.88E-03	1.19E-03	1.66E-04	3.07E-04	6.54E-04	5.07E-03	1.86E-04	1.13E-04	2.88E-03	-	3.91E-03	1.74E-03	-	-	-			
HHDT-DSL	8.33E-07	4.10E-05	1.70E-05	2.36E-06	4.36E-06	9.30E-06	7.21E-05	2.64E-06	1.61E-06	4.09E-05	-	6.94E-06	4.13E-06	-	-	-			
Dust	-	-	-	-	-	-	-	-	-	-	-	-	2.04E-06	-	2.65E-11	2.45E-11			
LDT2-TOT	1.79E-06	2.67E-07	5.22E-05	6.91E-07	2.34E-05	1.81E-05	4.49E-05	-	1.80E-06	8.43E-05	1.94E-06	3.86E-06	5.62E-07	-	-	2.81E-10			
Dust	-	-	-	-	-	-	-	-	-	-	-	-	4.08E-06	-	5.30E-11	4.89E-11			
	-	-	-	-	-	2.44E-03	-	-	-	4.22E-03	-	1.31E-03	-	-	-	-			
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	6.54E-06	7.44E-07	-	-	3.72E-10			
Dust	-	-	-	-	-	-	-	-	-	-	-	-	8.16E-06	-	1.06E-10	9.79E-11			
	9.83E-05	4.60E-03	2.04E-03	2.67E-04	5.52E-04	3.53E-03	8.21E-03	2.96E-04	1.86E-04	9.04E-03	5.23E-06	7.50E-03	2.82E-03	2.80E-03	1.86E-10	8.25E-10			

HRA Appendix - Attachment A

Offroad												Annual							
Equipment	Acetone	methanol	methyl ethyl ketone (mek) (2-butanone)				o-xylene	Propene	p-xylene	styrene	toluene	acrolein (2-propenal)	ROG		PM10		Diesel PM	ARSENIC	BROMINE
			tons/yr	tons/yr	9901	7440382							7726956						
Category	67561	78933	108383	91203	110543	95476	115071	106423	100425	108883	107028	tons/yr	tons/yr	9901	7440382	7726956			
Trenchers	6.45E-05	3.17E-03	1.31E-03	1.83E-04	3.37E-04	7.20E-04	5.58E-03	2.04E-04	1.25E-04	3.16E-03	-	1.29E-02	5.72E-03		-	-			
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	1.96E-05	2.23E-06		-	1.12E-09			
Dust	-	-	-	-	-	-	-	-	-	-	-	-	2.45E-05		3.18E-10	2.94E-10			
	6.75E-05	3.17E-03	1.40E-03	1.84E-04	3.77E-04	7.51E-04	5.66E-03	2.04E-04	1.28E-04	3.31E-03	3.29E-06	1.29E-02	5.75E-03	5.72E-03	3.18E-10	1.41E-09			
															-	-			
HHDT-DSL	1.67E-06	8.20E-05	3.39E-05	4.72E-06	8.72E-06	1.86E-05	1.44E-04	5.27E-06	3.22E-06	8.18E-05	-	2.78E-04	1.65E-04		-	-			
Dust	-	-	-	-	-	-	-	-	-	-	-	-	8.16E-05		1.06E-09	9.79E-10			
	1.67E-06	8.20E-05	3.39E-05	4.72E-06	8.72E-06	1.86E-05	1.44E-04	5.27E-06	3.22E-06	8.18E-05	-	2.78E-04	2.47E-04	1.65E-04	1.06E-09	9.79E-10			
	2.37E-03	1.14E-01	5.34E-02	7.29E-03	2.92E-02	3.20E-02	2.48E-01	7.32E-03	4.53E-03	1.43E-01	6.46E-05	3.99E-01	1.79E-01	1.64E-01	2.79E-07	4.25E-07			
Cranes	2.74E-05	1.35E-03	5.58E-04	7.76E-05	1.43E-04	3.06E-04	2.37E-03	8.67E-05	5.29E-05	1.34E-03	-	3.65E-03	1.33E-03		-	-			
Hoist/swing/win	3.52E-05	1.73E-03	7.17E-04	9.97E-05	1.84E-04	3.93E-04	3.05E-03	1.11E-04	6.81E-05	1.73E-03	-	4.69E-03	1.77E-03		-	-			
Concrete/Industrial Saws	3.07E-05	1.51E-03	6.26E-04	8.70E-05	1.61E-04	3.43E-04	2.66E-03	9.73E-05	5.94E-05	1.51E-03	-	4.10E-03	1.02E-03		-	-			
Rubber Tired Loaders	4.17E-05	2.05E-03	8.50E-04	1.18E-04	2.18E-04	4.66E-04	3.61E-03	1.32E-04	8.07E-05	2.05E-03	-	5.56E-03	2.53E-03		-	-			
LDA-TOT	3.79E-06	5.67E-07	1.11E-04	1.46E-06	4.96E-05	3.84E-05	9.51E-05	-	3.81E-06	1.79E-04	4.11E-06	1.64E-05	1.86E-06		-	9.30E-10			
Dust	-	-	-	-	-	-	-	-	-	-	-	-	2.04E-05		2.65E-10	2.45E-10			
	1.39E-04	6.65E-03	2.86E-03	3.84E-04	7.56E-04	1.55E-03	1.18E-02	4.28E-04	2.65E-04	6.81E-03	4.11E-06	1.80E-02	6.68E-03	6.66E-03	2.65E-10	1.18E-09			
Hoist/swing/win	7.99E-05	3.93E-03	1.63E-03	2.26E-04	4.18E-04	8.92E-04	6.91E-03	2.53E-04	1.54E-04	3.92E-03	-	1.06E-02	4.03E-03		-	-			
Hoist/swing/win	3.48E-05	1.71E-03	7.09E-04	9.86E-05	1.82E-04	3.89E-04	3.01E-03	1.10E-04	6.73E-05	1.71E-03	-	4.64E-03	1.72E-03		-	-			
Generator Sets	5.46E-05	2.69E-03	1.11E-03	1.55E-04	2.86E-04	6.10E-04	4.73E-03	1.73E-04	1.06E-04	2.68E-03	-	7.28E-03	2.87E-03		-	-			
Generator Sets	3.63E-05	1.79E-03	7.40E-04	1.03E-04	1.90E-04	4.06E-04	3.15E-03	1.15E-04	7.03E-05	1.78E-03	-	4.85E-03	2.14E-03		-	-			
Hoist/swing/win	7.04E-05	3.47E-03	1.43E-03	1.99E-04	3.68E-04	7.86E-04	6.09E-03	2.23E-04	1.36E-04	3.46E-03	-	9.39E-03	3.55E-03		-	-			
NA	-	-	1.18E-03	1.84E-04	4.18E-03	8.15E-04	1.20E-02	-	-	5.65E-03	-	5.26E-03	3.28E-03		-	-			
NA	-	-	3.54E-04	5.50E-05	1.25E-03	2.44E-04	3.59E-03	-	-	1.69E-03	-	1.57E-03	5.88E-04		-	-			
LDA-TOT	4.93E-06	7.37E-07	1.44E-04	1.90E-06	6.45E-05	5.00E-05	1.24E-04	-	4.96E-06	2.32E-04	5.35E-06	2.13E-05	2.42E-06		-	1.21E-09			
Dust	-	-	-	-	-	-	-	-	-	-	-	-	2.65E-05		3.45E-10	3.18E-10			
	2.81E-04	1.36E-02	7.30E-03	1.02E-03	6.94E-03	4.19E-03	3.96E-02	8.74E-04	5.39E-04	2.11E-02	5.35E-06	4.37E-02	1.82E-02	1.43E-02	3.45E-10	1.53E-09			
Hoist/swing/win	7.99E-05	3.93E-03	1.63E-03	2.26E-04	4.18E-04	8.92E-04	6.91E-03	2.53E-04	1.54E-04	3.92E-03	-	1.06E-02	4.03E-03		-	-			
Hoist/swing/win	7.04E-05	3.47E-03	1.43E-03	1.99E-04	3.68E-04	7.86E-04	6.09E-03	2.23E-04	1.36E-04	3.46E-03	-	9.39E-03	3.55E-03		-	-			
Excavators	4.12E-05	2.03E-03	8.39E-04	1.17E-04	2.16E-04	4.60E-04	3.57E-03	1.30E-04	7.97E-05	2.02E-03	-	5.49E-03	2.50E-03		-	-			
HHDT-DSL	1.67E-06	8.20E-05	3.39E-05	4.72E-06	8.72E-06	1.86E-05	1.44E-04	5.27E-06	3.22E-06	8.18E-05	-	1.11E-05	6.61E-06		-	-			
Dust	-	-	-	-	-	-	-	-	-	-	-	-	3.26E-06		4.24E-11	3.92E-11			
NA	-	-	1.18E-03	1.84E-04	4.18E-03	8.15E-04	1.20E-02	-	-	5.65E-03	-	5.26E-03	3.28E-03		-	-			
NA	-	-	3.54E-04	5.50E-05	1.25E-03	2.44E-04	3.59E-03	-	-	1.69E-03	-	1.57E-03	5.88E-04		-	-			
LDA-TOT	4.93E-06	7.37E-07	1.44E-04	1.90E-06	6.45E-05	5.00E-05	1.24E-04	-	4.96E-06	2.32E-04	5.35E-06	2.13E-05	2.42E-06		-	1.21E-09			
Dust	-	-	-	-	-	-	-	-	-	-	-	-	2.65E-05		3.45E-10	3.18E-10			
	1.98E-04	9.51E-03	5.61E-03	7.88E-04	6.50E-03	3.27E-03	3.24E-02	6.12E-04	3.78E-04	1.71E-02	5.35E-06	3.24E-02	1.40E-02	1.01E-02	3.87E-10	1.57E-09			
Hoist/swing/win	7.99E-05	3.93E-03	1.63E-03	2.26E-04	4.18E-04	8.92E-04	6.91E-03	2.53E-04	1.54E-04	3.92E-03	-	1.06E-02	4.03E-03		-	-			

HRA Appendix - Attachment A

Offroad												Annual					
Equipment	Acetone	Methanol	methyl ethyl ketone (mek) (2-butanone)				o-xylene	Propene	p-xylene	styrene	toluene	acrolein (2-propenal)	Diesel PM			ARSENIC	BROMINE
			m-xylene	naphthalene	n-hexane	ROG							PM10				
Category	67561	78933	108383	91203	110543	95476	115071	106423	100425	108883	107028	tons/yr	tons/yr	9901	7440382	7726956	
Hoist/swing/win	7.04E-05	3.47E-03	1.43E-03	1.99E-04	3.68E-04	7.86E-04	6.09E-03	2.23E-04	1.36E-04	3.46E-03	-	9.39E-03	3.55E-03		-	-	
NA	-	-	<u>1.18E-03</u>	<u>1.84E-04</u>	<u>4.18E-03</u>	<u>8.15E-04</u>	<u>1.20E-02</u>	-	-	<u>5.65E-03</u>	-	<u>5.26E-03</u>	<u>3.28E-03</u>		-	-	
NA	-	-	<u>3.54E-04</u>	<u>5.50E-05</u>	<u>1.25E-03</u>	<u>2.44E-04</u>	<u>3.59E-03</u>	-	-	<u>1.69E-03</u>	-	<u>1.57E-03</u>	<u>5.88E-04</u>		-	-	
LDA-TOT	4.93E-06	7.37E-07	1.44E-04	1.90E-06	6.45E-05	5.00E-05	1.24E-04	-	4.96E-06	2.32E-04	5.35E-06	2.13E-05	2.42E-06		-	1.21E-09	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	2.65E-05		3.45E-10	3.18E-10	
	<u>1.55E-04</u>	<u>7.40E-03</u>	<u>4.74E-03</u>	<u>6.67E-04</u>	<u>6.28E-03</u>	<u>2.79E-03</u>	<u>2.87E-02</u>	<u>4.76E-04</u>	<u>2.95E-04</u>	<u>1.50E-02</u>	<u>5.35E-06</u>	<u>2.69E-02</u>	<u>1.15E-02</u>	<u>7.58E-03</u>	<u>3.45E-10</u>	<u>1.53E-09</u>	
Hoist/swing/win	7.99E-05	3.93E-03	1.63E-03	2.26E-04	4.18E-04	8.92E-04	6.91E-03	2.53E-04	1.54E-04	3.92E-03	-	2.13E-02	8.06E-03		-	-	
Hoist/swing/win	3.52E-05	1.73E-03	7.17E-04	9.97E-05	1.84E-04	3.93E-04	3.05E-03	1.11E-04	6.81E-05	1.73E-03	-	9.39E-03	3.55E-03		-	-	
Generator Sets	3.38E-05	1.66E-03	6.88E-04	9.57E-05	1.77E-04	3.77E-04	2.92E-03	1.07E-04	6.53E-05	1.66E-03	-	9.01E-03	3.39E-03		-	-	
LDA-TOT	3.79E-06	5.67E-07	1.11E-04	1.46E-06	4.96E-05	3.84E-05	9.51E-05	-	3.81E-06	1.79E-04	4.11E-06	3.27E-05	3.72E-06		-	1.86E-09	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	4.08E-05		5.30E-10	4.89E-10	
	<u>1.53E-04</u>	<u>7.33E-03</u>	<u>3.14E-03</u>	<u>4.23E-04</u>	<u>8.29E-04</u>	<u>1.70E-03</u>	<u>1.30E-02</u>	<u>4.71E-04</u>	<u>2.92E-04</u>	<u>7.49E-03</u>	<u>4.11E-06</u>	<u>3.97E-02</u>	<u>1.50E-02</u>	<u>1.50E-02</u>	<u>5.30E-10</u>	<u>2.35E-09</u>	
Excavators	4.12E-05	2.03E-03	8.39E-04	1.17E-04	2.16E-04	4.60E-04	3.57E-03	1.30E-04	7.97E-05	2.02E-03	-	1.65E-02	7.51E-03		-	-	
Rubber Tired Loaders	4.17E-05	2.05E-03	8.50E-04	1.18E-04	2.18E-04	4.66E-04	3.61E-03	1.32E-04	8.07E-05	2.05E-03	-	1.67E-02	7.58E-03		-	-	
HHDT-DSL	1.67E-06	8.20E-05	3.39E-05	4.72E-06	8.72E-06	1.86E-05	1.44E-04	5.27E-06	3.22E-06	8.18E-05	-	8.33E-05	4.96E-05		-	-	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	2.45E-05		3.18E-10	2.94E-10	
	-	-	-	-	-	-	-	-	-	-	-	-	1.50E-04		3.60E-09	5.25E-09	
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	3.93E-05	4.47E-06		-	2.23E-09	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	4.89E-05		6.36E-10	5.87E-10	
	<u>8.76E-05</u>	<u>4.17E-03</u>	<u>1.81E-03</u>	<u>2.41E-04</u>	<u>4.82E-04</u>	<u>9.76E-04</u>	<u>7.40E-03</u>	<u>2.68E-04</u>	<u>1.67E-04</u>	<u>4.30E-03</u>	<u>3.29E-06</u>	<u>3.33E-02</u>	<u>1.54E-02</u>	<u>1.51E-02</u>	<u>4.55E-09</u>	<u>8.36E-09</u>	
HHDT-DSL	7.49E-06	3.69E-04	1.53E-04	2.12E-05	3.92E-05	8.37E-05	6.49E-04	2.37E-05	1.45E-05	3.68E-04	-	1.87E-04	1.12E-04		-	-	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	5.51E-05		7.16E-10	6.61E-10	
Graders	4.94E-05	2.43E-03	1.01E-03	1.40E-04	2.58E-04	5.51E-04	4.27E-03	1.56E-04	9.54E-05	2.42E-03	-	9.87E-03	4.47E-03		-	-	
Rollers	4.19E-05	2.06E-03	8.53E-04	1.19E-04	2.19E-04	4.68E-04	3.63E-03	1.33E-04	8.10E-05	2.06E-03	-	8.38E-03	3.79E-03		-	-	
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	1.96E-05	2.23E-06		-	1.12E-09	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	2.45E-05		3.18E-10	2.94E-10	
	<u>1.02E-04</u>	<u>4.86E-03</u>	<u>2.10E-03</u>	<u>2.81E-04</u>	<u>5.57E-04</u>	<u>1.13E-03</u>	<u>8.62E-03</u>	<u>3.13E-04</u>	<u>1.94E-04</u>	<u>4.99E-03</u>	<u>3.29E-06</u>	<u>1.85E-02</u>	<u>8.45E-03</u>	<u>8.37E-03</u>	<u>1.03E-09</u>	<u>2.07E-09</u>	
Tractors/Loaders/Backhoes	3.40E-05	1.67E-03	6.93E-04	9.64E-05	1.78E-04	3.80E-04	2.94E-03	1.08E-04	6.58E-05	1.67E-03	-	4.54E-03	2.12E-03		-	-	
Trenchers	6.45E-05	3.17E-03	1.31E-03	1.83E-04	3.37E-04	7.20E-04	5.58E-03	2.04E-04	1.25E-04	3.16E-03	-	8.59E-03	3.81E-03		-	-	
LDT2-TOT	6.44E-06	9.62E-07	1.88E-04	2.48E-06	8.42E-05	6.52E-05	1.61E-04	-	6.47E-06	3.03E-04	6.98E-06	2.78E-05	1.65E-05		-	8.27E-09	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	8.16E-06		1.06E-10	9.79E-11	
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	1.31E-05	1.49E-06		-	7.44E-10	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	1.63E-05		2.12E-10	1.96E-10	
	<u>1.08E-04</u>	<u>4.85E-03</u>	<u>2.28E-03</u>	<u>2.83E-04</u>	<u>6.39E-04</u>	<u>1.20E-03</u>	<u>8.76E-03</u>	<u>3.12E-04</u>	<u>2.00E-04</u>	<u>5.28E-03</u>	<u>1.03E-05</u>	<u>1.32E-02</u>	<u>5.97E-03</u>	<u>5.93E-03</u>	<u>3.18E-10</u>	<u>9.31E-09</u>	
Concrete/Industrial Saws	3.74E-05	1.84E-03	7.61E-04	1.06E-04	1.96E-04	4.17E-04	3.24E-03	1.18E-04	7.23E-05	1.84E-03	-	2.49E-03	1.37E-03		-	-	
Rubber Tired Loaders	4.17E-05	2.05E-03	8.50E-04	1.18E-04	2.18E-04	4.66E-04	3.61E-03	1.32E-04	8.07E-05	2.05E-03	-	2.78E-03	1.26E-03		-	-	
HHDT-DSL	2.33E-05	1.15E-03	4.75E-04	6.61E-05	1.22E-04	2.60E-04	2.02E-03	7.38E-05	4.51E-05	1.14E-03	-	1.94E-04	1.16E-04		-	-	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	5.71E-05		7.42E-10	6.85E-10	
HHDT-DSL	<u>3.33E-06</u>	<u>1.64E-04</u>	<u>6.78E-05</u>	<u>9.44E-06</u>	<u>1.74E-05</u>	<u>3.72E-05</u>	<u>2.88E-04</u>	<u>1.05E-05</u>	<u>6.44E-06</u>	<u>1.64E-04</u>	-	<u>2.78E-05</u>	<u>1.65E-05</u>		-	-	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	8.16E-06		1.06E-10	9.79E-11	
LDT2-TOT	1.79E-06	2.67E-07	5.22E-05	6.91E-07	2.34E-05	1.81E-05	4.49E-05	-	1.80E-06	8.43E-05	1.94E-06	3.86E-06	5.62E-07		-	2.81E-10	

HRA Appendix - Attachment A

Offroad												Annual							
Equipment	methanol	methyl ethyl ketone (mek) (2-butanone)				p-hexane	o-xylene	propene	p-xylene	styrene	toluene	acrolein (2-propenal)	ROG		PM10		Diesel PM	ARSENIC	BROMINE
		tons/yr	tons/yr	tons/yr	tons/yr								tons/yr	tons/yr					
Category	67561	78933	108383	91203	110543	95476	115071	106423	100425	108883	107028	tons/yr	tons/yr	9901	7440382	7726956			
Dust	-	-	-	-	-	-	-	-	-	-	-	-	4.08E-06	-	5.30E-11	4.89E-11			
LDA-TOT	3.79E-06	5.67E-07	1.11E-04	1.46E-06	4.96E-05	3.84E-05	9.51E-05	-	3.81E-06	1.79E-04	4.11E-06	8.18E-06	9.30E-07	-	-	4.65E-10			
Dust	-	-	-	-	-	-	-	-	-	-	-	-	1.02E-05	-	1.33E-10	1.22E-10			
	1.11E-04	5.21E-03	2.32E-03	3.02E-04	6.27E-04	1.24E-03	9.30E-03	3.35E-04	2.10E-04	5.46E-03	6.05E-06	5.51E-03	2.84E-03	2.75E-03	1.03E-09	1.70E-09			
Graders	4.94E-05	2.43E-03	1.01E-03	1.40E-04	2.58E-04	5.51E-04	4.27E-03	1.56E-04	9.54E-05	2.42E-03	-	3.29E-03	1.49E-03	-	-	-			
Rubber Tired Dozers	1.38E-04	6.80E-03	2.81E-03	3.91E-04	7.22E-04	1.54E-03	1.19E-02	4.37E-04	2.67E-04	6.78E-03	-	9.20E-03	3.99E-03	-	-	-			
Rollers	4.19E-05	2.06E-03	8.53E-04	1.19E-04	2.19E-04	4.68E-04	3.63E-03	1.33E-04	8.10E-05	2.06E-03	-	2.79E-03	1.26E-03	-	-	-			
	-	-	-	-	-	-	-	-	-	-	-	-	1.02E-02	-	2.44E-07	3.55E-07			
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	6.54E-06	7.44E-07	-	-	3.72E-10			
Dust	-	-	-	-	-	-	-	-	-	-	-	-	8.16E-06	-	1.06E-10	9.79E-11			
	2.32E-04	1.13E-02	4.76E-03	6.51E-04	1.24E-03	2.59E-03	1.99E-02	7.26E-04	4.46E-04	1.14E-02	3.29E-06	1.53E-02	1.69E-02	6.74E-03	2.44E-07	3.56E-07			
Tractors/Loaders/Backhoes	3.40E-05	1.67E-03	6.93E-04	9.64E-05	1.78E-04	3.80E-04	2.94E-03	1.08E-04	6.58E-05	1.67E-03	-	2.27E-03	1.06E-03	-	-	-			
Pavers	5.86E-05	2.88E-03	1.19E-03	1.66E-04	3.07E-04	6.54E-04	5.07E-03	1.86E-04	1.13E-04	2.88E-03	-	3.91E-03	1.74E-03	-	-	-			
HHDT-DSL	8.33E-07	4.10E-05	1.70E-05	2.36E-06	4.36E-06	9.30E-06	7.21E-05	2.64E-06	1.61E-06	4.09E-05	-	6.94E-06	4.13E-06	-	-	-			
Dust	-	-	-	-	-	-	-	-	-	-	-	-	2.04E-06	-	2.65E-11	2.45E-11			
LDT2-TOT	1.79E-06	2.67E-07	5.22E-05	6.91E-07	2.34E-05	1.81E-05	4.49E-05	-	1.80E-06	8.43E-05	1.94E-06	3.86E-06	5.62E-07	-	-	2.81E-10			
Dust	-	-	-	-	-	-	-	-	-	-	-	-	4.08E-06	-	5.30E-11	4.89E-11			
	-	-	-	-	-	2.44E-03	-	-	-	4.22E-03	-	1.31E-03	-	-	-	-			
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	6.54E-06	7.44E-07	-	-	3.72E-10			
Dust	-	-	-	-	-	-	-	-	-	-	-	-	8.16E-06	-	1.06E-10	9.79E-11			
	9.83E-05	4.60E-03	2.04E-03	2.67E-04	5.52E-04	3.53E-03	8.21E-03	2.96E-04	1.86E-04	9.04E-03	5.23E-06	7.50E-03	2.82E-03	2.80E-03	1.86E-10	8.25E-10			
Trenchers	6.45E-05	3.17E-03	1.31E-03	1.83E-04	3.37E-04	7.20E-04	5.58E-03	2.04E-04	1.25E-04	3.16E-03	-	1.29E-02	5.72E-03	-	-	-			
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	1.96E-05	2.23E-06	-	-	1.12E-09			
Dust	-	-	-	-	-	-	-	-	-	-	-	-	2.45E-05	-	3.18E-10	2.94E-10			
	6.75E-05	3.17E-03	1.40E-03	1.84E-04	3.77E-04	7.51E-04	5.66E-03	2.04E-04	1.28E-04	3.31E-03	3.29E-06	1.29E-02	5.75E-03	5.72E-03	3.18E-10	1.41E-09			
HHDT-DSL	1.67E-06	8.20E-05	3.39E-05	4.72E-06	8.72E-06	1.86E-05	1.44E-04	5.27E-06	3.22E-06	8.18E-05	-	1.94E-04	1.16E-04	-	-	-			
Dust	-	-	-	-	-	-	-	-	-	-	-	-	5.71E-05	-	7.42E-10	6.85E-10			
	1.67E-06	8.20E-05	3.39E-05	4.72E-06	8.72E-06	1.86E-05	1.44E-04	5.27E-06	3.22E-06	8.18E-05	-	1.94E-04	1.73E-04	1.16E-04	7.42E-10	6.85E-10			
	1.73E-03	8.27E-02	4.04E-02	5.50E-03	2.58E-02	2.49E-02	1.93E-01	5.32E-03	3.30E-03	1.11E-01	5.90E-05	2.67E-01	1.24E-01	1.01E-01	2.54E-07	3.88E-07			
Excavators	4.12E-05	2.03E-03	8.39E-04	1.17E-04	2.16E-04	4.60E-04	3.57E-03	1.30E-04	7.97E-05	2.02E-03	-	1.65E-02	7.51E-03	-	-	-			
Rubber Tired Loaders	4.17E-05	2.05E-03	8.50E-04	1.18E-04	2.18E-04	4.66E-04	3.61E-03	1.32E-04	8.07E-05	2.05E-03	-	1.67E-02	7.58E-03	-	-	-			
HHDT-DSL	1.67E-06	8.20E-05	3.39E-05	4.72E-06	8.72E-06	1.86E-05	1.44E-04	5.27E-06	3.22E-06	8.18E-05	-	8.33E-05	4.96E-05	-	-	-			
Dust	-	-	-	-	-	-	-	-	-	-	-	-	2.45E-05	-	3.18E-10	2.94E-10			
	-	-	-	-	-	-	-	-	-	-	-	-	1.50E-03	-	3.60E-08	5.25E-08			
LDA-TOT	3.79E-06	5.67E-07	1.11E-04	1.46E-06	4.96E-05	3.84E-05	9.51E-05	-	3.81E-06	1.79E-04	4.11E-06	4.91E-05	5.58E-06	-	-	2.79E-09			
Dust	-	-	-	-	-	-	-	-	-	-	-	-	6.12E-05	-	7.95E-10	7.34E-10			
	8.84E-05	4.17E-03	1.83E-03	2.41E-04	4.92E-04	9.83E-04	7.42E-03	2.68E-04	1.67E-04	4.33E-03	4.11E-06	3.33E-02	1.67E-02	1.51E-02	3.71E-08	5.63E-08			

HRA Appendix - Attachment A

Offroad												Annual					
Equipment	Acetone	Diesel				n-pentane	o-xylene	Propene	p-xylene	styrene	toluene	acrolein (2-propenal)	PM10		Diesel PM	ARSENIC	BROMINE
		methanol	methyl ethyl ketone (mek)	m-xylene	naphthalene								ROG	PM10			
Category	67561	78933	108383	91203	110543	95476	115071	106423	100425	108883	107028	tons/yr	tons/yr	9901	7440382	7726956	
HHDT-DSL	1.17E-05	5.74E-04	2.37E-04	3.30E-05	6.10E-05	1.30E-04	1.01E-03	3.69E-05	2.25E-05	5.72E-04	-	1.94E-04	1.16E-04		-	-	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	5.71E-05		7.42E-10	6.85E-10	
Graders	4.94E-05	2.43E-03	1.01E-03	1.40E-04	2.58E-04	5.51E-04	4.27E-03	1.56E-04	9.54E-05	2.42E-03	-	6.58E-03	2.98E-03		-	-	
Rollers	4.19E-05	2.06E-03	8.53E-04	1.19E-04	2.19E-04	4.68E-04	3.63E-03	1.33E-04	8.10E-05	2.06E-03	-	5.59E-03	2.53E-03		-	-	
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	1.31E-05	1.49E-06		-	7.44E-10	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	1.63E-05		2.12E-10	1.96E-10	
	1.06E-04	5.07E-03	2.18E-03	2.93E-04	5.78E-04	1.18E-03	8.99E-03	3.26E-04	2.02E-04	5.20E-03	3.29E-06	1.24E-02	5.70E-03	5.62E-03	9.54E-10	1.63E-09	
Tractors/Loaders/Backhoes	3.40E-05	1.67E-03	6.93E-04	9.64E-05	1.78E-04	3.80E-04	2.94E-03	1.08E-04	6.58E-05	1.67E-03	-	4.54E-03	2.12E-03		-	-	
Trenchers	6.45E-05	3.17E-03	1.31E-03	1.83E-04	3.37E-04	7.20E-04	5.58E-03	2.04E-04	1.25E-04	3.16E-03	-	8.59E-03	3.81E-03		-	-	
LDT2-TOT	1.79E-06	2.67E-07	5.22E-05	6.91E-07	2.34E-05	1.81E-05	4.49E-05	-	1.80E-06	8.43E-05	1.94E-06	7.72E-06	1.12E-06		-	5.62E-10	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	8.16E-06		1.06E-10	9.79E-11	
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	1.31E-05	1.49E-06		-	7.44E-10	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	1.63E-05		2.12E-10	1.96E-10	
	1.03E-04	4.85E-03	2.15E-03	2.81E-04	5.78E-04	1.15E-03	8.65E-03	3.12E-04	1.95E-04	5.06E-03	5.23E-06	1.32E-02	5.96E-03	5.93E-03	3.18E-10	1.60E-09	
Concrete/Industrial Saws	3.74E-05	1.84E-03	7.61E-04	1.06E-04	1.96E-04	4.17E-04	3.24E-03	1.18E-04	7.23E-05	1.84E-03	-	2.49E-03	1.37E-03		-	-	
Rubber Tired Loaders	4.17E-05	2.05E-03	8.50E-04	1.18E-04	2.18E-04	4.66E-04	3.61E-03	1.32E-04	8.07E-05	2.05E-03	-	2.78E-03	1.26E-03		-	-	
HHDT-DSL	2.33E-05	1.15E-03	4.75E-04	6.61E-05	1.22E-04	2.60E-04	2.02E-03	7.38E-05	4.51E-05	1.14E-03	-	1.94E-04	1.16E-04		-	-	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	5.71E-05		7.42E-10	6.85E-10	
HHDT-DSL	7.49E-06	3.69E-04	1.53E-04	2.12E-05	3.92E-05	8.37E-05	6.49E-04	2.37E-05	1.45E-05	3.68E-04	-	6.25E-05	3.72E-05		-	-	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	1.84E-05		2.39E-10	2.20E-10	
LDT2-TOT	1.79E-06	2.67E-07	5.22E-05	6.91E-07	2.34E-05	1.81E-05	4.49E-05	-	1.80E-06	8.43E-05	1.94E-06	3.86E-06	5.62E-07		-	2.81E-10	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	4.08E-06		5.30E-11	4.89E-11	
LDA-TOT	3.79E-06	5.67E-07	1.11E-04	1.46E-06	4.96E-05	3.84E-05	9.51E-05	-	3.81E-06	1.79E-04	4.11E-06	8.18E-06	9.30E-07		-	4.65E-10	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	1.02E-05		1.33E-10	1.22E-10	
	1.16E-04	5.41E-03	2.40E-03	3.14E-04	6.48E-04	1.28E-03	9.66E-03	3.48E-04	2.18E-04	5.66E-03	6.05E-06	5.54E-03	2.88E-03	2.75E-03	1.17E-09	1.82E-09	
Graders	4.94E-05	2.43E-03	1.01E-03	1.40E-04	2.58E-04	5.51E-04	4.27E-03	1.56E-04	9.54E-05	2.42E-03	-	3.29E-03	1.49E-03		-	-	
Rubber Tired Dozers	1.38E-04	6.80E-03	2.81E-03	3.91E-04	7.22E-04	1.54E-03	1.19E-02	4.37E-04	2.67E-04	6.78E-03	-	9.20E-03	3.99E-03		-	-	
Rollers	4.19E-05	2.06E-03	8.53E-04	1.19E-04	2.19E-04	4.68E-04	3.63E-03	1.33E-04	8.10E-05	2.06E-03	-	2.79E-03	1.26E-03		-	-	
	-	-	-	-	-	-	-	-	-	-	-	-	1.02E-02		2.44E-07	3.55E-07	
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	6.54E-06	7.44E-07		-	3.72E-10	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	8.16E-06		1.06E-10	9.79E-11	
	2.32E-04	1.13E-02	4.76E-03	6.51E-04	1.24E-03	2.59E-03	1.99E-02	7.26E-04	4.46E-04	1.14E-02	3.29E-06	1.53E-02	1.69E-02	6.74E-03	2.44E-07	3.56E-07	
Tractors/Loaders/Backhoes	3.40E-05	1.67E-03	6.93E-04	9.64E-05	1.78E-04	3.80E-04	2.94E-03	1.08E-04	6.58E-05	1.67E-03	-	2.27E-03	1.06E-03		-	-	
Pavers	5.86E-05	2.88E-03	1.19E-03	1.66E-04	3.07E-04	6.54E-04	5.07E-03	1.86E-04	1.13E-04	2.88E-03	-	3.91E-03	1.74E-03		-	-	
HHDT-DSL	8.33E-07	4.10E-05	1.70E-05	2.36E-06	4.36E-06	9.30E-06	7.21E-05	2.64E-06	1.61E-06	4.09E-05	-	6.94E-06	4.13E-06		-	-	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	2.04E-06		2.65E-11	2.45E-11	
LDT2-TOT	1.79E-06	2.67E-07	5.22E-05	6.91E-07	2.34E-05	1.81E-05	4.49E-05	-	1.80E-06	8.43E-05	1.94E-06	3.86E-06	5.62E-07		-	2.81E-10	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	4.08E-06		5.30E-11	4.89E-11	
	-	-	-	-	-	2.44E-03	-	-	-	4.22E-03	-	1.31E-03	-		-	-	
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	6.54E-06	7.44E-07		-	3.72E-10	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	8.16E-06		1.06E-10	9.79E-11	

HRA Appendix - Attachment A

Offroad												Annual						
Equipment	de	methyl ethyl ketone (mek) (2-butanone)				o-xylene	propene	p-xylene	styrene	toluene	acrolein (2-propenal)	ROG		PM10		Diesel PM	ARSENIC	BROMINE
		methanol	methyl ethyl ketone (mek) (2-butanone)	m-xylene	naphthalene							n-hexane	tons/yr	tons/yr				
Category	67561	78933	108383	91203	110543	95476	115071	106423	100425	108883	107028	tons/yr	tons/yr	9901	7440382	7726956		
	9.83E-05	4.60E-03	2.04E-03	2.67E-04	5.52E-04	3.53E-03	8.21E-03	2.96E-04	1.86E-04	9.04E-03	5.23E-06	7.50E-03	2.82E-03	2.80E-03	1.86E-10	8.25E-10		
Trenchers	6.45E-05	3.17E-03	1.31E-03	1.83E-04	3.37E-04	7.20E-04	5.58E-03	2.04E-04	1.25E-04	3.16E-03	-	1.29E-02	5.72E-03		-	-		
LDA-TOT	1.90E-06	2.84E-07	5.53E-05	7.32E-07	2.48E-05	1.92E-05	4.75E-05	-	1.91E-06	8.94E-05	2.06E-06	1.23E-05	1.40E-06		-	6.98E-10		
Dust	-	-	-	-	-	-	-	-	-	-	-	-	1.53E-05		1.99E-10	1.84E-10		
	6.64E-05	3.17E-03	1.37E-03	1.83E-04	3.62E-04	7.39E-04	5.63E-03	2.04E-04	1.27E-04	3.25E-03	2.06E-06	1.29E-02	5.74E-03	5.72E-03	1.99E-10	8.81E-10		
Trenchers	6.45E-05	3.17E-03	1.31E-03	1.83E-04	3.37E-04	7.20E-04	5.58E-03	2.04E-04	1.25E-04	3.16E-03	-	4.30E-03	1.91E-03		-	-		
LDA-TOT	1.90E-06	2.84E-07	5.53E-05	7.32E-07	2.48E-05	1.92E-05	4.75E-05	-	1.91E-06	8.94E-05	2.06E-06	4.09E-06	4.65E-07		-	2.33E-10		
Dust	-	-	-	-	-	-	-	-	-	-	-	-	5.10E-06		6.63E-11	6.12E-11		
	6.64E-05	3.17E-03	1.37E-03	1.83E-04	3.62E-04	7.39E-04	5.63E-03	2.04E-04	1.27E-04	3.25E-03	2.06E-06	4.30E-03	1.91E-03	1.91E-03	6.63E-11	2.94E-10		
Air Compressors	8.60E-05	4.23E-03	1.75E-03	2.44E-04	4.50E-04	9.60E-04	7.44E-03	2.72E-04	1.66E-04	4.22E-03	-	2.06E-01	1.13E-01		-	-		
HHDT-DSL	8.33E-07	4.10E-05	1.70E-05	2.36E-06	4.36E-06	9.30E-06	7.21E-05	2.64E-06	1.61E-06	4.09E-05	-	2.78E-05	1.65E-05		-	-		
Dust	-	-	-	-	-	-	-	-	-	-	-	-	8.16E-06		1.06E-10	9.79E-11		
HHDT-DSL	1.67E-06	8.20E-05	3.39E-05	4.72E-06	8.72E-06	1.86E-05	1.44E-04	5.27E-06	3.22E-06	8.18E-05	-	2.50E-05	1.49E-05		-	-		
Dust	-	-	-	-	-	-	-	-	-	-	-	-	7.34E-06		9.54E-11	8.81E-11		
Off-Highway Trucks	7.11E-05	3.50E-03	1.45E-03	2.01E-04	3.72E-04	7.94E-04	6.15E-03	2.25E-04	1.37E-04	3.49E-03	-	8.53E-02	2.82E-02		-	-		
Tractors/Loaders/Backhoes	3.40E-05	1.67E-03	6.93E-04	9.64E-05	1.78E-04	3.80E-04	2.94E-03	1.08E-04	6.58E-05	1.67E-03	-	8.16E-02	3.81E-02		-	-		
Cranes	3.44E-05	1.70E-03	7.01E-04	9.76E-05	1.80E-04	3.84E-04	2.98E-03	1.09E-04	6.66E-05	1.69E-03	-	8.26E-02	3.70E-02		-	-		
Forklifts	2.50E-05	1.23E-03	5.10E-04	7.10E-05	1.31E-04	2.80E-04	2.17E-03	7.93E-05	4.84E-05	1.23E-03	-	6.01E-02	2.01E-02		-	-		
LDA-TOT	5.69E-06	8.51E-07	1.66E-04	2.20E-06	7.45E-05	5.77E-05	1.43E-04	-	5.72E-06	2.68E-04	6.17E-06	4.42E-04	5.02E-05		-	2.51E-08		
Dust	-	-	-	-	-	-	-	-	-	-	-	-	5.51E-04		7.16E-09	6.61E-09		
	2.59E-04	1.25E-02	5.32E-03	7.19E-04	1.40E-03	2.88E-03	2.21E-02	8.01E-04	4.95E-04	1.27E-02	6.17E-06	5.17E-01	2.37E-01	2.37E-01	7.36E-09	3.19E-08		
HHDT-DSL	1.67E-06	8.20E-05	3.39E-05	4.72E-06	8.72E-06	1.86E-05	1.44E-04	5.27E-06	3.22E-06	8.18E-05	-	1.94E-04	1.16E-04		-	-		
Dust	-	-	-	-	-	-	-	-	-	-	-	-	5.71E-05		7.42E-10	6.85E-10		
	1.67E-06	8.20E-05	3.39E-05	4.72E-06	8.72E-06	1.86E-05	1.44E-04	5.27E-06	3.22E-06	8.18E-05	-	1.94E-04	1.73E-04	1.16E-04	7.42E-10	6.85E-10		
	1.14E-03	5.43E-02	2.35E-02	3.14E-03	6.22E-03	1.51E-02	9.63E-02	3.49E-03	2.17E-03	6.00E-02	3.75E-05	6.21E-01	2.96E-01	2.83E-01	2.92E-07	4.52E-07		

HRA Appendix - Attachment A

Offroad																			
Equipment	CADMIUM	CHLORINE	CHROMIUM VI	COPPER	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	benzene	ethylbenzene	formaldehyde	methanol	methyl eth
Category	7440439	7782505	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414	50000	67561	78933
Cranes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crushing/Proc. Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubber Tired Loaders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	2.45E-11	4.35E-09	6.93E-12	1.21E-09	1.01E-09	6.53E-09	7.34E-11	9.79E-11	1.63E-11	2.55E-08	2.20E-08	5.79E-10	-	-	-	-	-	-	-
LDA-TOT	-	2.61E-07	9.30E-11	1.86E-09	-	1.86E-09	-	1.86E-09	-	-	1.67E-06	-	1.69E-07	8.67E-08	7.68E-07	3.26E-07	4.90E-07	3.79E-08	5.67E-09
Dust	1.22E-10	2.17E-08	3.47E-11	6.04E-09	5.06E-09	3.26E-08	3.67E-10	4.89E-10	8.16E-11	1.28E-07	1.10E-07	2.90E-09	-	-	-	-	-	-	-
	1.47E-10	2.87E-07	1.35E-10	9.10E-09	6.07E-09	4.10E-08	4.40E-10	2.45E-09	9.79E-11	1.53E-07	1.81E-06	3.47E-09	1.69E-07	8.67E-08	7.68E-07	3.26E-07	4.90E-07	3.79E-08	5.67E-09
Excavators	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubber Tired Loaders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	1.47E-10	2.61E-08	4.16E-11	7.24E-09	6.07E-09	3.92E-08	4.40E-10	5.87E-10	9.79E-11	1.53E-07	1.32E-07	3.47E-09	-	-	-	-	-	-	-
	4.68E-08	5.10E-06	1.57E-08	1.66E-07	8.41E-07	1.38E-06	2.40E-08	9.12E-08	3.60E-09	4.46E-06	7.07E-06	3.97E-07	-	-	-	-	-	-	-
LDA-TOT	-	7.82E-07	2.79E-10	5.58E-09	-	5.58E-09	-	5.58E-09	-	-	5.02E-06	-	5.08E-07	2.60E-07	2.30E-06	9.77E-07	1.47E-06	1.14E-07	1.70E-08
Dust	3.67E-10	6.52E-08	1.04E-10	1.81E-08	1.52E-08	9.79E-08	1.10E-09	1.47E-09	2.45E-10	3.83E-07	3.29E-07	8.69E-09	-	-	-	-	-	-	-
	4.69E-08	5.91E-06	1.60E-08	1.78E-07	8.47E-07	1.42E-06	2.44E-08	9.74E-08	3.70E-09	4.61E-06	1.22E-05	4.01E-07	5.08E-07	2.60E-07	2.30E-06	9.77E-07	1.47E-06	1.14E-07	1.70E-08
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	-	1.37E-07	4.88E-11	9.77E-10	-	9.77E-10	-	9.77E-10	-	-	8.79E-07	-	8.89E-08	4.55E-08	4.03E-07	1.71E-07	2.57E-07	1.99E-08	2.98E-09
Dust	6.42E-11	1.14E-08	1.82E-11	3.17E-09	2.66E-09	1.71E-08	1.93E-10	2.57E-10	4.28E-11	6.70E-08	5.76E-08	1.52E-09	-	-	-	-	-	-	-
	6.42E-11	1.48E-07	6.70E-11	4.15E-09	2.66E-09	1.81E-08	1.93E-10	1.23E-09	4.28E-11	6.70E-08	9.37E-07	1.52E-09	8.89E-08	4.55E-08	4.03E-07	1.71E-07	2.57E-07	1.99E-08	2.98E-09
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Air Compressors	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	-	2.61E-07	9.30E-11	1.86E-09	-	1.86E-09	-	1.86E-09	-	-	1.67E-06	-	1.69E-07	8.67E-08	7.68E-07	3.26E-07	4.90E-07	3.79E-08	5.67E-09
Dust	1.22E-10	2.17E-08	3.47E-11	6.04E-09	5.06E-09	3.26E-08	3.67E-10	4.89E-10	8.16E-11	1.28E-07	1.10E-07	2.90E-09	-	-	-	-	-	-	-
	0.00E+00	2.61E-07	9.30E-11	1.86E-09	0.00E+00	1.86E-09	0.00E+00	1.86E-09	0.00E+00	0.00E+00	1.67E-06	0.00E+00	1.69E-07	8.67E-08	7.68E-07	3.26E-07	4.90E-07	3.79E-08	5.67E-09

HRA Appendix - Attachment A

Offroad																			
Equipment	CADMIUM	CHLORINE	CHROMIUM VI	COPPER	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	benzene	ethylbenzene	formaldehyde	methanol	methyl eth
Category	7440439	7782505	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414	50000	67561	78933
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	-	4.56E-08	1.63E-11	3.26E-10	-	3.26E-10	-	3.26E-10	-	-	2.93E-07	-	2.96E-08	1.52E-08	1.34E-07	5.70E-08	8.58E-08	6.64E-09	9.92E-10
Dust	2.14E-11	3.80E-09	6.07E-12	1.06E-09	8.85E-10	5.71E-09	6.42E-11	8.57E-11	1.43E-11	2.23E-08	1.92E-08	5.07E-10	-	-	-	-	-	-	-
	2.14E-11	4.94E-08	2.23E-11	1.38E-09	8.85E-10	6.04E-09	6.42E-11	4.11E-10	1.43E-11	2.23E-08	3.12E-07	5.07E-10	2.96E-08	1.52E-08	1.34E-07	5.70E-08	8.58E-08	6.64E-09	9.92E-10
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	-	2.61E-07	9.30E-11	1.86E-09	-	1.86E-09	-	1.86E-09	-	-	1.67E-06	-	1.69E-07	8.67E-08	7.68E-07	3.26E-07	4.90E-07	3.79E-08	5.67E-09
Dust	1.22E-10	2.17E-08	3.47E-11	6.04E-09	5.06E-09	3.26E-08	3.67E-10	4.89E-10	8.16E-11	1.28E-07	1.10E-07	2.90E-09	-	-	-	-	-	-	-
	1.22E-10	2.82E-07	1.28E-10	7.90E-09	5.06E-09	3.45E-08	3.67E-10	2.35E-09	8.16E-11	1.28E-07	1.78E-06	2.90E-09	1.69E-07	8.67E-08	7.68E-07	3.26E-07	4.90E-07	3.79E-08	5.67E-09
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	-	5.08E-08	1.81E-11	3.63E-10	-	3.63E-10	-	3.63E-10	-	-	3.27E-07	-	3.30E-08	1.69E-08	1.50E-07	6.35E-08	9.56E-08	7.40E-09	1.11E-09
Dust	2.39E-11	4.24E-09	6.76E-12	1.18E-09	9.86E-10	6.36E-09	7.16E-11	9.54E-11	1.59E-11	2.49E-08	2.14E-08	5.65E-10	-	-	-	-	-	-	-
	2.39E-11	5.50E-08	2.49E-11	1.54E-09	9.86E-10	6.73E-09	7.16E-11	4.58E-10	1.59E-11	2.49E-08	3.48E-07	5.65E-10	3.30E-08	1.69E-08	1.50E-07	6.35E-08	9.56E-08	7.40E-09	1.11E-09
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Excavators	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	2.45E-12	4.35E-10	6.93E-13	1.21E-10	1.01E-10	6.53E-10	7.34E-12	9.79E-12	1.63E-12	2.55E-09	2.20E-09	5.79E-11	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	-	5.08E-08	1.81E-11	3.63E-10	-	3.63E-10	-	3.63E-10	-	-	3.27E-07	-	3.30E-08	1.69E-08	1.50E-07	6.35E-08	9.56E-08	7.40E-09	1.11E-09
Dust	2.39E-11	4.24E-09	6.76E-12	1.18E-09	9.86E-10	6.36E-09	7.16E-11	9.54E-11	1.59E-11	2.49E-08	2.14E-08	5.65E-10	-	-	-	-	-	-	-
	2.63E-11	5.55E-08	2.56E-11	1.66E-09	1.09E-09	7.38E-09	7.89E-11	4.68E-10	1.75E-11	2.75E-08	3.50E-07	6.23E-10	3.30E-08	1.69E-08	1.50E-07	6.35E-08	9.56E-08	7.40E-09	1.11E-09
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	-	5.08E-08	1.81E-11	3.63E-10	-	3.63E-10	-	3.63E-10	-	-	3.27E-07	-	3.30E-08	1.69E-08	1.50E-07	6.35E-08	9.56E-08	7.40E-09	1.11E-09
Dust	2.39E-11	4.24E-09	6.76E-12	1.18E-09	9.86E-10	6.36E-09	7.16E-11	9.54E-11	1.59E-11	2.49E-08	2.14E-08	5.65E-10	-	-	-	-	-	-	-
	2.39E-11	5.50E-08	2.49E-11	1.54E-09	9.86E-10	6.73E-09	7.16E-11	4.58E-10	1.59E-11	2.49E-08	3.48E-07	5.65E-10	3.30E-08	1.69E-08	1.50E-07	6.35E-08	9.56E-08	7.40E-09	1.11E-09
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	1.28E-10	2.28E-08	3.64E-11	6.34E-09	5.31E-09	3.43E-08	3.85E-10	5.14E-10	8.57E-11	1.34E-07	1.15E-07	3.04E-09	-	-	-	-	-	-	-

HRA Appendix - Attachment A

Offroad																			
Equipment	CADMIUM	CHLORINE	CHROMIUM VI	COPPER	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	benzene	ethybenzene	formaldehyde	methanol	methyl eth
Category	7440439	7782505	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414	50000	67561	78933
Graders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rollers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	-	1.56E-07	5.58E-11	1.12E-09	-	1.12E-09	-	1.12E-09	-	-	1.00E-06	-	1.02E-07	5.20E-08	4.61E-07	1.95E-07	2.94E-07	2.28E-08	3.40E-09
Dust	7.34E-11	1.30E-08	2.08E-11	3.62E-09	3.03E-09	1.96E-08	2.20E-10	2.94E-10	4.89E-11	7.66E-08	6.59E-08	1.74E-09	-	-	-	-	-	-	-
	2.02E-10	1.92E-07	1.13E-10	1.11E-08	8.34E-09	5.50E-08	6.06E-10	1.92E-09	1.35E-10	2.11E-07	1.19E-06	4.78E-09	1.02E-07	5.20E-08	4.61E-07	1.95E-07	2.94E-07	2.28E-08	3.40E-09
Tractors/Loaders/Backhoes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trenchers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDT2-TOT	-	1.57E-07	5.62E-11	1.12E-09	-	1.12E-09	-	1.12E-09	-	-	1.01E-06	-	7.99E-08	4.09E-08	3.62E-07	1.54E-07	2.31E-07	1.79E-08	2.67E-09
Dust	4.89E-11	8.70E-09	1.39E-11	2.41E-09	2.02E-09	1.31E-08	1.47E-10	1.96E-10	3.26E-11	5.11E-08	4.39E-08	1.16E-09	-	-	-	-	-	-	-
LDA-TOT	-	2.08E-07	7.44E-11	1.49E-09	-	1.49E-09	-	1.49E-09	-	-	1.34E-06	-	1.35E-07	6.93E-08	6.14E-07	2.60E-07	3.92E-07	3.04E-08	4.54E-09
Dust	9.79E-11	1.74E-08	2.77E-11	4.83E-09	4.05E-09	2.61E-08	2.94E-10	3.92E-10	6.53E-11	1.02E-07	8.78E-08	2.32E-09	-	-	-	-	-	-	-
	1.47E-10	3.92E-07	1.72E-10	9.86E-09	6.07E-09	4.18E-08	4.40E-10	3.20E-09	9.79E-11	1.53E-07	2.48E-06	3.47E-09	2.15E-07	1.10E-07	9.76E-07	4.14E-07	6.24E-07	4.83E-08	7.21E-09
Crushing/Proc. Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubber Tired Loaders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	1.20E-10	2.13E-08	3.40E-11	5.92E-09	4.96E-09	3.20E-08	3.60E-10	4.80E-10	7.99E-11	1.25E-07	1.08E-07	2.84E-09	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDT2-TOT	-	1.10E-07	3.94E-11	7.87E-10	-	7.87E-10	-	7.87E-10	-	-	7.08E-07	-	5.59E-08	2.86E-08	2.53E-07	1.08E-07	1.62E-07	1.25E-08	1.87E-09
Dust	3.43E-11	6.09E-09	9.71E-12	1.69E-09	1.42E-09	9.14E-09	1.03E-10	1.37E-10	2.28E-11	3.58E-08	3.07E-08	8.11E-10	-	-	-	-	-	-	-
LDA-TOT	-	1.82E-07	6.51E-11	1.30E-09	-	1.30E-09	-	1.30E-09	-	-	1.17E-06	-	1.19E-07	6.07E-08	5.37E-07	2.28E-07	3.43E-07	2.66E-08	3.97E-09
Dust	8.57E-11	1.52E-08	2.43E-11	4.23E-09	3.54E-09	2.28E-08	2.57E-10	3.43E-10	5.71E-11	8.94E-08	7.69E-08	2.03E-09	-	-	-	-	-	-	-
	2.40E-10	3.35E-07	1.72E-10	1.39E-08	9.91E-09	6.60E-08	7.19E-10	3.05E-09	1.60E-10	2.50E-07	2.10E-06	5.68E-09	1.74E-07	8.93E-08	7.91E-07	3.35E-07	5.05E-07	3.91E-08	5.84E-09
Graders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubber Tired Dozers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rollers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3.96E-07	4.32E-05	1.33E-07	1.40E-06	7.12E-06	1.17E-05	2.03E-07	7.72E-07	3.05E-08	3.77E-05	5.99E-05	3.36E-06	-	-	-	-	-	-	-
LDA-TOT	-	5.21E-08	1.86E-11	3.72E-10	-	3.72E-10	-	3.72E-10	-	-	3.35E-07	-	3.39E-08	1.73E-08	1.54E-07	6.51E-08	9.81E-08	7.59E-09	1.13E-09
Dust	2.45E-11	4.35E-09	6.93E-12	1.21E-09	1.01E-09	6.53E-09	7.34E-11	9.79E-11	1.63E-11	2.55E-08	2.20E-08	5.79E-10	-	-	-	-	-	-	-
	3.96E-07	4.32E-05	1.33E-07	1.40E-06	7.12E-06	1.17E-05	2.03E-07	7.72E-07	3.05E-08	3.77E-05	6.02E-05	3.36E-06	3.39E-08	1.73E-08	1.54E-07	6.51E-08	9.81E-08	7.59E-09	1.13E-09
Tractors/Loaders/Backhoes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pavers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	6.12E-12	1.09E-09	1.73E-12	3.02E-10	2.53E-10	1.63E-09	1.84E-11	2.45E-11	4.08E-12	6.39E-09	5.49E-09	1.45E-10	-	-	-	-	-	-	-
LDT2-TOT	-	3.94E-08	1.41E-11	2.81E-10	-	2.81E-10	-	2.81E-10	-	-	2.53E-07	-	2.00E-08	1.02E-08	9.05E-08	3.84E-08	5.78E-08	4.48E-09	6.69E-10
Dust	1.22E-11	2.17E-09	3.47E-12	6.04E-10	5.06E-10	3.26E-09	3.67E-11	4.89E-11	8.16E-12	1.28E-08	1.10E-08	2.90E-10	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.03E-05	-	-	-
LDA-TOT	-	5.21E-08	1.86E-11	3.72E-10	-	3.72E-10	-	3.72E-10	-	-	3.35E-07	-	3.39E-08	1.73E-08	1.54E-07	6.51E-08	9.81E-08	7.59E-09	1.13E-09
Dust	2.45E-11	4.35E-09	6.93E-12	1.21E-09	1.01E-09	6.53E-09	7.34E-11	9.79E-11	1.63E-11	2.55E-08	2.20E-08	5.79E-10	-	-	-	-	-	-	-
	4.28E-11	9.91E-08	4.48E-11	2.77E-09	1.77E-09	1.21E-08	1.28E-10	8.25E-10	2.86E-11	4.47E-08	6.26E-07	1.01E-09	5.38E-08	2.76E-08	2.44E-07	3.04E-05	1.56E-07	1.21E-08	1.80E-09

HRA Appendix - Attachment A

Offroad																			
Equipment	CADMIUM	CHLORINE	CHROMIUM VI	COPPER	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	benzene	ethylbenzene	formaldehyde	methanol	methyl eth
Category	7440439	7782505	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414	50000	67561	78933
Trenchers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	-	1.56E-07	5.58E-11	1.12E-09	-	1.12E-09	-	1.12E-09	-	-	1.00E-06	-	1.02E-07	5.20E-08	4.61E-07	1.95E-07	2.94E-07	2.28E-08	3.40E-09
Dust	7.34E-11	1.30E-08	2.08E-11	3.62E-09	3.03E-09	1.96E-08	2.20E-10	2.94E-10	4.89E-11	7.66E-08	6.59E-08	1.74E-09	-	-	-	-	-	-	-
	7.34E-11	1.69E-07	7.66E-11	4.74E-09	3.03E-09	2.07E-08	2.20E-10	1.41E-09	4.89E-11	7.66E-08	1.07E-06	1.74E-09	1.02E-07	5.20E-08	4.61E-07	1.95E-07	2.94E-07	2.28E-08	3.40E-09
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	2.45E-10	4.35E-08	6.93E-11	1.21E-08	1.01E-08	6.53E-08	7.34E-10	9.79E-10	1.63E-10	2.55E-07	2.20E-07	5.79E-09	-	-	-	-	-	-	-
	2.45E-10	4.35E-08	6.93E-11	1.21E-08	1.01E-08	6.53E-08	7.34E-10	9.79E-10	1.63E-10	2.55E-07	2.20E-07	5.79E-09	-	-	-	-	-	-	-
	4.44E-07	5.15E-05	1.50E-07	1.66E-06	8.02E-06	1.35E-05	2.32E-07	8.91E-07	3.51E-08	4.38E-05	8.77E-05	3.79E-06	1.91E-06	9.80E-07	8.68E-06	3.40E-05	5.54E-06	4.29E-07	6.41E-08
Cranes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Concrete/Industrial Saws	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubber Tired Loaders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	-	1.30E-07	4.65E-11	9.30E-10	-	9.30E-10	-	9.30E-10	-	-	8.37E-07	-	8.46E-08	4.33E-08	3.84E-07	1.63E-07	2.45E-07	1.90E-08	2.84E-09
Dust	6.12E-11	1.09E-08	1.73E-11	3.02E-09	2.53E-09	1.63E-08	1.84E-10	2.45E-10	4.08E-11	6.39E-08	5.49E-08	1.45E-09	-	-	-	-	-	-	-
	6.12E-11	1.41E-07	6.39E-11	3.95E-09	2.53E-09	1.72E-08	1.84E-10	1.18E-09	4.08E-11	6.39E-08	8.92E-07	1.45E-09	8.46E-08	4.33E-08	3.84E-07	1.63E-07	2.45E-07	1.90E-08	2.84E-09
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	-	1.69E-07	6.05E-11	1.21E-09	-	1.21E-09	-	1.21E-09	-	-	1.09E-06	-	1.10E-07	5.63E-08	4.99E-07	2.12E-07	3.19E-07	2.47E-08	3.69E-09
Dust	7.95E-11	1.41E-08	2.25E-11	3.92E-09	3.29E-09	2.12E-08	2.39E-10	3.18E-10	5.30E-11	8.30E-08	7.14E-08	1.88E-09	-	-	-	-	-	-	-
	7.95E-11	1.83E-07	8.30E-11	5.13E-09	3.29E-09	2.24E-08	2.39E-10	1.53E-09	5.30E-11	8.30E-08	1.16E-06	1.88E-09	1.10E-07	5.63E-08	4.99E-07	2.12E-07	3.19E-07	2.47E-08	3.69E-09
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Excavators	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	9.79E-12	1.74E-09	2.77E-12	4.83E-10	4.05E-10	2.61E-09	2.94E-11	3.92E-11	6.53E-12	1.02E-08	8.78E-09	2.32E-10	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	-	1.69E-07	6.05E-11	1.21E-09	-	1.21E-09	-	1.21E-09	-	-	1.09E-06	-	1.10E-07	5.63E-08	4.99E-07	2.12E-07	3.19E-07	2.47E-08	3.69E-09
Dust	7.95E-11	1.41E-08	2.25E-11	3.92E-09	3.29E-09	2.12E-08	2.39E-10	3.18E-10	5.30E-11	8.30E-08	7.14E-08	1.88E-09	-	-	-	-	-	-	-
	8.93E-11	1.85E-07	8.58E-11	5.62E-09	3.69E-09	2.50E-08	2.68E-10	1.57E-09	5.95E-11	9.32E-08	1.17E-06	2.11E-09	1.10E-07	5.63E-08	4.99E-07	2.12E-07	3.19E-07	2.47E-08	3.69E-09
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

HRA Appendix - Attachment A

Offroad																			
Equipment	CADMIUM	CHLORINE	CHROMIUM VI	COPPER	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	benzene	ethylbenzene	formaldehyde	methanol	methyl eth
Category	7440439	7782505	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414	50000	67561	78933
Hoist/swing/winch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	-	1.69E-07	6.05E-11	1.21E-09	-	1.21E-09	-	1.21E-09	-	-	1.09E-06	-	1.10E-07	5.63E-08	4.99E-07	2.12E-07	3.19E-07	2.47E-08	3.69E-09
Dust	7.95E-11	1.41E-08	2.25E-11	3.92E-09	3.29E-09	2.12E-08	2.39E-10	3.18E-10	5.30E-11	8.30E-08	7.14E-08	1.88E-09	-	-	-	-	-	-	-
	7.95E-11	1.83E-07	8.30E-11	5.13E-09	3.29E-09	2.24E-08	2.39E-10	1.53E-09	5.30E-11	8.30E-08	1.16E-06	1.88E-09	1.10E-07	5.63E-08	4.99E-07	2.12E-07	3.19E-07	2.47E-08	3.69E-09
Hoist/swing/winch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/winch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	-	2.61E-07	9.30E-11	1.86E-09	-	1.86E-09	-	1.86E-09	-	-	1.67E-06	-	1.69E-07	8.67E-08	7.68E-07	3.26E-07	4.90E-07	3.79E-08	5.67E-09
Dust	1.22E-10	2.17E-08	3.47E-11	6.04E-09	5.06E-09	3.26E-08	3.67E-10	4.89E-10	8.16E-11	1.28E-07	1.10E-07	2.90E-09	-	-	-	-	-	-	-
	1.22E-10	2.82E-07	1.28E-10	7.90E-09	5.06E-09	3.45E-08	3.67E-10	2.35E-09	8.16E-11	1.28E-07	1.78E-06	2.90E-09	1.69E-07	8.67E-08	7.68E-07	3.26E-07	4.90E-07	3.79E-08	5.67E-09
Excavators	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubber Tired Loaders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	7.34E-11	1.30E-08	2.08E-11	3.62E-09	3.03E-09	1.96E-08	2.20E-10	2.94E-10	4.89E-11	7.66E-08	6.59E-08	1.74E-09	-	-	-	-	-	-	-
	5.85E-09	6.38E-07	1.97E-09	2.07E-08	1.05E-07	1.73E-07	3.00E-09	1.14E-08	4.50E-10	5.57E-07	8.84E-07	4.97E-08	-	-	-	-	-	-	-
LDA-TOT	-	3.13E-07	1.12E-10	2.23E-09	-	2.23E-09	-	2.23E-09	-	-	2.01E-06	-	2.03E-07	1.04E-07	9.21E-07	3.91E-07	5.88E-07	4.55E-08	6.80E-09
Dust	1.47E-10	2.61E-08	4.16E-11	7.24E-09	6.07E-09	3.92E-08	4.40E-10	5.87E-10	9.79E-11	1.53E-07	1.32E-07	3.47E-09	-	-	-	-	-	-	-
	6.07E-09	9.89E-07	2.14E-09	3.38E-08	1.14E-07	2.33E-07	3.66E-09	1.45E-08	5.97E-10	7.87E-07	3.09E-06	5.49E-08	2.03E-07	1.04E-07	9.21E-07	3.91E-07	5.88E-07	4.55E-08	6.80E-09
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	1.65E-10	2.93E-08	4.68E-11	8.15E-09	6.83E-09	4.40E-08	4.96E-10	6.61E-10	1.10E-10	1.72E-07	1.48E-07	3.91E-09	-	-	-	-	-	-	-
Graders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rollers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	-	1.56E-07	5.58E-11	1.12E-09	-	1.12E-09	-	1.12E-09	-	-	1.00E-06	-	1.02E-07	5.20E-08	4.61E-07	1.95E-07	2.94E-07	2.28E-08	3.40E-09
Dust	7.34E-11	1.30E-08	2.08E-11	3.62E-09	3.03E-09	1.96E-08	2.20E-10	2.94E-10	4.89E-11	7.66E-08	6.59E-08	1.74E-09	-	-	-	-	-	-	-
	2.39E-10	1.99E-07	1.23E-10	1.29E-08	9.86E-09	6.47E-08	7.16E-10	2.07E-09	1.59E-10	2.49E-07	1.22E-06	5.65E-09	1.02E-07	5.20E-08	4.61E-07	1.95E-07	2.94E-07	2.28E-08	3.40E-09
Tractors/Loaders/Backhoes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trenchers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDT2-TOT	-	1.16E-06	4.13E-10	8.27E-09	-	8.27E-09	-	8.27E-09	-	-	7.44E-06	-	1.44E-07	7.35E-08	6.51E-07	2.76E-07	4.16E-07	3.22E-08	4.81E-09
Dust	2.45E-11	4.35E-09	6.93E-12	1.21E-09	1.01E-09	6.53E-09	7.34E-11	9.79E-11	1.63E-11	2.55E-08	2.20E-08	5.79E-10	-	-	-	-	-	-	-
LDA-TOT	-	1.04E-07	3.72E-11	7.44E-10	-	7.44E-10	-	7.44E-10	-	-	6.70E-07	-	6.77E-08	3.47E-08	3.07E-07	1.30E-07	1.96E-07	1.52E-08	2.27E-09
Dust	4.89E-11	8.70E-09	1.39E-11	2.41E-09	2.02E-09	1.31E-08	1.47E-10	1.96E-10	3.26E-11	5.11E-08	4.39E-08	1.16E-09	-	-	-	-	-	-	-
	7.34E-11	1.27E-06	4.71E-10	1.26E-08	3.03E-09	2.86E-08	2.20E-10	9.31E-09	4.89E-11	7.66E-08	8.18E-06	1.74E-09	2.11E-07	1.08E-07	9.58E-07	4.06E-07	6.12E-07	4.74E-08	7.08E-09
Concrete/Industrial Saws	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubber Tired Loaders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	1.71E-10	3.04E-08	4.85E-11	8.45E-09	7.08E-09	4.57E-08	5.14E-10	6.85E-10	1.14E-10	1.79E-07	1.54E-07	4.05E-09	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	2.45E-11	4.35E-09	6.93E-12	1.21E-09	1.01E-09	6.53E-09	7.34E-11	9.79E-11	1.63E-11	2.55E-08	2.20E-08	5.79E-10	-	-	-	-	-	-	-
LDT2-TOT	-	3.94E-08	1.41E-11	2.81E-10	-	2.81E-10	-	2.81E-10	-	-	2.53E-07	-	2.00E-08	1.02E-08	9.05E-08	3.84E-08	5.78E-08	4.48E-09	6.69E-10

HRA Appendix - Attachment A

Offroad																			
Equipment	CADMIUM	CHLORINE	CHROMIUM VI	COPPER	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	benzene	ethylbenzene	formaldehyde	methanol	methyl eth
Category	7440439	7782505	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414	50000	67561	78933
Dust	1.22E-11	2.17E-09	3.47E-12	6.04E-10	5.06E-10	3.26E-09	3.67E-11	4.89E-11	8.16E-12	1.28E-08	1.10E-08	2.90E-10	-	-	-	-	-	-	-
LDA-TOT	-	6.51E-08	2.33E-11	4.65E-10	-	4.65E-10	-	4.65E-10	-	4.19E-07	-	4.23E-08	2.17E-08	1.92E-07	8.14E-08	1.23E-07	9.49E-09	1.42E-09	-
Dust	3.06E-11	5.43E-09	8.67E-12	1.51E-09	1.26E-09	8.16E-09	9.18E-11	1.22E-10	2.04E-11	3.19E-08	2.74E-08	7.24E-10	-	-	-	-	-	-	-
	2.39E-10	1.47E-07	1.05E-10	1.25E-08	9.86E-09	6.44E-08	7.16E-10	1.70E-09	1.59E-10	2.49E-07	8.86E-07	5.65E-09	6.23E-08	3.19E-08	2.82E-07	1.20E-07	1.80E-07	1.40E-08	2.09E-09
Graders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubber Tired Dozers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rollers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3.96E-07	4.32E-05	1.33E-07	1.40E-06	7.12E-06	1.17E-05	2.03E-07	7.72E-07	3.05E-08	3.77E-05	5.99E-05	3.36E-06	-	-	-	-	-	-	-
LDA-TOT	-	5.21E-08	1.86E-11	3.72E-10	-	3.72E-10	-	3.72E-10	-	3.35E-07	-	3.39E-08	1.73E-08	1.54E-07	6.51E-08	9.81E-08	7.59E-09	1.13E-09	-
Dust	2.45E-11	4.35E-09	6.93E-12	1.21E-09	1.01E-09	6.53E-09	7.34E-11	9.79E-11	1.63E-11	2.55E-08	2.20E-08	5.79E-10	-	-	-	-	-	-	-
	3.96E-07	4.32E-05	1.33E-07	1.40E-06	7.12E-06	1.17E-05	2.03E-07	7.72E-07	3.05E-08	3.77E-05	6.02E-05	3.36E-06	3.39E-08	1.73E-08	1.54E-07	6.51E-08	9.81E-08	7.59E-09	1.13E-09
Tractors/Loaders/Backhoes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pavers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	6.12E-12	1.09E-09	1.73E-12	3.02E-10	2.53E-10	1.63E-09	1.84E-11	2.45E-11	4.08E-12	6.39E-09	5.49E-09	1.45E-10	-	-	-	-	-	-	-
LDT2-TOT	-	3.94E-08	1.41E-11	2.81E-10	-	2.81E-10	-	2.81E-10	-	2.53E-07	-	2.00E-08	1.02E-08	9.05E-08	3.84E-08	5.78E-08	4.48E-09	6.69E-10	-
Dust	1.22E-11	2.17E-09	3.47E-12	6.04E-10	5.06E-10	3.26E-09	3.67E-11	4.89E-11	8.16E-12	1.28E-08	1.10E-08	2.90E-10	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.03E-05	-	-	-	-
LDA-TOT	-	5.21E-08	1.86E-11	3.72E-10	-	3.72E-10	-	3.72E-10	-	3.35E-07	-	3.39E-08	1.73E-08	1.54E-07	6.51E-08	9.81E-08	7.59E-09	1.13E-09	-
Dust	2.45E-11	4.35E-09	6.93E-12	1.21E-09	1.01E-09	6.53E-09	7.34E-11	9.79E-11	1.63E-11	2.55E-08	2.20E-08	5.79E-10	-	-	-	-	-	-	-
	4.28E-11	9.91E-08	4.48E-11	2.77E-09	1.77E-09	1.21E-08	1.28E-10	8.25E-10	2.86E-11	4.47E-08	6.26E-07	1.01E-09	5.38E-08	2.76E-08	2.44E-07	3.04E-05	1.56E-07	1.21E-08	1.80E-09
Trenchers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	-	1.56E-07	5.58E-11	1.12E-09	-	1.12E-09	-	1.12E-09	-	1.00E-06	-	1.02E-07	5.20E-08	4.61E-07	1.95E-07	2.94E-07	2.28E-08	3.40E-09	-
Dust	7.34E-11	1.30E-08	2.08E-11	3.62E-09	3.03E-09	1.96E-08	2.20E-10	2.94E-10	4.89E-11	7.66E-08	6.59E-08	1.74E-09	-	-	-	-	-	-	-
	7.34E-11	1.69E-07	7.66E-11	4.74E-09	3.03E-09	2.07E-08	2.20E-10	1.41E-09	4.89E-11	7.66E-08	1.07E-06	1.74E-09	1.02E-07	5.20E-08	4.61E-07	1.95E-07	2.94E-07	2.28E-08	3.40E-09
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	1.71E-10	3.04E-08	4.85E-11	8.45E-09	7.08E-09	4.57E-08	5.14E-10	6.85E-10	1.14E-10	1.79E-07	1.54E-07	4.05E-09	-	-	-	-	-	-	-
	1.71E-10	3.04E-08	4.85E-11	8.45E-09	7.08E-09	4.57E-08	5.14E-10	6.85E-10	1.14E-10	1.79E-07	1.54E-07	4.05E-09	-	-	-	-	-	-	-
	4.03E-07	4.71E-05	1.36E-07	1.52E-06	7.29E-06	1.23E-05	2.11E-07	8.11E-07	3.19E-08	3.99E-05	8.16E-05	3.45E-06	1.35E-06	6.92E-07	6.13E-06	3.29E-05	3.92E-06	3.03E-07	4.53E-08
Excavators	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubber Tired Loaders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	7.34E-11	1.30E-08	2.08E-11	3.62E-09	3.03E-09	1.96E-08	2.20E-10	2.94E-10	4.89E-11	7.66E-08	6.59E-08	1.74E-09	-	-	-	-	-	-	-
	5.85E-08	6.38E-06	1.97E-08	2.07E-07	1.05E-06	1.73E-06	3.00E-08	1.14E-07	4.50E-09	5.57E-06	8.84E-06	4.97E-07	-	-	-	-	-	-	-
LDA-TOT	-	3.91E-07	1.40E-10	2.79E-09	-	2.79E-09	-	2.79E-09	-	2.51E-06	-	2.54E-07	1.30E-07	1.15E-06	4.88E-07	7.36E-07	5.69E-08	8.51E-09	-
Dust	1.84E-10	3.26E-08	5.20E-11	9.05E-09	7.59E-09	4.89E-08	5.51E-10	7.34E-10	1.22E-10	1.92E-07	1.65E-07	4.34E-09	-	-	-	-	-	-	-
	5.88E-08	6.81E-06	1.99E-08	2.22E-07	1.06E-06	1.80E-06	3.08E-08	1.18E-07	4.67E-09	5.84E-06	1.16E-05	5.03E-07	2.54E-07	1.30E-07	1.15E-06	4.88E-07	7.36E-07	5.69E-08	8.51E-09

HRA Appendix - Attachment A

Offroad																			
Equipment	CADMIUM	CHLORINE	CHROMIUM VI	COPPER	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	benzene	ethylbenzene	formaldehyde	methanol	methyl eth
Category	7440439	7782505	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414	50000	67561	78933
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	1.71E-10	3.04E-08	4.85E-11	8.45E-09	7.08E-09	4.57E-08	5.14E-10	6.85E-10	1.14E-10	1.79E-07	1.54E-07	4.05E-09	-	-	-	-	-	-	-
Graders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rollers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	-	1.04E-07	3.72E-11	7.44E-10	-	7.44E-10	-	7.44E-10	-	-	6.70E-07	-	6.77E-08	3.47E-08	3.07E-07	1.30E-07	1.96E-07	1.52E-08	2.27E-09
Dust	4.89E-11	8.70E-09	1.39E-11	2.41E-09	2.02E-09	1.31E-08	1.47E-10	1.96E-10	3.26E-11	5.11E-08	4.39E-08	1.16E-09	-	-	-	-	-	-	-
	2.20E-10	1.43E-07	9.96E-11	1.16E-08	9.10E-09	5.95E-08	6.61E-10	1.63E-09	1.47E-10	2.30E-07	8.68E-07	5.21E-09	6.77E-08	3.47E-08	3.07E-07	1.30E-07	1.96E-07	1.52E-08	2.27E-09
Tractors/Loaders/Backhoes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trenchers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDT2-TOT	-	7.87E-08	2.81E-11	5.62E-10	-	5.62E-10	-	5.62E-10	-	-	5.06E-07	-	3.99E-08	2.04E-08	1.81E-07	7.68E-08	1.16E-07	8.95E-09	1.34E-09
Dust	2.45E-11	4.35E-09	6.93E-12	1.21E-09	1.01E-09	6.53E-09	7.34E-11	9.79E-11	1.63E-11	2.55E-08	2.20E-08	5.79E-10	-	-	-	-	-	-	-
LDA-TOT	-	1.04E-07	3.72E-11	7.44E-10	-	7.44E-10	-	7.44E-10	-	-	6.70E-07	-	6.77E-08	3.47E-08	3.07E-07	1.30E-07	1.96E-07	1.52E-08	2.27E-09
Dust	4.89E-11	8.70E-09	1.39E-11	2.41E-09	2.02E-09	1.31E-08	1.47E-10	1.96E-10	3.26E-11	5.11E-08	4.39E-08	1.16E-09	-	-	-	-	-	-	-
	7.34E-11	1.96E-07	8.61E-11	4.93E-09	3.03E-09	2.09E-08	2.20E-10	1.60E-09	4.89E-11	7.66E-08	1.24E-06	1.74E-09	1.08E-07	5.51E-08	4.88E-07	2.07E-07	3.12E-07	2.41E-08	3.61E-09
Concrete/Industrial Saws	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubber Tired Loaders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	1.71E-10	3.04E-08	4.85E-11	8.45E-09	7.08E-09	4.57E-08	5.14E-10	6.85E-10	1.14E-10	1.79E-07	1.54E-07	4.05E-09	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	5.51E-11	9.78E-09	1.56E-11	2.72E-09	2.28E-09	1.47E-08	1.65E-10	2.20E-10	3.67E-11	5.75E-08	4.94E-08	1.30E-09	-	-	-	-	-	-	-
LDT2-TOT	-	3.94E-08	1.41E-11	2.81E-10	-	2.81E-10	-	2.81E-10	-	-	2.53E-07	-	2.00E-08	1.02E-08	9.05E-08	3.84E-08	5.78E-08	4.48E-09	6.69E-10
Dust	1.22E-11	2.17E-09	3.47E-12	6.04E-10	5.06E-10	3.26E-09	3.67E-11	4.89E-11	8.16E-12	1.28E-08	1.10E-08	2.90E-10	-	-	-	-	-	-	-
LDA-TOT	-	6.51E-08	2.33E-11	4.65E-10	-	4.65E-10	-	4.65E-10	-	-	4.19E-07	-	4.23E-08	2.17E-08	1.92E-07	8.14E-08	1.23E-07	9.49E-09	1.42E-09
Dust	3.06E-11	5.43E-09	8.67E-12	1.51E-09	1.26E-09	8.16E-09	9.18E-11	1.22E-10	2.04E-11	3.19E-08	2.74E-08	7.24E-10	-	-	-	-	-	-	-
	2.69E-10	1.52E-07	1.14E-10	1.40E-08	1.11E-08	7.25E-08	8.08E-10	1.82E-09	1.79E-10	2.81E-07	9.13E-07	6.37E-09	6.23E-08	3.19E-08	2.82E-07	1.20E-07	1.80E-07	1.40E-08	2.09E-09
Graders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubber Tired Dozers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rollers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	3.96E-07	4.32E-05	1.33E-07	1.40E-06	7.12E-06	1.17E-05	2.03E-07	7.72E-07	3.05E-08	3.77E-05	5.99E-05	3.36E-06	-	-	-	-	-	-	-
Dust	-	5.21E-08	1.86E-11	3.72E-10	-	3.72E-10	-	3.72E-10	-	-	3.35E-07	-	3.39E-08	1.73E-08	1.54E-07	6.51E-08	9.81E-08	7.59E-09	1.13E-09
	2.45E-11	4.35E-09	6.93E-12	1.21E-09	1.01E-09	6.53E-09	7.34E-11	9.79E-11	1.63E-11	2.55E-08	2.20E-08	5.79E-10	-	-	-	-	-	-	-
	3.96E-07	4.32E-05	1.33E-07	1.40E-06	7.12E-06	1.17E-05	2.03E-07	7.72E-07	3.05E-08	3.77E-05	6.02E-05	3.36E-06	3.39E-08	1.73E-08	1.54E-07	6.51E-08	9.81E-08	7.59E-09	1.13E-09
Tractors/Loaders/Backhoes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pavers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	6.12E-12	1.09E-09	1.73E-12	3.02E-10	2.53E-10	1.63E-09	1.84E-11	2.45E-11	4.08E-12	6.39E-09	5.49E-09	1.45E-10	-	-	-	-	-	-	-
LDT2-TOT	-	3.94E-08	1.41E-11	2.81E-10	-	2.81E-10	-	2.81E-10	-	-	2.53E-07	-	2.00E-08	1.02E-08	9.05E-08	3.84E-08	5.78E-08	4.48E-09	6.69E-10
Dust	1.22E-11	2.17E-09	3.47E-12	6.04E-10	5.06E-10	3.26E-09	3.67E-11	4.89E-11	8.16E-12	1.28E-08	1.10E-08	2.90E-10	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.03E-05	-	-	-
LDA-TOT	-	5.21E-08	1.86E-11	3.72E-10	-	3.72E-10	-	3.72E-10	-	-	3.35E-07	-	3.39E-08	1.73E-08	1.54E-07	6.51E-08	9.81E-08	7.59E-09	1.13E-09
Dust	2.45E-11	4.35E-09	6.93E-12	1.21E-09	1.01E-09	6.53E-09	7.34E-11	9.79E-11	1.63E-11	2.55E-08	2.20E-08	5.79E-10	-	-	-	-	-	-	-

HRA Appendix - Attachment A

Offroad																			
Equipment	CADMIUM	CHLORINE	CHROMIUM VI	COPPER	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	benzene	ethylbenzene	formaldehyde	methanol	methyl eth
Category	7440439	7782505	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414	50000	67561	78933
	4.28E-11	9.91E-08	4.48E-11	2.77E-09	1.77E-09	1.21E-08	1.28E-10	8.25E-10	2.86E-11	4.47E-08	6.26E-07	1.01E-09	5.38E-08	2.76E-08	2.44E-07	3.04E-05	1.56E-07	1.21E-08	1.80E-09
Trenchers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	-	9.77E-08	3.49E-11	6.98E-10	-	6.98E-10	-	6.98E-10	-	-	6.28E-07	-	6.35E-08	3.25E-08	2.88E-07	1.22E-07	1.84E-07	1.42E-08	2.13E-09
Dust	4.59E-11	8.15E-09	1.30E-11	2.26E-09	1.90E-09	1.22E-08	1.38E-10	1.84E-10	3.06E-11	4.79E-08	4.12E-08	1.09E-09	-	-	-	-	-	-	-
	4.59E-11	1.06E-07	4.79E-11	2.96E-09	1.90E-09	1.29E-08	1.38E-10	8.81E-10	3.06E-11	4.79E-08	6.69E-07	1.09E-09	6.35E-08	3.25E-08	2.88E-07	1.22E-07	1.84E-07	1.42E-08	2.13E-09
Trenchers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	-	3.26E-08	1.16E-11	2.33E-10	-	2.33E-10	-	2.33E-10	-	-	2.09E-07	-	2.12E-08	1.08E-08	9.59E-08	4.07E-08	6.13E-08	4.74E-09	7.09E-10
Dust	1.53E-11	2.72E-09	4.33E-12	7.55E-10	6.32E-10	4.08E-09	4.59E-11	6.12E-11	1.02E-11	1.60E-08	1.37E-08	3.62E-10	-	-	-	-	-	-	-
	1.53E-11	3.53E-08	1.60E-11	9.87E-10	6.32E-10	4.31E-09	4.59E-11	2.94E-10	1.02E-11	1.60E-08	2.23E-07	3.62E-10	2.12E-08	1.08E-08	9.59E-08	4.07E-08	6.13E-08	4.74E-09	7.09E-10
Air Compressors	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	2.45E-11	4.35E-09	6.93E-12	1.21E-09	1.01E-09	6.53E-09	7.34E-11	9.79E-11	1.63E-11	2.55E-08	2.20E-08	5.79E-10	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	2.20E-11	3.91E-09	6.24E-12	1.09E-09	9.10E-10	5.87E-09	6.61E-11	8.81E-11	1.47E-11	2.30E-08	1.98E-08	5.21E-10	-	-	-	-	-	-	-
Off-Highway Trucks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tractors/Loaders/Backhoes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cranes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forklifts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	-	3.52E-06	1.26E-09	2.51E-08	-	2.51E-08	-	2.51E-08	-	-	2.26E-05	-	2.29E-06	1.17E-06	1.04E-05	4.40E-06	6.62E-06	5.12E-07	7.65E-08
Dust	1.65E-09	2.93E-07	4.68E-10	8.15E-08	6.83E-08	4.40E-07	4.96E-09	6.61E-09	1.10E-09	1.72E-06	1.48E-06	3.91E-08	-	-	-	-	-	-	-
	1.70E-09	3.82E-06	1.74E-09	1.09E-07	7.02E-08	4.78E-07	5.09E-09	3.19E-08	1.13E-09	1.77E-06	2.41E-05	4.02E-08	2.29E-06	1.17E-06	1.04E-05	4.40E-06	6.62E-06	5.12E-07	7.65E-08
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	1.71E-10	3.04E-08	4.85E-11	8.45E-09	7.08E-09	4.57E-08	5.14E-10	6.85E-10	1.14E-10	1.79E-07	1.54E-07	4.05E-09	-	-	-	-	-	-	-
	1.71E-10	3.04E-08	4.85E-11	8.45E-09	7.08E-09	4.57E-08	5.14E-10	6.85E-10	1.14E-10	1.79E-07	1.54E-07	4.05E-09	-	-	-	-	-	-	-
	4.57E-07	5.46E-05	1.55E-07	1.78E-06	8.29E-06	1.42E-05	2.42E-07	9.30E-07	3.68E-08	4.62E-05	1.01E-04	3.92E-06	2.95E-06	1.51E-06	1.34E-05	3.60E-05	8.54E-06	6.61E-07	9.88E-08

HRA Appendix - Attachment A

Offroad									
Equipment	yl ketone (meb) (2-butanom m-xylene naphthalene p-hexane p-xylene propene p-xylene styrene toluene acrolein (2								
Category	108383	91203	110543	95476	115071	106423	100425	108883	107028
Cranes	-	-	-	-	-	-	-	-	-
Hoist/swing/winch	-	-	-	-	-	-	-	-	-
Crushing/Proc. Equipment	-	-	-	-	-	-	-	-	-
Rubber Tired Loaders	-	-	-	-	-	-	-	-	-
HHD-T-DSL	-	-	-	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-
LDA-TOT	1.11E-06	1.46E-08	4.96E-07	3.84E-07	9.51E-07	-	3.81E-08	1.79E-06	4.11E-08
Dust	-	-	-	-	-	-	-	-	-
	1.11E-06	1.46E-08	4.96E-07	3.84E-07	9.51E-07	0.00E+00	3.81E-08	1.79E-06	4.11E-08
Excavators	-	-	-	-	-	-	-	-	-
Rubber Tired Loaders	-	-	-	-	-	-	-	-	-
HHD-T-DSL	-	-	-	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
LDA-TOT	3.32E-06	4.39E-08	1.49E-06	1.15E-06	2.85E-06	-	1.14E-07	5.36E-06	1.23E-07
Dust	-	-	-	-	-	-	-	-	-
	3.32E-06	4.39E-08	1.49E-06	1.15E-06	2.85E-06	0.00E+00	1.14E-07	5.36E-06	1.23E-07
Hoist/swing/winch	-	-	-	-	-	-	-	-	-
Hoist/swing/winch	-	-	-	-	-	-	-	-	-
Hoist/swing/winch	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-
LDA-TOT	5.81E-07	7.69E-09	2.61E-07	2.02E-07	4.99E-07	-	2.00E-08	9.38E-07	2.16E-08
Dust	-	-	-	-	-	-	-	-	-
	5.81E-07	7.69E-09	2.61E-07	2.02E-07	4.99E-07	0.00E+00	2.00E-08	9.38E-07	2.16E-08
Hoist/swing/winch	-	-	-	-	-	-	-	-	-
Hoist/swing/winch	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-
Air Compressors	-	-	-	-	-	-	-	-	-
LDA-TOT	1.11E-06	1.46E-08	4.96E-07	3.84E-07	9.51E-07	-	3.81E-08	1.79E-06	4.11E-08
Dust	-	-	-	-	-	-	-	-	-
	1.11E-06	1.46E-08	4.96E-07	3.84E-07	9.51E-07	0.00E+00	3.81E-08	1.79E-06	4.11E-08

HRA Appendix - Attachment A

Offroad									
Equipment	2-butanone (methyl ethyl ketone)	m-xylene	naphthalene	p-xylene	propene	p-xylene	styrene	toluene	acrolein (2)
Category	108383	91203	110543	95476	115071	106423	100425	108883	107028
Hoist/swing/winch	-	-	-	-	-	-	-	-	-
Hoist/swing/winch	-	-	-	-	-	-	-	-	-
LDA-TOT	1.94E-07	2.56E-09	8.69E-08	6.73E-08	1.66E-07	-	6.67E-09	3.13E-07	7.20E-09
Dust	-	-	-	-	-	-	-	-	-
	1.94E-07	2.56E-09	8.69E-08	6.73E-08	1.66E-07	-	6.67E-09	3.13E-07	7.20E-09
Hoist/swing/winch	-	-	-	-	-	-	-	-	-
Hoist/swing/winch	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-
LDA-TOT	1.11E-06	1.46E-08	4.96E-07	3.84E-07	9.51E-07	-	3.81E-08	1.79E-06	4.11E-08
Dust	-	-	-	-	-	-	-	-	-
	1.11E-06	1.46E-08	4.96E-07	3.84E-07	9.51E-07	-	3.81E-08	1.79E-06	4.11E-08
Hoist/swing/winch	-	-	-	-	-	-	-	-	-
Hoist/swing/winch	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-
Hoist/swing/winch	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-
LDA-TOT	2.16E-07	2.86E-09	9.68E-08	7.50E-08	1.85E-07	-	7.44E-09	3.48E-07	8.02E-09
Dust	-	-	-	-	-	-	-	-	-
	2.16E-07	2.86E-09	9.68E-08	7.50E-08	1.85E-07	-	7.44E-09	3.48E-07	8.02E-09
Hoist/swing/winch	-	-	-	-	-	-	-	-	-
Hoist/swing/winch	-	-	-	-	-	-	-	-	-
Excavators	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-
LDA-TOT	2.16E-07	2.86E-09	9.68E-08	7.50E-08	1.85E-07	-	7.44E-09	3.48E-07	8.02E-09
Dust	-	-	-	-	-	-	-	-	-
	2.16E-07	2.86E-09	9.68E-08	7.50E-08	1.85E-07	-	7.44E-09	3.48E-07	8.02E-09
Hoist/swing/winch	-	-	-	-	-	-	-	-	-
Hoist/swing/winch	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-
LDA-TOT	2.16E-07	2.86E-09	9.68E-08	7.50E-08	1.85E-07	-	7.44E-09	3.48E-07	8.02E-09
Dust	-	-	-	-	-	-	-	-	-
	2.16E-07	2.86E-09	9.68E-08	7.50E-08	1.85E-07	-	7.44E-09	3.48E-07	8.02E-09
HHDT-DSL	-	-	-	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-

HRA Appendix - Attachment A

Offroad										
Equipment	2-butanone (meq)	m-xylene	naphthalene	n-hexane	o-xylene	propene	p-xylene	styrene	toluene	acrolein (2
Category	108383	91203	110543	95476	115071	106423	100425	108883	107028	
Graders	-	-	-	-	-	-	-	-	-	-
Rollers	-	-	-	-	-	-	-	-	-	-
LDA-TOT	6.64E-07	8.78E-09	2.98E-07	2.31E-07	5.70E-07	-	2.29E-08	1.07E-06	2.47E-08	-
Dust	-	-	-	-	-	-	-	-	-	-
	6.64E-07	8.78E-09	2.98E-07	2.31E-07	5.70E-07	-	2.29E-08	1.07E-06	2.47E-08	-
Tractors/Loaders/Backhoes	-	-	-	-	-	-	-	-	-	-
Trenchers	-	-	-	-	-	-	-	-	-	-
LDT2-TOT	5.22E-07	6.91E-09	2.34E-07	1.81E-07	4.49E-07	-	1.80E-08	8.43E-07	1.94E-08	-
Dust	-	-	-	-	-	-	-	-	-	-
LDA-TOT	8.85E-07	1.17E-08	3.97E-07	3.07E-07	7.61E-07	-	3.05E-08	1.43E-06	3.29E-08	-
Dust	-	-	-	-	-	-	-	-	-	-
	1.41E-06	1.86E-08	6.31E-07	4.89E-07	1.21E-06	-	4.85E-08	2.27E-06	5.23E-08	-
Crushing/Proc. Equipment	-	-	-	-	-	-	-	-	-	-
Rubber Tired Loaders	-	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-	-
HHDT-DSL										
Dust										
LDT2-TOT	3.65E-07	4.83E-09	1.64E-07	1.27E-07	3.14E-07	-	1.26E-08	5.90E-07	1.36E-08	-
Dust	-	-	-	-	-	-	-	-	-	-
LDA-TOT	7.74E-07	1.02E-08	3.48E-07	2.69E-07	6.66E-07	-	2.67E-08	1.25E-06	2.88E-08	-
Dust	-	-	-	-	-	-	-	-	-	-
	1.14E-06	1.51E-08	5.11E-07	3.96E-07	9.79E-07	-	3.93E-08	1.84E-06	4.24E-08	-
Graders	-	-	-	-	-	-	-	-	-	-
Rubber Tired Dozers	-	-	-	-	-	-	-	-	-	-
Rollers	-	-	-	-	-	-	-	-	-	-
LDA-TOT	2.21E-07	2.93E-09	9.93E-08	7.69E-08	1.90E-07	-	7.63E-09	3.57E-07	8.22E-09	-
Dust	-	-	-	-	-	-	-	-	-	-
	2.21E-07	2.93E-09	9.93E-08	7.69E-08	1.90E-07	-	7.63E-09	3.57E-07	8.22E-09	-
Tractors/Loaders/Backhoes	-	-	-	-	-	-	-	-	-	-
Pavers	-	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-	-
LDT2-TOT	1.30E-07	1.73E-09	5.86E-08	4.53E-08	1.12E-07	-	4.50E-09	2.11E-07	4.85E-09	-
Dust	-	-	-	-	-	-	-	-	-	-
LDA-TOT	2.21E-07	2.93E-09	9.93E-08	7.69E-08	1.90E-07	-	7.63E-09	3.57E-07	8.22E-09	-
Dust	-	-	-	-	-	-	-	-	-	-
	3.52E-07	4.66E-09	1.58E-07	4.89E-05	3.02E-07	-	1.21E-08	8.50E-05	1.31E-08	-

HRA Appendix - Attachment A

Offroad										
Equipment	2-butanone (meq)	m-xylene	naphthalene	n-hexane	o-xylene	propene	p-xylene	styrene	toluene	acrolein (2
Category	108383	91203	110543	95476	115071	106423	100425	108883	107028	
Trenchers	-	-	-	-	-	-	-	-	-	-
LDA-TOT	6.64E-07	8.78E-09	2.98E-07	2.31E-07	5.70E-07	-	2.29E-08	1.07E-06	2.47E-08	
Dust	-	-	-	-	-	-	-	-	-	-
	6.64E-07	8.78E-09	2.98E-07	2.31E-07	5.70E-07	-	2.29E-08	1.07E-06	2.47E-08	
HHDT-DSL	-	-	-	-	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
	1.25E-05	1.66E-07	5.61E-06	5.32E-05	1.07E-05	0.00E+00	4.31E-07	1.05E-04	4.65E-07	
Cranes	-	-	-	-	-	-	-	-	-	-
Hoist/swing/winch	-	-	-	-	-	-	-	-	-	-
Concrete/Industrial Saws	-	-	-	-	-	-	-	-	-	-
Rubber Tired Loaders	-	-	-	-	-	-	-	-	-	-
LDA-TOT	5.53E-07	7.32E-09	2.48E-07	1.92E-07	4.75E-07	-	1.91E-08	8.94E-07	2.06E-08	
Dust	-	-	-	-	-	-	-	-	-	-
	5.53E-07	7.32E-09	2.48E-07	1.92E-07	4.75E-07	-	1.91E-08	8.94E-07	2.06E-08	
Hoist/swing/winch	-	-	-	-	-	-	-	-	-	-
Hoist/swing/winch	-	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-	-
Hoist/swing/winch	-	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-	-
LDA-TOT	7.19E-07	9.52E-09	3.23E-07	2.50E-07	6.18E-07	-	2.48E-08	1.16E-06	2.67E-08	
Dust	-	-	-	-	-	-	-	-	-	-
	7.19E-07	9.52E-09	3.23E-07	2.50E-07	6.18E-07	-	2.48E-08	1.16E-06	2.67E-08	
Hoist/swing/winch	-	-	-	-	-	-	-	-	-	-
Hoist/swing/winch	-	-	-	-	-	-	-	-	-	-
Excavators	-	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-	-
LDA-TOT	7.19E-07	9.52E-09	3.23E-07	2.50E-07	6.18E-07	-	2.48E-08	1.16E-06	2.67E-08	
Dust	-	-	-	-	-	-	-	-	-	-
	7.19E-07	9.52E-09	3.23E-07	2.50E-07	6.18E-07	-	2.48E-08	1.16E-06	2.67E-08	
Hoist/swing/winch	-	-	-	-	-	-	-	-	-	-

HRA Appendix - Attachment A

Offroad									
Equipment	2-butanone m-xylene	naphthalene	n-hexane	o-xylene	propene	p-xylene	styrene	toluene	acrolein (2)
Category	108383	91203	110543	95476	115071	106423	100425	108883	107028
Hoist/swing/winch	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-
LDA-TOT	7.19E-07	9.52E-09	3.23E-07	2.50E-07	6.18E-07	-	2.48E-08	1.16E-06	2.67E-08
Dust	-	-	-	-	-	-	-	-	-
	7.19E-07	9.52E-09	3.23E-07	2.50E-07	6.18E-07	-	2.48E-08	1.16E-06	2.67E-08
Hoist/swing/winch	-	-	-	-	-	-	-	-	-
Hoist/swing/winch	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-
LDA-TOT	1.11E-06	1.46E-08	4.96E-07	3.84E-07	9.51E-07	-	3.81E-08	1.79E-06	4.11E-08
Dust	-	-	-	-	-	-	-	-	-
	1.11E-06	1.46E-08	4.96E-07	3.84E-07	9.51E-07	-	3.81E-08	1.79E-06	4.11E-08
Excavators	-	-	-	-	-	-	-	-	-
Rubber Tired Loaders	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
LDA-TOT	1.33E-06	1.76E-08	5.96E-07	4.61E-07	1.14E-06	-	4.58E-08	2.14E-06	4.93E-08
Dust	-	-	-	-	-	-	-	-	-
	1.33E-06	1.76E-08	5.96E-07	4.61E-07	1.14E-06	-	4.58E-08	2.14E-06	4.93E-08
HHDT-DSL	-	-	-	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-
Graders	-	-	-	-	-	-	-	-	-
Rollers	-	-	-	-	-	-	-	-	-
LDA-TOT	6.64E-07	8.78E-09	2.98E-07	2.31E-07	5.70E-07	-	2.29E-08	1.07E-06	2.47E-08
Dust	-	-	-	-	-	-	-	-	-
	6.64E-07	8.78E-09	2.98E-07	2.31E-07	5.70E-07	-	2.29E-08	1.07E-06	2.47E-08
Tractors/Loaders/Backhoes	-	-	-	-	-	-	-	-	-
Trenchers	-	-	-	-	-	-	-	-	-
LDT2-TOT	9.38E-07	1.24E-08	4.21E-07	3.26E-07	8.07E-07	-	3.23E-08	1.52E-06	3.49E-08
Dust	-	-	-	-	-	-	-	-	-
LDA-TOT	4.42E-07	5.86E-09	1.99E-07	1.54E-07	3.80E-07	-	1.53E-08	7.15E-07	1.64E-08
Dust	-	-	-	-	-	-	-	-	-
	1.38E-06	1.83E-08	6.20E-07	4.80E-07	1.19E-06	-	4.76E-08	2.23E-06	5.13E-08
Concrete/Industrial Saws	-	-	-	-	-	-	-	-	-
Rubber Tired Loaders	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-
LDT2-TOT	1.30E-07	1.73E-09	5.86E-08	4.53E-08	1.12E-07	-	4.50E-09	2.11E-07	4.85E-09

HRA Appendix - Attachment A

Offroad									
Equipment	2-butanone (methyl ethyl ketone)	m-xylene	naphthalene	n-hexane	p-xylene	propene	p-xylene	styrene	toluene
Category	108383	91203	110543	95476	115071	106423	100425	108883	107028
Dust	-	-	-	-	-	-	-	-	-
LDA-TOT	2.77E-07	3.66E-09	1.24E-07	9.61E-08	2.38E-07	-	9.53E-09	4.47E-07	1.03E-08
Dust	-	-	-	-	-	-	-	-	-
	4.07E-07	5.39E-09	1.83E-07	1.41E-07	3.50E-07	-	1.40E-08	6.58E-07	1.51E-08
Graders	-	-	-	-	-	-	-	-	-
Rubber Tired Dozers	-	-	-	-	-	-	-	-	-
Rollers	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
LDA-TOT	2.21E-07	2.93E-09	9.93E-08	7.69E-08	1.90E-07	-	7.63E-09	3.57E-07	8.22E-09
Dust	-	-	-	-	-	-	-	-	-
	2.21E-07	2.93E-09	9.93E-08	7.69E-08	1.90E-07	-	7.63E-09	3.57E-07	8.22E-09
Tractors/Loaders/Backhoes	-	-	-	-	-	-	-	-	-
Pavers	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-
LDT2-TOT	1.30E-07	1.73E-09	5.86E-08	4.53E-08	1.12E-07	-	4.50E-09	2.11E-07	4.85E-09
Dust	-	-	-	-	-	-	-	-	-
	-	-	-	4.88E-05	-	-	-	8.44E-05	-
LDA-TOT	2.21E-07	2.93E-09	9.93E-08	7.69E-08	1.90E-07	-	7.63E-09	3.57E-07	8.22E-09
Dust	-	-	-	-	-	-	-	-	-
	3.52E-07	4.66E-09	1.58E-07	4.89E-05	3.02E-07	-	1.21E-08	8.50E-05	1.31E-08
Trenchers	-	-	-	-	-	-	-	-	-
LDA-TOT	6.64E-07	8.78E-09	2.98E-07	2.31E-07	5.70E-07	-	2.29E-08	1.07E-06	2.47E-08
Dust	-	-	-	-	-	-	-	-	-
	6.64E-07	8.78E-09	2.98E-07	2.31E-07	5.70E-07	-	2.29E-08	1.07E-06	2.47E-08
HHDT-DSL	-	-	-	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
	8.83E-06	1.17E-07	3.96E-06	5.19E-05	7.59E-06	0.00E+00	3.04E-07	9.87E-05	3.28E-07
Excavators	-	-	-	-	-	-	-	-	-
Rubber Tired Loaders	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
LDA-TOT	1.66E-06	2.20E-08	7.45E-07	5.77E-07	1.43E-06	-	5.72E-08	2.68E-06	6.17E-08
Dust	-	-	-	-	-	-	-	-	-
	1.66E-06	2.20E-08	7.45E-07	5.77E-07	1.43E-06	-	5.72E-08	2.68E-06	6.17E-08

HRA Appendix - Attachment A

Offroad									
Equipment	m-xylene	naphthalene	n-hexane	o-xylene	propene	p-xylene	styrene	toluene	acrolein (2
Category	108383	91203	110543	95476	115071	106423	100425	108883	107028
HHDT-DSL	-	-	-	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-
Graders	-	-	-	-	-	-	-	-	-
Rollers	-	-	-	-	-	-	-	-	-
LDA-TOT	4.42E-07	5.86E-09	1.99E-07	1.54E-07	3.80E-07	-	1.53E-08	7.15E-07	1.64E-08
Dust	-	-	-	-	-	-	-	-	-
	4.42E-07	5.86E-09	1.99E-07	1.54E-07	3.80E-07	-	1.53E-08	7.15E-07	1.64E-08
Tractors/Loaders/Backhoes	-	-	-	-	-	-	-	-	-
Trenchers	-	-	-	-	-	-	-	-	-
LDT2-TOT	2.61E-07	3.45E-09	1.17E-07	9.07E-08	2.24E-07	-	8.99E-09	4.22E-07	9.70E-09
Dust	-	-	-	-	-	-	-	-	-
LDA-TOT	4.42E-07	5.86E-09	1.99E-07	1.54E-07	3.80E-07	-	1.53E-08	7.15E-07	1.64E-08
Dust	-	-	-	-	-	-	-	-	-
	7.03E-07	9.31E-09	3.16E-07	2.44E-07	6.05E-07	-	2.42E-08	1.14E-06	2.61E-08
Concrete/Industrial Saws	-	-	-	-	-	-	-	-	-
Rubber Tired Loaders	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-
LDT2-TOT	1.30E-07	1.73E-09	5.86E-08	4.53E-08	1.12E-07	-	4.50E-09	2.11E-07	4.85E-09
Dust	-	-	-	-	-	-	-	-	-
LDA-TOT	2.77E-07	3.66E-09	1.24E-07	9.61E-08	2.38E-07	-	9.53E-09	4.47E-07	1.03E-08
Dust	-	-	-	-	-	-	-	-	-
	4.07E-07	5.39E-09	1.83E-07	1.41E-07	3.50E-07	-	1.40E-08	6.58E-07	1.51E-08
Graders	-	-	-	-	-	-	-	-	-
Rubber Tired Dozers	-	-	-	-	-	-	-	-	-
Rollers	-	-	-	-	-	-	-	-	-
LDA-TOT	2.21E-07	2.93E-09	9.93E-08	7.69E-08	1.90E-07	-	7.63E-09	3.57E-07	8.22E-09
Dust	-	-	-	-	-	-	-	-	-
	2.21E-07	2.93E-09	9.93E-08	7.69E-08	1.90E-07	-	7.63E-09	3.57E-07	8.22E-09
Tractors/Loaders/Backhoes	-	-	-	-	-	-	-	-	-
Pavers	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-
LDT2-TOT	1.30E-07	1.73E-09	5.86E-08	4.53E-08	1.12E-07	-	4.50E-09	2.11E-07	4.85E-09
Dust	-	-	-	-	-	-	-	-	-
LDA-TOT	2.21E-07	2.93E-09	9.93E-08	7.69E-08	1.90E-07	-	7.63E-09	3.57E-07	8.22E-09
Dust	-	-	-	-	-	-	-	-	-

HRA Appendix - Attachment A

Offroad									
Equipment	2-butanone (methyl ketone)	m-xylene	naphthalene	p-hexane	p-xylene	propene	p-xylene	styrene	toluene
Category	108383	91203	110543	95476	115071	106423	100425	108883	107028
	3.52E-07	4.66E-09	1.58E-07	4.89E-05	3.02E-07	-	1.21E-08	8.50E-05	1.31E-08
Trenchers	-	-	-	-	-	-	-	-	-
LDA-TOT	4.15E-07	5.49E-09	1.86E-07	1.44E-07	3.57E-07	-	1.43E-08	6.70E-07	1.54E-08
Dust	-	-	-	-	-	-	-	-	-
	4.15E-07	5.49E-09	1.86E-07	1.44E-07	3.57E-07	-	1.43E-08	6.70E-07	1.54E-08
Trenchers	-	-	-	-	-	-	-	-	-
LDA-TOT	1.38E-07	1.83E-09	6.21E-08	4.80E-08	1.19E-07	-	4.77E-09	2.23E-07	5.14E-09
Dust	-	-	-	-	-	-	-	-	-
	1.38E-07	1.83E-09	6.21E-08	4.80E-08	1.19E-07	-	4.77E-09	2.23E-07	5.14E-09
Air Compressors	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-
Off-Highway Trucks	-	-	-	-	-	-	-	-	-
Tractors/Loaders/Backhoes	-	-	-	-	-	-	-	-	-
Cranes	-	-	-	-	-	-	-	-	-
Forklifts	-	-	-	-	-	-	-	-	-
LDA-TOT	1.49E-05	1.98E-07	6.70E-06	5.19E-06	1.28E-05	-	5.15E-07	2.41E-05	5.55E-07
Dust	-	-	-	-	-	-	-	-	-
	1.49E-05	1.98E-07	6.70E-06	5.19E-06	1.28E-05	-	5.15E-07	2.41E-05	5.55E-07
HHDT-DSL	-	-	-	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
	1.93E-05	2.55E-07	8.65E-06	5.55E-05	1.66E-05	0.00E+00	6.64E-07	1.16E-04	7.16E-07

HRA Appendix - Attachment A

Al Larson Boat Shop Upgrade											
Construction Toxics After Mitigation											
		Marine Work									
		Site Civil Work									
		Building Demolition									
						Offroad	Offroad	Peak Day			
	Item	Description	Major Equipment	Equipment	Hours/day or	Equipment	HP	ROG	PM10	Diesel PM	ARSENIC
1				#	Miles/roundtrip	Category	*	lbs/hr	lbs/hr	9901	7440382
2	Phase 1 Construction (2011)										
3											
4	1										
5		Demolish 200' creosote timber wharf	Derrick Barge	1	8.0	Cranes	195	0.09	0.03		1.67E-07
6			Flat Barge - Main Hoist	1	8.0	Hoist/swing/winch	335	0.12	0.04		2.22E-07
7			Vibratory Hammer	1	8.0	Crushing/Proc. Equipment	175	<u>0.06</u>	<u>0.06</u>		<u>2.89E-07</u>
8			Track Loader	1	8.0	Rubber Tired Loaders	175	<u>0.08</u>	<u>0.06</u>		<u>2.89E-07</u>
9		Added by CDM	Haul Trucks - Diesel	1	1.0	HHDT-DSL	NA	0.00	0.00		8.27E-09
10			Haul Trucks - Fugitive Dust	1	1.0	Dust	-	-	0.00		1.06E-08
11			Workers	10	0.5	LDA-TOT	NA	0.01	0.00		-
12			Workers - Dust	10	0.5	Dust	-	-	0.01		1.06E-07
13	Subtotal							<u>0.35</u>	<u>0.20</u>	<u>0.20</u>	<u>1.09E-06</u>
14	2	Demolish buildings D, C1, & H1									
15			Excavator with Ram-Hoe	1	8.0	Excavators	175	<u>0.12</u>	0.06		<u>2.89E-07</u>
16			Front End (Wheel) Loader	1	8.0	Rubber Tired Loaders	175	<u>0.08</u>	0.06		<u>2.89E-07</u>
17			Dump Trucks (2)	2	1.0	HHDT-DSL	NA	0.01	0.00		1.65E-08
18			Dump Trucks (2) - Dust		1.0	Dust	-	-	0.00		2.12E-08
19			Demolition Dust		8.0		-	-	0.01		1.20E-07
20			Workers	10	0.5	LDA-TOT	NA	0.00	0.00		-
21			Workers - Dust	10	0.5	Dust	-	-	0.00		5.30E-08
22	Subtotal							<u>0.21</u>	<u>0</u>	<u>0</u>	<u>7.36E-07</u>
23	3	Install 24" Octagonal Prestressed Concrete Piles									
24			Derrick Barge Crane Hoist	1	8.0	Hoist/swing/winch	564	0.27	0.10		5.04E-07
25			Flat Barge - Main Hoist	1	8.0	Hoist/swing/winch	335	0.12	0.04		2.22E-07
26			Flat Barge - Deck Winch	1	8.0	Hoist/swing/winch	120	0.08	0.04		1.77E-07
27			Flat Barge - Generator 1	1	8.0	Generator Sets	229	<u>0.08</u>	0.05		<u>2.55E-07</u>
28			Flat Barge - Generator 2	1	8.0	Generator Sets	90	<u>0.03</u>	0.04		<u>1.78E-07</u>
29			Pile-driving Hammer	1	8.0	Generator Sets	190	<u>0.06</u>	0.04		<u>2.12E-07</u>
30			Workers	7	0.5	LDA-TOT	NA	0.00	0.00		-
31			Workers - Dust	7	0.5	Dust	-	-	0.00		3.71E-08
32	Subtotal							<u>0.64</u>	<u>0</u>	<u>0</u>	<u>1.59E-06</u>
33	4	Construct finger piers									
34			Derrick Barge Crane Hoist	1	8.0	Hoist/swing/winch	564	0.27	0.10		5.04E-07
35			Flat Barge - Main Hoist	1	8.0	Hoist/swing/winch	335	0.12	0.04		2.22E-07
36			Generator Sets	1	8.0	Generator Sets	500	0.21	0.08		4.15E-07
37			Air Compressors	1	8.0	Air Compressors	500	0.18	0.07		3.41E-07
38			Workers	10	0.5	LDA-TOT	NA	0.00	0.00		-
39			Workers - Dust	10	0.5	Dust	-	-	0.00		5.30E-08
40	Subtotal							<u>1</u>	<u>0</u>	<u>0</u>	<u>1.48E-06</u>
41	5	Install owner furnished 600 ton travel lift									

HRA Appendix - Attachment A

						Offroad	Offroad	Peak Day			
				Equipment	Hours/day or	Equipment	HP				
	Item	Description	Major Equipment	#	Miles/roundtrip	Category	*	ROG	PM10	Diesel PM	ARSENIC
1				#	Miles/roundtrip	Category	*	lbs/hr	lbs/hr	9901	7440382
42			Derrick Barge Crane Hoist	1	8.0	Hoist/swing/win	564	0.27	0.10		5.04E-07
43			Flat Barge - Main Hoist	1	8.0	Hoist/swing/win	335	0.12	0.04		2.22E-07
44			Workers	7	0.5	LDA-TOT	NA	0.00	0.00		-
45			Workers - Dust	7	0.5	Dust		-	0.00		3.71E-08
46			Subtotal					0	0	0	7.62E-07
47	6	F & I steel sheet pile wall (CDF Cell #1)									
48			Derrick Barge Crane Hoist	1	8.0	Hoist/swing/win	564	0.27	0.10		5.04E-07
49			Flat Barge - Main Hoist	1	8.0	Hoist/swing/win	335	0.12	0.04		2.22E-07
50			Pile-driving Hammer	1	8.0	Generator Sets	190	0.06	0.04		2.12E-07
51			Workers	10	0.5	LDA-TOT	NA	0.00	0.00		-
52			Workers - Dust	10	0.5	Dust		-	0.00		5.30E-08
53			Subtotal					0	0	0	9.90E-07
54	7	Dredge to elevation -22									
55			Derrick Barge Crane Hoist	1	8.0	Hoist/swing/win	564	0.27	0.10		5.04E-07
56			Derrick Barge Deck Winch	1	8.0	Hoist/swing/win	238	0.12	0.04		2.15E-07
57			Derrick Barge-Generator 1	1	8.0	Generator Sets	432	0.18	0.07		3.58E-07
58			Derrick Barge-Generator 2	1	8.0	Generator Sets	135	0.04	0.05		2.67E-07
59			2 ea Flat Barges or Dump Scows	2	8.0	Hoist/swing/win	335	0.23	0.09		4.43E-07
60			Tug Boat - (Main Engine)	1	4.0	NA	702	0.26	0.16		8.20E-07
61			Tug Boat - (Auxiliary Engine)	1	4.0	NA	50	0.08	0.03		1.47E-07
62			Workers	13	0.5	LDA-TOT	NA	0.00	0.00		-
63			Workers - Dust	13	0.5	Dust		0.00	0.01		6.89E-08
64			Subtotal					1.19	0.56	0.36	2.82E-06
65	8	Stabilize dredge material									
66			Derrick Barge Crane Hoist	1	8.0	Hoist/swing/win	564	0.27	0.10		5.04E-07
67			2 ea Flat Barges or Dump Scows	2	8.0	Hoist/swing/win	335	0.23	0.09		4.43E-07
68			Excavator with Ram-Hoe	1	8.0	Excavators	175	0.12	0.06		2.89E-07
69			Cement Trucks	1	1.0	HHDT-DSL	NA	0.00	0.00		8.27E-09
70			Cement Trucks - Dust	1	1.0	Dust	NA	0.00	0.00		1.06E-08
71			Tug Boat - (Main Engine)	1	4.0	NA	702	0.26	0.16		8.20E-07
72			Tug Boat - (Auxiliary Engine)	1	4.0	NA	50	0.08	0.03		1.47E-07
73			Workers	13	0.5	LDA-TOT	NA	0.00	0.00		-
74			Workers - Dust	13	0.5	Dust		-	0.01		6.89E-08
75			Subtotal					0.97	0.45	0.25	2.29E-06
76	9										
77		Dispose of Dredge material into CDF #1	Derrick Barge Crane Hoist	1	8.0	Hoist/swing/win	564	0.27	0.10		5.04E-07
78			2 ea Flat Barges or Dump Scows	2	8.0	Hoist/swing/win	335	0.23	0.09		4.43E-07
79			Tug Boat - (Main Engine)	1	4.0	NA	702	0.26	0.16		8.20E-07
80			Tug Boat - (Auxiliary Engine)	1	4.0	NA	50	0.08	0.03		1.47E-07
81			Workers	13	0.5	LDA-TOT	NA	0.00	0.00		-
82			Workers - Dust	13	0.5	Dust		-	0.01		6.89E-08
83			Subtotal					0.85	0.39	0.19	1.98E-06
84	10	Import clean soil to bring upland elevation to street level									
85			Dump Trucks	7	1.0	HHDT-DSL	NA	0.02	0.01		5.79E-08
86			Dust	3	1.0	Dust	NA	-	0.00		3.18E-08

HRA Appendix - Attachment A

						Offroad	Offroad	Peak Day			
				Equipment	Hours/day or	Equipment	HP				
	Item	Description	Major Equipment	#	Miles/roundtrip	Category	*	ROG lbs/hr	PM10 lbs/hr	Diesel PM 9901	ARSENIC 7440382
1											
87			Motor blade grader	1	8.0	Graders	175	0.06	0.06		2.89E-07
88			Drum roller	1	8.0	Rollers	175	0.06	0.06		2.89E-07
89			Workers	8	0.5	LDA-TOT	NA	0.00	0.00		-
90			Workers - Dust	8	0.5	Dust		-	0.00		4.24E-08
91			Subtotal					0.14	0.13	0.13	7.11E-07
92	11	Storm Water System w/ oil-water separator									
93			Small loader (Backhoe loader)	1	8.0	Tractors/Loaders/Backhoes	175	0.11	0.05		2.65E-07
94			Trenching Machine	1	8.0	Trenchers	175	0.06	0.06		2.89E-07
95			Pick up trucks (2)	2	1.0	LDT2-TOT	NA	0.00	0.00		-
96			Dust	2	1.0	Dust	NA	-	0.00		2.12E-08
97			Workers	8	0.5	LDA-TOT	NA	0.00	0.00		-
98			Workers - Dust	8	0.5	Dust	NA	-	0.00		4.24E-08
99			Subtotal					0.18	0	0	6.18E-07
100	12	Soil Export and Asphalt Removals									
101			Asphalt breaker	1	8.0	Crushing/Proc. Equipment	175	0.06	0.06		2.89E-07
102			Front End (Wheel) Loader	1	8.0	Rubber Tired Loaders	175	0.08	0.06		2.89E-07
103			Dump Trucks - Soil	7	1.0	HHDT-DSL	NA	0.02	0.01		5.79E-08
104			Dust	7	1.0	Dust	NA	0.00	0.01		7.42E-08
			Dump Trucks - Concrete	4	1.0	HHDT-DSL	NA	0.01	0.01		3.31E-08
			Dust	4	1.0	Dust	NA	-	0.00		4.24E-08
105			Pick up trucks (2)	2	1.0	LDT2-TOT	NA	0.00	0.00		-
106			Dust	2	1.0	Dust	NA	-	0.00		2.12E-08
107			Workers	10	0.5	LDA-TOT	NA	0.00	0.00		-
108			Workers - Dust	10	0.5	Dust		-	0.00		5.30E-08
109			Subtotal					0.17	0.15	0.13	8.61E-07
110	13	Grading									
111			Blade grader	1	8.0	Graders	175	0.06	0.06		2.89E-07
112			Small dozers (2)	2	8.0	Rubber Tired Dozers	175	0.12	0.12		5.79E-07
113			Roller (Smooth drum)	1	8.0	Rollers	175	0.06	0.06		2.89E-07
114			Grading Fugitive Dust	0.2	8.0			-	0.05		1.22E-06
115			Workers	8	0.5	LDA-TOT	NA	0.00	0.00		-
116			Workers - Dust	8	0.5	Dust		-	0.00		4.24E-08
117			Subtotal					0.23	0.29	0.23	2.42E-06
118	14	Paving									
119			Small loader (Backhoe loader)	1	8.0	Tractors/Loaders/Backhoes	175	0.11	0.05		2.65E-07
120			Asphalt paver	1	8.0	Pavers	175	0.06	0.06		2.89E-07
121			On-road Asphalt trucks	1	1.0	HHDT-DSL	NA	0.00	0.00		8.27E-09
122			Dust	1	1.0	Dust	NA	-	0.00		1.06E-08
123			Pick up trucks (2)	2	1.0	LDT2-TOT	NA	0.00	0.00		-
124			Dust	2	1.0	Dust	NA	-	0.00		2.12E-08
125			Paving Fugitive VOC	0.2	8.0			0.07	-		-
126			Workers	8	0.5	LDA-TOT	NA	0.00	0.00		-
127			Workers - Dust	8	0.5	Dust	NA	-	0.00		4.24E-08
128			Subtotal					0.24	0.12	0.11	6.37E-07
129	15	Lighting Improvements									

HRA Appendix - Attachment A

						Offroad	Offroad	Peak Day			
				Equipment	Hours/day or	Equipment	HP				
	Item	Description	Major Equipment	#	Miles/roundtrip	Category	*	ROG lbs/hr	PM10 lbs/hr	Diesel PM 9901	ARSENIC 7440382
1											
130			Trenching Machine	1	8.0	Trenchers	175	0.06	0.06		2.89E-07
131			Workers	8	0.5	LDA-TOT	NA	0.00	0.00		-
132			Workers - Dust	8	0.5	Dust	NA	-	0.00		4.24E-08
133			Subtotal					0.06	0	0	3.32E-07
134	16	Service Truck (Small Deliveries, Port-a-Potties, Utilities)									
135			Service trucks (2)	2	1.0	HHDT-DSL	NA	0.01	0.00		1.65E-08
136			Dust	2	1.0	Dust	NA	-	0.00		2.12E-08
137			Subtotal					0.01	0.00	0.00	3.77E-08
138			Total					6.85	3.55	2.82	1.94E-05
139											
140			Phase 2 Construction								
141											
142	1	Demolish finger piers									
143			Derrick Barge	1	8.0	Cranes	195	0.09	0.03		1.67E-07
144			Flat Barge - Main Hoist	1	8.0	Hoist/swing/winch	335	0.12	0.04		2.22E-07
145			Vibratory Hammer	1	8.0	Concrete/Industrial Saws	45	0.10	0.03		1.28E-07
146			Track Loader	1	8.0	Rubber Tired Loaders	175	0.08	0.06		2.89E-07
147			Workers	10	0.5	LDA-TOT	NA	0.00	0.00		-
148			Workers - Dust	10	0.5	Dust		-	0.00		5.30E-08
149			Subtotal					0.39	0.17	0.16	8.59E-07
150	2	Dredge to elevation -22									
151			Derrick Barge Crane Hoist	1	8.0	Hoist/swing/winch	564	0.27	0.10		5.04E-07
152			Derrick Barge Deck Winch	1	8.0	Hoist/swing/winch	238	0.12	0.04		2.15E-07
153			Derrick Barge-Generator 1	1	8.0	Generator Sets	432	0.18	0.07		3.58E-07
154			Derrick Barge-Generator 2	1	8.0	Generator Sets	135	0.04	0.05		2.67E-07
155			2 ea Flat Barges or Dump Scows	2	8.0	Hoist/swing/winch	335	0.23	0.09		4.43E-07
156			Tug Boat - (Main Engine)	1	4.0	NA	702	0.26	0.16		8.20E-07
157			Tug Boat - (Auxiliary Engine)	1	4.0	NA	50	0.08	0.03		1.47E-07
158			Workers	13	0.5	LDA-TOT	NA	0.00	0.00		-
159			Workers - Dust	13	0.5	Dust		-	0.01		6.89E-08
160			Subtotal					1.19	0.56	0.36	2.82E-06
161	3	Stabilize dredge material									
162			Derrick Barge Crane Hoist	1	8.0	Hoist/swing/winch	564	0.27	0.10		5.04E-07
163			2 ea Flat Barges or Dump Scows	2	8.0	Hoist/swing/winch	335	0.23	0.09		4.43E-07
164			Excavator with Ram-Hoe	1	8.0	Excavators	175	0.12	0.06		2.89E-07
165			Cement Trucks	2	1.0	HHDT-DSL	NA	0.01	0.00		1.65E-08
166			Dust	2	1.0	Dust	NA	0.00	0.00		2.12E-08
167			Tug Boat - (Main Engine)	1	4.0	NA	702	0.26	0.16		8.20E-07
168			Tug Boat - (Auxiliary Engine)	1	4.0	NA	50	0.08	0.03		1.47E-07
169			Workers	13	0.5	LDA-TOT	NA	0.00	0.00		-
170			Workers - Dust	13	0.5	Dust		-	0.01		6.89E-08
171			Subtotal					0.97	0.45	0.25	2.31E-06
172	4										
173		Dispose of Dredge material into CDF #1	Derrick Barge Crane Hoist	1	8.0	Hoist/swing/winch	564	0.27	0.10		5.04E-07

HRA Appendix - Attachment A

						Offroad	Offroad	Peak Day			
				Equipment	Hours/day or	Equipment	HP				
	Item	Description	Major Equipment	#	Miles/roundtrip	Category	*	ROG	PM10	Diesel PM	ARSENIC
1				#	Miles/roundtrip	Category	*	lbs/hr	lbs/hr	9901	7440382
174			2 ea Flat Barges or Dump Scows	2	8.0	Hoist/swing/winch	335	0.23	0.09		4.43E-07
175			Tug Boat - (Main Engine)	1	4.0	NA	702	0.26	0.16		8.20E-07
176			Tug Boat - (Auxiliary Engine)	1	4.0	NA	50	0.08	0.03		1.47E-07
177			Workers	13	0.5	LDA-TOT	NA	0.00	0.00		-
178			Workers - Dust	13	0.5	Dust		-	0.01		6.89E-08
179			Subtotal					0.85	0.39	0.19	1.98E-06
180	5										
181		F & I steel sheet pile wall (CDF Cell #2)	Derrick Barge Crane Hoist	1	8.0	Hoist/swing/winch	564	0.27	0.10		5.04E-07
182			Flat Barge - Main Hoist	1	8.0	Hoist/swing/winch	335	0.12	0.04		2.22E-07
183			Pile Driving Hammer	1	8.0	Generator Sets	190	0.06	0.04		2.12E-07
184			Workers	10	0.5	LDA-TOT	NA	0.00	0.00		-
185			Workers - Dust	10	0.5	Dust		-	0.00		5.30E-08
186			Subtotal					0.45	0.19	0.19	9.90E-07
187	6										
188		Demolish building H2	Excavator with Ram-Hoe	1	8.0	Excavators	175	0.12	0.06		2.89E-07
189			Front End (w/teer) Loader	1	8.0	Rubber Tired Loaders	175	0.08	0.06		2.89E-07
190			Dump Trucks (2)	2	1.0	HHDT-DSL	NA	0.01	0.00		1.65E-08
191			Dust	2	1.0	Dust	NA	-	0.00		2.12E-08
192			Demolition Dust		8.0			-	0.00		3.00E-08
193			Workers	8	0.5	LDA-TOT	NA	0.00	0.00		-
194			Workers - Dust	8	0.5	Dust	NA	-	0.00		4.24E-08
195			Subtotal					0.21	0	0	6.89E-07
196	7										
197		Import clean soil to bring upland	Dump Trucks - Soil	9	1.0	HHDT-DSL	NA	0.02	0.01		7.44E-08
198		elevation to cell elevation and Trench	Dust	9	1.0	Dust	NA	-	0.01		9.54E-08
199		back fill	Motor blade grader	1	8.0	Graders	175	0.06	0.06		2.89E-07
200			Drum roller	1	8.0	Rollers	175	0.06	0.06		2.89E-07
201			Workers	8	0.5	LDA-TOT	NA	0.00	0.00		-
202			Workers - Dust	8	0.5	Dust	NA	-	0.00		4.24E-08
203			Subtotal					0.14	0.14	0.13	7.91E-07
204	8										
205		Storm Water System w/ oil-water separator	Small Loader (Backhoe Loader)	1	8.0	Tractors/Loaders/Backhoes	175	0.11	0.05		2.65E-07
206			Trenching Machine	1	8.0	Trenchers	175	0.06	0.06		2.89E-07
207			Pick up Trucks (2)	2	1.0	LDT2-TOT	NA	0.01	0.00		-
208			Dust	2	1.0	Dust	NA	-	0.00		2.12E-08
209			Workers	8	0.5	LDA-TOT	NA	0.00	0.00		-
210			Workers - Dust	8	0.5	Dust	NA	-	0.00		4.24E-08
211			Subtotal					0.18	0	0	6.18E-07
212	9										
213		Soil Export and Asphalt Removals	Asphalt breaker	1	8.0	Concrete/Industrial Saws	120	0.04	0.06		2.91E-07
214			Front End (w/teer) Loader	1	8.0	Rubber Tired Loaders	175	0.08	0.06		2.89E-07
215			Dump Trucks - Soil	28	1.0	HHDT-DSL	NA	0.08	0.05		2.31E-07
216			Dust	28	1.0	Dust	NA	-	0.02		2.97E-07
215			Dump Trucks - Concrete	4	1.0	HHDT-DSL	NA	0.01	0.01		3.31E-08
216			Dust	4	1.0	Dust	NA	-	0.00		4.24E-08
217			Pick up Trucks (2)	2	1.0	LDT2-TOT	NA	0.00	0.00		-

HRA Appendix - Attachment A

						Offroad	Offroad	Peak Day			
				Equipment	Hours/day or	Equipment	HP				
	Item	Description	Major Equipment	#	Miles/roundtrip	Category	*	ROG	PM10	Diesel PM	ARSENIC
1				#	Miles/roundtrip	Category	*	lbs/hr	lbs/hr	9901	7440382
218			Dust	2	1.0	Dust	NA	-	0.00		2.12E-08
219			Workers	10	0.5	LDA-TOT	NA	0.00	0.00		-
220			Workers - Dust	10	0.5	Dust	NA	-	0.00		5.30E-08
221			Subtotal					0.21	0.20	0.16	1.26E-06
222	10	Grading									
223			Blade grader	1	8.0	Graders	175	0.06	0.06		2.89E-07
224			Small dozers (2)	2	8.0	Rubber Tired Dozers	175	0.12	0.12		5.79E-07
225			Roller (Smooth drum)	1	8.0	Rollers	175	0.06	0.06		2.89E-07
226			Grading Fugitive Dust	0.14	8.0			-	0.05		1.22E-06
227			Workers	8	0.5	LDA-TOT	NA	0.00	0.00		-
228			Workers - Dust	8	0.5	Dust		-	0.00		4.24E-08
229			Subtotal					0.23	0	0	2.42E-06
230	11	Paving									
231			Small Loader (Backhoe Loader)	1	8.0	Tractors/Loaders/Backhoes	175	0.11	0.05		2.65E-07
232			Asphalt Paver	1	8.0	Pavers	175	0.06	0.06		2.89E-07
233			Onroad Asphalt Trucks	1	1.0	HHDT-DSL	NA	0.00	0.00		8.27E-09
234			Dust	1	1.0	Dust	NA	-	0.00		1.06E-08
235			Pick up Trucks (2)	2	1.0	LDT2-TOT	NA	0.00	0.00		-
236			Dust	2	1.0	Dust	NA	-	0.00		2.12E-08
237			Paving Fugitive VOC	0.14	8.0			0.07	-		-
238			Workers	8	0.5	LDA-TOT	NA	0.00	0.00		-
239			Workers - Dust	8	0.5	Dust		-	0.00		4.24E-08
240			Subtotal					0.24	0	0	6.37E-07
241	12	Lighting Improvements									
242			Trenching Machine	1	8.0	Trenchers	175	0.06	0.06		2.89E-07
243			Workers	8	0.5	LDA-TOT	NA	0.00	0.00		-
244			Workers - Dust	8	0.5	Dust	NA	-	0.00		4.24E-08
245			Subtotal					0.06	0	0	3.32E-07
246	13	Service Vehicles and Deliveries									
247			Service Trucks (2)	2	1.0	HHDT-DSL	NA	0.01	0.00		1.65E-08
248				2	1.0	Dust	NA	-	0.00		2.12E-08
249			Subtotal					0	0	0.00	3.77E-08
250			Total					5.13	2.81	2.07	1.57E-05
251											
252											
253											
254	1	Demolish buildings A2 & A3									
255			Excavator with Ram-Hoe	1	8.0	Excavators	175	0.12	0.06		2.89E-07
256			Front End (Wheel) Loader	1	8.0	Rubber Tired Loaders	175	0.08	0.06		2.89E-07
257			Dump Trucks (2)	2	1.0	HHDT-DSL	NA	0.01	0.00		1.65E-08
258			Dust	2	1.0	Dust	NA	-	0.00		2.12E-08
259			Demolition Dust		8.0			-	0.01		3.00E-07
260			Workers	10	0.5	LDA-TOT	NA	0.00	0.00		-
261			Workers - Dust	10	0.5	Dust	NA	-	0.00		5.30E-08
262			Subtotal					0.21	0	0.12	9.69E-07

HRA Appendix - Attachment A

						Offroad	Offroad	Peak Day			
	Item	Description	Major Equipment	Equipment	Hours/day or	Equipment	HP	ROG	PM10	Diesel PM	ARSENIC
				#	Miles/roundtrip	Category	*	lbs/hr	lbs/hr	9901	7440382
1											
263	2	Import clean soil to bring upland elevation to street level, trench backfill							-		
264			Dump Trucks	14	1.0	HHDT-DSL	NA	0.04	0.02		1.16E-07
265			Dust	14	1.0	Dust	NA	-	0.01		1.48E-07
266			Motor Blade Grader	1	8.0	Graders	175	0.06	0.06		2.89E-07
267			Drum Roller	1	8.0	Rollers	175	0.06	0.06		2.89E-07
268			Workers	8	0.5	LDA-TOT	NA	0.00	0.00		-
269			Workers - Dust	8	0.5	Dust	NA	-	0.00		4.24E-08
270			Subtotal					0.16	0	0	8.85E-07
271	3	Storm Water System w/ oil-water separator									
272			Small Loader (Backhoe Loader)	1	8.0	Tractors/Loaders/Backhoes	175	0.11	0.05		2.65E-07
273			Trenching Machine	1	8.0	Trenchers	175	0.06	0.06		2.89E-07
274			Pick Up Trucks (2)	2	1.0	LDT2-TOT	NA	0.00	0.00		-
275			Dust	2	1.0	Dust	NA	-	0.00		2.12E-08
276			Workers	8	0.5	LDA-TOT	NA	0.00	0.00		-
277			Workers - Dust	8	0.5	Dust	NA	-	0.00		4.24E-08
278			Subtotal					0.18	0	0	6.18E-07
279	4	Soil Export and Asphalt Removals									
280			Asphalt Breaker	1	8.0	Concrete/Industrial Saws	120	0.04	0.06		2.91E-07
281			Front End (Wheel) Loader	1	8.0	Rubber Tired Loaders	175	0.08	0.06		2.89E-07
282			Dump Trucks - Soil	28	1.0	HHDT-DSL	NA	0.08	0.05		2.31E-07
283			Dust	28	1.0	Dust	NA	-	0.02		2.97E-07
			Dump Trucks - Concrete	9	1.0	HHDT-DSL	NA	0.02	0.01		7.44E-08
			Dust	9	1.0	Dust	NA	-	0.01		9.54E-08
284			Pick Up Trucks (2)	2	1.0	LDT2-TOT	NA	0.00	0.00		-
285			Dust	2	1.0	Dust	NA	-	0.00		2.12E-08
286			Workers	10	0.5	LDA-TOT	NA	0.00	0.00		-
287			Workers - Dust	10	0.5	Dust	NA	-	0.00		5.30E-08
288			Subtotal					0.22	0.21	0.16	1.35E-06
289	5	Grading									
290			Blade Grader	1	8.0	Graders	175	0.06	0.06		2.89E-07
291			Small Dozers (2)	2	8.0	Rubber Tired Dozers	175	0.46	0.12		5.79E-07
292			Roller (Smooth Drum)	1	8.0	Rollers	175	0.06	0.06		2.89E-07
293			Grading Fugitive Dust	0.12	8.0			-	0.05		1.22E-06
294			Workers	8	0.5	LDA-TOT	NA	0.00	0.00		-
295			Workers - Dust	8	0.5	Dust	NA	-	0.00		4.24E-08
296			Subtotal					0.58	0	0	2.42E-06
297	6	Paving									
298			Small Loader (Backhoe Loader)	1	8.0	Tractors/Loaders/Backhoes	175	0.11	0.05		2.65E-07
299			Asphalt Paver	1	8.0	Pavers	175	0.06	0.06		2.89E-07
300			Onroad Asphalt Trucks	1	1.0	HHDT-DSL	NA	0.00	0.00		8.27E-09
301			Dust	1	1.0	Dust	NA	-	0.00		1.06E-08
302			Pick Up Trucks (2)	2	1.0	LDT2-TOT	NA	0.00	0.00		-
303			Dust	2	1.0	Dust	NA	-	0.00		2.12E-08
304			Paving Fugitive VOC	0.12	8.0			0.07	-		-
305			Workers	8	0.5	LDA-TOT	NA	0.00	0.00		-
306			Workers - Dust	8	0.5	Dust	NA	-	0.00		4.24E-08

HRA Appendix - Attachment A

						Offroad	Offroad	Peak Day			
				Equipment	Hours/day or	Equipment	HP			Diesel PM	ARSENIC
	Item	Description	Major Equipment	#	Miles/roundtrip	Category	*	ROG lbs/hr	PM10 lbs/hr	9901	7440382
1											
307			Subtotal					0.24	0	0	6.37E-07
308	7	Lighting Improvements							-		
309			Trenching Machine	1	8.0	Trenchers	175	0.06	0.06		2.89E-07
310			Workers	5	0.5	LDA-TOT	NA	0.00	0.00		-
311			Workers - Dust	5	0.5	Dust	NA	-	0.00		2.65E-08
312			Subtotal					0.06	0	0	3.16E-07
313	8	Existing Utility Protection							-		
314			Trenching Machine	1	8.0	Trenchers	175	0.06	0.06		2.89E-07
315			Workers	5	0.5	LDA-TOT	NA	0.00	0.00		-
316			Workers - Dust	5	0.5	Dust	NA	-	0.00		2.65E-08
317			Subtotal					0.06	0	0	3.16E-07
318	9	Construct Buildings to replace buildings A2, A3, C1, & D	Compressor (3)	3	8.0	Air Compressors	120	0.29	0.16		7.85E-07
319			Flatbed Truck (20 days)	1	1.0	HHDT-DSL	NA	0.00	0.00		8.27E-09
320			Dust	1	1.0	Dust	NA	-	0.00		1.06E-08
321			Cement Trucks	2	1.0	HHDT-DSL	NA	0.01	0.00		1.65E-08
322			Dust	2	1.0	Dust	NA	-	0.00		2.12E-08
323			Boom Truck (90 days)	1	8.0	Off-Highway Trucks	500	0.24	0.08		3.92E-07
324			Small Loader	1	8.0	Tractors/Loaders/Backhoes	175	0.11	0.05		2.65E-07
325			Small Crane	1	8.0	Cranes	175	0.11	0.05		2.57E-07
326			Large Fork Lift	1	8.0	Forklifts	500	0.08	0.03		1.39E-07
327			Workers	15	0.5	LDA-TOT	NA	0.00	0.00		-
328			Workers - Dust	15	0.5	Dust	NA	-	0.01		7.95E-08
329			Subtotal					1	0	0	1.97E-06
330	10	Service Vehicles and Deliveries									
331			Service Trucks (2)	2	1.0	HHDT-DSL	NA	0.01	0.00		1.65E-08
332			Dust	2	1.0	Dust	NA	-	0.00		2.12E-08
333			Subtotal					0	0	0	3.77E-08
334		Total						2.56	1.53	1.37	9.52E-06

HRA Appendix - Attachment A

[illegible]

HRA Appendix - Attachment A

Offroad																		
Equipment	BROMINE	CADMIUM	CHLORINE	CHROMIUM VI	COPPER	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	benzene	ethylbenzene	formaldehyde
Category	7726956	7440439	7782505	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414	50000
Hoist/swing/winch	1.81E-06	4.03E-06	3.47E-05	6.04E-08	2.52E-06	4.23E-06	4.03E-06	3.02E-06	1.91E-06	1.01E-06	1.34E-03	1.76E-03	2.92E-06	5.06E-04	1.96E-02	5.33E-03	8.12E-04	3.92E-02
Hoist/swing/winch	7.98E-07	1.77E-06	1.53E-05	2.66E-08	1.11E-06	1.86E-06	1.77E-06	1.33E-06	8.42E-07	4.43E-07	5.88E-04	7.73E-04	1.29E-06	2.23E-04	8.63E-03	2.35E-03	3.58E-04	1.73E-02
LDA-TOT	1.30E-07	-	1.82E-05	6.51E-09	1.30E-07	-	1.30E-07	-	1.30E-07	-	-	1.17E-04	-	1.19E-05	6.07E-06	5.37E-05	2.28E-05	3.43E-05
Dust	3.43E-08	8.57E-09	1.52E-06	2.43E-09	4.23E-07	3.54E-07	2.28E-06	2.57E-08	3.43E-08	5.71E-09	8.94E-06	7.69E-06	2.03E-07	-	-	-	-	-
	2.78E-06	5.81E-06	6.97E-05	9.60E-08	4.18E-06	6.45E-06	8.22E-06	4.38E-06	2.92E-06	1.46E-06	1.93E-03	2.65E-03	4.41E-06	7.41E-04	2.82E-02	7.73E-03	1.19E-03	5.65E-02
Hoist/swing/winch	1.81E-06	4.03E-06	3.47E-05	6.04E-08	2.52E-06	4.23E-06	4.03E-06	3.02E-06	1.91E-06	1.01E-06	1.34E-03	1.76E-03	2.92E-06	5.06E-04	1.96E-02	5.33E-03	8.12E-04	3.92E-02
Hoist/swing/winch	7.98E-07	1.77E-06	1.53E-05	2.66E-08	1.11E-06	1.86E-06	1.77E-06	1.33E-06	8.42E-07	4.43E-07	5.88E-04	7.73E-04	1.29E-06	2.23E-04	8.63E-03	2.35E-03	3.58E-04	1.73E-02
Generator Sets	7.62E-07	1.69E-06	1.46E-05	2.54E-08	1.06E-06	1.78E-06	1.69E-06	1.27E-06	8.05E-07	4.24E-07	5.62E-04	7.38E-04	1.23E-06	1.19E-04	4.62E-03	1.26E-03	1.92E-04	9.25E-03
LDA-TOT	1.86E-07	-	2.61E-05	9.30E-09	1.86E-07	-	1.86E-07	-	1.86E-07	-	-	1.67E-04	-	1.69E-05	8.67E-06	7.68E-05	3.26E-05	4.90E-05
Dust	4.89E-08	1.22E-08	2.17E-06	3.47E-09	6.04E-07	5.06E-07	3.26E-06	3.67E-08	4.89E-08	8.16E-09	1.28E-05	1.10E-05	2.90E-07	-	-	-	-	-
	3.61E-06	7.51E-06	9.27E-05	1.25E-07	5.48E-06	8.38E-06	1.09E-05	5.66E-06	3.80E-06	1.88E-06	2.50E-03	3.45E-03	5.72E-06	8.65E-04	3.28E-02	9.01E-03	1.39E-03	6.57E-02
Hoist/swing/winch	1.81E-06	4.03E-06	3.47E-05	6.04E-08	2.52E-06	4.23E-06	4.03E-06	3.02E-06	1.91E-06	1.01E-06	1.34E-03	1.76E-03	2.92E-06	5.06E-04	1.96E-02	5.33E-03	8.12E-04	3.92E-02
Hoist/swing/winch	7.75E-07	1.72E-06	1.48E-05	2.58E-08	1.08E-06	1.81E-06	1.72E-06	1.29E-06	8.18E-07	4.31E-07	5.72E-04	7.51E-04	1.25E-06	2.20E-04	8.53E-03	2.32E-03	3.54E-04	1.71E-02
Generator Sets	1.29E-06	2.87E-06	2.46E-05	4.30E-08	1.79E-06	3.01E-06	2.87E-06	2.15E-06	1.36E-06	7.16E-07	9.51E-04	1.25E-03	2.08E-06	3.46E-04	1.34E-02	3.64E-03	5.55E-04	2.68E-02
Generator Sets	9.62E-07	2.14E-06	1.84E-05	3.21E-08	1.34E-06	2.25E-06	2.14E-06	1.60E-06	1.02E-06	5.35E-07	7.09E-04	9.32E-04	1.55E-06	8.48E-05	3.28E-03	8.93E-04	1.36E-04	6.57E-03
Hoist/swing/winch	1.60E-06	3.55E-06	3.05E-05	5.32E-08	2.22E-06	3.72E-06	3.55E-06	2.66E-06	1.68E-06	8.87E-07	1.18E-03	1.55E-03	2.57E-06	4.46E-04	1.73E-02	4.70E-03	7.16E-04	3.45E-02
NA	2.95E-06	6.56E-06	5.64E-05	9.84E-08	4.10E-06	6.89E-06	6.56E-06	4.92E-06	3.12E-06	1.64E-06	2.18E-03	2.86E-03	4.76E-06	-	-	5.68E-03	1.84E-04	2.63E-04
NA	5.29E-07	1.18E-06	1.01E-05	1.76E-08	7.34E-07	1.23E-06	1.18E-06	8.81E-07	5.58E-07	2.94E-07	3.90E-04	5.12E-04	8.52E-07	-	-	1.70E-03	5.50E-05	7.86E-05
LDA-TOT	2.42E-07	-	3.39E-05	1.21E-08	2.42E-07	-	2.42E-07	-	2.42E-07	-	-	2.18E-04	-	2.20E-05	1.13E-05	9.98E-05	4.23E-05	6.37E-05
Dust	6.36E-08	1.59E-08	2.83E-06	4.51E-09	7.85E-07	6.57E-07	4.24E-06	4.77E-08	6.36E-08	1.06E-08	1.66E-05	1.43E-05	3.76E-07	-	-	-	-	-
	1.02E-05	2.21E-05	2.26E-04	3.47E-07	1.48E-05	2.38E-05	2.65E-05	1.66E-05	1.08E-05	5.52E-06	7.33E-03	9.84E-03	1.64E-05	1.62E-03	6.20E-02	2.44E-02	2.85E-03	1.25E-01
Hoist/swing/winch	1.81E-06	4.03E-06	3.47E-05	6.04E-08	2.52E-06	4.23E-06	4.03E-06	3.02E-06	1.91E-06	1.01E-06	1.34E-03	1.76E-03	2.92E-06	5.06E-04	1.96E-02	5.33E-03	8.12E-04	3.92E-02
Hoist/swing/winch	1.60E-06	3.55E-06	3.05E-05	5.32E-08	2.22E-06	3.72E-06	3.55E-06	2.66E-06	1.68E-06	8.87E-07	1.18E-03	1.55E-03	2.57E-06	4.46E-04	1.73E-02	4.70E-03	7.16E-04	3.45E-02
Excavators	1.04E-06	2.31E-06	1.99E-05	3.47E-08	1.45E-06	2.43E-06	2.31E-06	1.74E-06	1.10E-06	5.79E-07	7.68E-04	1.01E-03	1.68E-06	2.32E-04	8.98E-03	2.44E-03	3.72E-04	1.80E-02
HHDT-DSL	2.98E-08	6.61E-08	5.69E-07	9.92E-10	4.13E-08	6.94E-08	6.61E-08	4.96E-08	3.14E-08	1.65E-08	2.19E-05	2.88E-05	4.79E-08	5.27E-06	2.04E-04	5.55E-05	8.47E-06	4.08E-04
Dust	9.79E-09	2.45E-09	4.35E-07	6.93E-10	1.21E-07	1.01E-07	6.53E-07	7.34E-09	9.79E-09	1.63E-09	2.55E-06	2.20E-06	5.79E-08	-	-	-	-	-
NA	2.95E-06	6.56E-06	5.64E-05	9.84E-08	4.10E-06	6.89E-06	6.56E-06	4.92E-06	3.12E-06	1.64E-06	2.18E-03	2.86E-03	4.76E-06	-	-	5.68E-03	1.84E-04	2.63E-04
NA	5.29E-07	1.18E-06	1.01E-05	1.76E-08	7.34E-07	1.23E-06	1.18E-06	8.81E-07	5.58E-07	2.94E-07	3.90E-04	5.12E-04	8.52E-07	-	-	1.70E-03	5.50E-05	7.86E-05
LDA-TOT	2.42E-07	-	3.39E-05	1.21E-08	2.42E-07	-	2.42E-07	-	2.42E-07	-	-	2.18E-04	-	2.20E-05	1.13E-05	9.98E-05	4.23E-05	6.37E-05
Dust	6.36E-08	1.59E-08	2.83E-06	4.51E-09	7.85E-07	6.57E-07	4.24E-06	4.77E-08	6.36E-08	1.06E-08	1.66E-05	1.43E-05	3.76E-07	-	-	-	-	-
	8.28E-06	1.77E-05	1.89E-04	2.83E-07	1.22E-05	1.93E-05	2.28E-05	1.33E-05	8.72E-06	4.44E-06	5.89E-03	7.94E-03	1.33E-05	1.21E-03	4.60E-02	2.00E-02	2.19E-03	9.25E-02
Hoist/swing/winch	1.81E-06	4.03E-06	3.47E-05	6.04E-08	2.52E-06	4.23E-06	4.03E-06	3.02E-06	1.91E-06	1.01E-06	1.34E-03	1.76E-03	2.92E-06	5.06E-04	1.96E-02	5.33E-03	8.12E-04	3.92E-02
Hoist/swing/winch	1.60E-06	3.55E-06	3.05E-05	5.32E-08	2.22E-06	3.72E-06	3.55E-06	2.66E-06	1.68E-06	8.87E-07	1.18E-03	1.55E-03	2.57E-06	4.46E-04	1.73E-02	4.70E-03	7.16E-04	3.45E-02
NA	2.95E-06	6.56E-06	5.64E-05	9.84E-08	4.10E-06	6.89E-06	6.56E-06	4.92E-06	3.12E-06	1.64E-06	2.18E-03	2.86E-03	4.76E-06	-	-	5.68E-03	1.84E-04	2.63E-04
NA	5.29E-07	1.18E-06	1.01E-05	1.76E-08	7.34E-07	1.23E-06	1.18E-06	8.81E-07	5.58E-07	2.94E-07	3.90E-04	5.12E-04	8.52E-07	-	-	1.70E-03	5.50E-05	7.86E-05
LDA-TOT	2.42E-07	-	3.39E-05	1.21E-08	2.42E-07	-	2.42E-07	-	2.42E-07	-	-	2.18E-04	-	2.20E-05	1.13E-05	9.98E-05	4.23E-05	6.37E-05
Dust	6.36E-08	1.59E-08	2.83E-06	4.51E-09	7.85E-07	6.57E-07	4.24E-06	4.77E-08	6.36E-08	1.06E-08	1.66E-05	1.43E-05	3.76E-07	-	-	-	-	-
	7.20E-06	1.53E-05	1.68E-04	2.46E-07	1.06E-05	1.67E-05	1.98E-05	1.15E-05	7.58E-06	3.84E-06	5.10E-03	6.90E-03	1.15E-05	9.74E-04	3.68E-02	1.75E-02	1.81E-03	7.41E-02
HHDT-DSL	2.08E-07	4.63E-07	3.98E-06	6.94E-09	2.89E-07	4.86E-07	4.63E-07	3.47E-07	2.20E-07	1.16E-07	1.54E-04	2.02E-04	3.36E-07	3.69E-05	1.43E-03	3.89E-04	5.93E-05	2.86E-03
Dust	2.94E-08	7.34E-09	1.30E-06	2.08E-09	3.62E-07	3.03E-07	1.96E-06	2.20E-08	2.94E-08	4.89E-09	7.66E-06	6.59E-06	1.74E-07	-	-	-	-	-

HRA Appendix - Attachment A

Offroad																	
Equipment																	
Category	BROMINE	CADMIUM	CHLORINE	CHROMIUM VI	COPPER	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	benzene	ethylbenzene
	7726956	7440439	7782505	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414
Graders	<u>1.04E-06</u>	<u>2.31E-06</u>	<u>1.99E-05</u>	<u>3.47E-08</u>	<u>1.45E-06</u>	<u>2.43E-06</u>	<u>2.31E-06</u>	<u>1.74E-06</u>	<u>1.10E-06</u>	<u>5.79E-07</u>	<u>7.68E-04</u>	<u>1.01E-03</u>	<u>1.68E-06</u>	<u>1.10E-04</u>	<u>4.26E-03</u>	<u>1.16E-03</u>	<u>1.77E-04</u>
Rollers	<u>1.04E-06</u>	<u>2.31E-06</u>	<u>1.99E-05</u>	<u>3.47E-08</u>	<u>1.45E-06</u>	<u>2.43E-06</u>	<u>2.31E-06</u>	<u>1.74E-06</u>	<u>1.10E-06</u>	<u>5.79E-07</u>	<u>7.68E-04</u>	<u>1.01E-03</u>	<u>1.68E-06</u>	<u>1.10E-04</u>	<u>4.26E-03</u>	<u>1.16E-03</u>	<u>1.77E-04</u>
LDA-TOT	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05
Dust	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-
	<u>2.51E-06</u>	<u>5.11E-06</u>	<u>6.77E-05</u>	<u>8.87E-08</u>	<u>4.18E-06</u>	<u>6.06E-06</u>	<u>9.81E-06</u>	<u>3.87E-06</u>	<u>2.64E-06</u>	<u>1.28E-06</u>	<u>1.71E-03</u>	<u>2.37E-03</u>	<u>4.10E-06</u>	<u>2.70E-04</u>	<u>9.95E-03</u>	<u>2.77E-03</u>	<u>4.38E-04</u>
Tractors/Loaders/Backhoes	9.53E-07	2.12E-06	1.82E-05	3.18E-08	1.32E-06	2.22E-06	2.12E-06	1.59E-06	1.01E-06	5.30E-07	7.03E-04	9.23E-04	1.54E-06	2.15E-04	8.34E-03	2.27E-03	3.46E-04
Trenchers	<u>1.04E-06</u>	<u>2.31E-06</u>	<u>1.99E-05</u>	<u>3.47E-08</u>	<u>1.45E-06</u>	<u>2.43E-06</u>	<u>2.31E-06</u>	<u>1.74E-06</u>	<u>1.10E-06</u>	<u>5.79E-07</u>	<u>7.68E-04</u>	<u>1.01E-03</u>	<u>1.68E-06</u>	<u>1.10E-04</u>	<u>4.26E-03</u>	<u>1.16E-03</u>	<u>1.77E-04</u>
LDT2-TOT	1.12E-07	-	1.57E-05	5.62E-09	1.12E-07	-	1.12E-07	-	1.12E-07	-	-	1.01E-04	-	7.99E-06	4.09E-06	3.62E-05	1.54E-05
Dust	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-
LDA-TOT	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05
Dust	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-
	<u>2.32E-06</u>	<u>4.45E-06</u>	<u>7.73E-05</u>	<u>8.37E-08</u>	<u>3.76E-06</u>	<u>5.26E-06</u>	<u>8.61E-06</u>	<u>3.37E-06</u>	<u>2.43E-06</u>	<u>1.12E-06</u>	<u>1.49E-03</u>	<u>2.18E-03</u>	<u>3.56E-06</u>	<u>3.47E-04</u>	<u>1.26E-02</u>	<u>3.52E-03</u>	<u>5.64E-04</u>
Crushing/Proc. Equipment	<u>1.04E-06</u>	<u>2.31E-06</u>	<u>1.99E-05</u>	<u>3.47E-08</u>	<u>1.45E-06</u>	<u>2.43E-06</u>	<u>2.31E-06</u>	<u>1.74E-06</u>	<u>1.10E-06</u>	<u>5.79E-07</u>	<u>7.68E-04</u>	<u>1.01E-03</u>	<u>1.68E-06</u>	<u>1.10E-04</u>	<u>4.26E-03</u>	<u>1.16E-03</u>	<u>1.77E-04</u>
Rubber Tired Loaders	<u>1.04E-06</u>	<u>2.31E-06</u>	<u>1.99E-05</u>	<u>3.47E-08</u>	<u>1.45E-06</u>	<u>2.43E-06</u>	<u>2.31E-06</u>	<u>1.74E-06</u>	<u>1.10E-06</u>	<u>5.79E-07</u>	<u>7.68E-04</u>	<u>1.01E-03</u>	<u>1.68E-06</u>	<u>1.46E-04</u>	<u>5.65E-03</u>	<u>1.54E-03</u>	<u>2.34E-04</u>
HHDT-DSL	<u>2.08E-07</u>	<u>4.63E-07</u>	<u>3.98E-06</u>	<u>6.94E-09</u>	<u>2.89E-07</u>	<u>4.86E-07</u>	<u>4.63E-07</u>	<u>3.47E-07</u>	<u>2.20E-07</u>	<u>1.16E-07</u>	<u>1.54E-04</u>	<u>2.02E-04</u>	<u>3.36E-07</u>	<u>3.69E-05</u>	<u>1.43E-03</u>	<u>3.89E-04</u>	<u>5.93E-05</u>
Dust	<u>6.85E-08</u>	<u>1.71E-08</u>	<u>3.04E-06</u>	<u>4.85E-09</u>	<u>8.45E-07</u>	<u>7.08E-07</u>	<u>4.57E-06</u>	<u>5.14E-08</u>	<u>6.85E-08</u>	<u>1.14E-08</u>	<u>1.79E-05</u>	<u>1.54E-05</u>	<u>4.05E-07</u>	-	-	-	-
HHDT-DSL	1.19E-07	2.65E-07	2.28E-06	3.97E-09	1.65E-07	2.78E-07	2.65E-07	1.98E-07	1.26E-07	6.61E-08	8.78E-05	1.15E-04	1.92E-07	2.11E-05	8.16E-04	2.22E-04	3.39E-05
Dust	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-
LDT2-TOT	1.12E-07	-	1.57E-05	5.62E-09	1.12E-07	-	1.12E-07	-	1.12E-07	-	-	1.01E-04	-	7.99E-06	4.09E-06	3.62E-05	1.54E-05
Dust	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-
LDA-TOT	1.86E-07	-	2.61E-05	9.30E-09	1.86E-07	-	1.86E-07	-	1.86E-07	-	-	1.67E-04	-	1.69E-05	8.67E-06	7.68E-05	3.26E-05
Dust	4.89E-08	1.22E-08	2.17E-06	3.47E-09	6.04E-07	5.06E-07	3.26E-06	3.67E-08	4.89E-08	8.16E-09	1.28E-05	1.10E-05	2.90E-07	-	-	-	-
	<u>2.89E-06</u>	<u>5.40E-06</u>	<u>9.57E-05</u>	<u>1.08E-07</u>	<u>5.82E-06</u>	<u>7.45E-06</u>	<u>1.74E-05</u>	<u>4.15E-06</u>	<u>3.02E-06</u>	<u>1.37E-06</u>	<u>1.82E-03</u>	<u>2.64E-03</u>	<u>4.93E-06</u>	<u>3.39E-04</u>	<u>1.22E-02</u>	<u>3.42E-03</u>	<u>5.52E-04</u>
Graders	<u>1.04E-06</u>	<u>2.31E-06</u>	<u>1.99E-05</u>	<u>3.47E-08</u>	<u>1.45E-06</u>	<u>2.43E-06</u>	<u>2.31E-06</u>	<u>1.74E-06</u>	<u>1.10E-06</u>	<u>5.79E-07</u>	<u>7.68E-04</u>	<u>1.01E-03</u>	<u>1.68E-06</u>	<u>1.10E-04</u>	<u>4.26E-03</u>	<u>1.16E-03</u>	<u>1.77E-04</u>
Rubber Tired Dozers	<u>2.08E-06</u>	<u>4.63E-06</u>	<u>3.98E-05</u>	<u>6.94E-08</u>	<u>2.89E-06</u>	<u>4.86E-06</u>	<u>4.63E-06</u>	<u>3.47E-06</u>	<u>2.20E-06</u>	<u>1.16E-06</u>	<u>1.54E-03</u>	<u>2.02E-03</u>	<u>3.36E-06</u>	<u>2.20E-04</u>	<u>8.51E-03</u>	<u>2.32E-03</u>	<u>3.53E-04</u>
Rollers	<u>1.04E-06</u>	<u>2.31E-06</u>	<u>1.99E-05</u>	<u>3.47E-08</u>	<u>1.45E-06</u>	<u>2.43E-06</u>	<u>2.31E-06</u>	<u>1.74E-06</u>	<u>1.10E-06</u>	<u>5.79E-07</u>	<u>7.68E-04</u>	<u>1.01E-03</u>	<u>1.68E-06</u>	<u>1.10E-04</u>	<u>4.26E-03</u>	<u>1.16E-03</u>	<u>1.77E-04</u>
	1.78E-06	1.98E-06	2.16E-04	6.65E-07	7.01E-06	3.56E-05	5.84E-05	1.02E-06	3.86E-06	1.52E-07	1.89E-04	2.99E-04	1.68E-05	-	-	-	-
LDA-TOT	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05
Dust	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-
	<u>6.13E-06</u>	<u>1.12E-05</u>	<u>3.18E-04</u>	<u>8.14E-07</u>	<u>1.34E-05</u>	<u>4.57E-05</u>	<u>7.04E-05</u>	<u>7.99E-06</u>	<u>8.44E-06</u>	<u>2.47E-06</u>	<u>3.27E-03</u>	<u>4.48E-03</u>	<u>2.37E-05</u>	<u>4.53E-04</u>	<u>1.70E-02</u>	<u>4.69E-03</u>	<u>7.32E-04</u>
Tractors/Loaders/Backhoes	9.53E-07	2.12E-06	1.82E-05	3.18E-08	1.32E-06	2.22E-06	2.12E-06	1.59E-06	1.01E-06	5.30E-07	7.03E-04	9.23E-04	1.54E-06	2.15E-04	8.34E-03	2.27E-03	3.46E-04
Pavers	<u>1.04E-06</u>	<u>2.31E-06</u>	<u>1.99E-05</u>	<u>3.47E-08</u>	<u>1.45E-06</u>	<u>2.43E-06</u>	<u>2.31E-06</u>	<u>1.74E-06</u>	<u>1.10E-06</u>	<u>5.79E-07</u>	<u>7.68E-04</u>	<u>1.01E-03</u>	<u>1.68E-06</u>	<u>1.10E-04</u>	<u>4.26E-03</u>	<u>1.16E-03</u>	<u>1.77E-04</u>
HHDT-DSL	2.98E-08	6.61E-08	5.69E-07	9.92E-10	4.13E-08	6.94E-08	6.61E-08	4.96E-08	3.14E-08	1.65E-08	2.19E-05	2.88E-05	4.79E-08	5.27E-06	2.04E-04	5.55E-05	8.47E-06
Dust	9.79E-09	2.45E-09	4.35E-07	6.93E-10	1.21E-07	1.01E-07	6.53E-07	7.34E-09	9.79E-09	1.63E-09	2.55E-06	2.20E-06	5.79E-08	-	-	-	-
LDT2-TOT	1.12E-07	-	1.57E-05	5.62E-09	1.12E-07	-	1.12E-07	-	1.12E-07	-	-	1.01E-04	-	7.99E-06	4.09E-06	3.62E-05	1.54E-05
Dust	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.52E-03	-
LDA-TOT	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05
Dust	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-
	<u>2.35E-06</u>	<u>4.52E-06</u>	<u>7.83E-05</u>	<u>8.54E-08</u>	<u>3.92E-06</u>	<u>5.43E-06</u>	<u>9.33E-06</u>	<u>3.43E-06</u>	<u>2.47E-06</u>	<u>1.14E-06</u>	<u>1.51E-03</u>	<u>2.21E-03</u>	<u>3.67E-06</u>	<u>3.52E-04</u>	<u>1.28E-02</u>	<u>3.58E-03</u>	<u>2.09E-03</u>

HRA Appendix - Attachment A

Offroad																		
Equipment																		
	BROMINE	CADMIUM	CHLORINE	CHROMIUM VI	COPPER	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	benzene	ethylbenzene	formaldehyde
Category	7726956	7440439	7782505	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414	50000
Trenchers	1.04E-06	2.31E-06	1.99E-05	3.47E-08	1.45E-06	2.43E-06	2.31E-06	1.74E-06	1.10E-06	5.79E-07	7.68E-04	1.01E-03	1.68E-06	1.10E-04	4.26E-03	1.16E-03	1.77E-04	8.52E-03
LDA-TOT	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05	3.92E-05
Dust	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-	-
	1.23E-06	2.32E-06	4.25E-05	4.49E-08	2.08E-06	2.84E-06	5.07E-06	1.77E-06	1.29E-06	5.85E-07	7.78E-04	1.15E-03	1.91E-06	1.23E-04	4.26E-03	1.22E-03	2.03E-04	8.55E-03
HHDT-DSL	5.95E-08	1.32E-07	1.14E-06	1.98E-09	8.27E-08	1.39E-07	1.32E-07	9.92E-08	6.28E-08	3.31E-08	4.39E-05	5.76E-05	9.59E-08	1.05E-05	4.08E-04	1.11E-04	1.69E-05	8.17E-04
Dust	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
	7.91E-08	1.37E-07	2.01E-06	3.37E-09	3.24E-07	3.41E-07	1.44E-06	1.14E-07	8.24E-08	3.63E-08	4.39E-05	6.20E-05	2.12E-07	1.05E-05	4.08E-04	1.11E-04	1.69E-05	8.17E-04
	6.74E-05	1.39E-04	1.90E-03	3.00E-06	1.07E-04	1.92E-04	2.65E-04	1.04E-04	7.30E-05	3.44E-05	4.56E-02	6.28E-02	1.23E-04	1.11E-02	4.19E-01	1.37E-01	2.02E-02	8.41E-01
Cranes	6.01E-07	1.33E-06	1.15E-05	2.00E-08	8.34E-07	1.40E-06	1.33E-06	1.00E-06	6.34E-07	3.34E-07	4.43E-04	5.82E-04	9.68E-07	1.73E-04	6.71E-03	1.83E-03	2.78E-04	1.34E-02
Hoist/swing/winch	7.98E-07	1.77E-06	1.53E-05	2.66E-08	1.11E-06	1.86E-06	1.77E-06	1.33E-06	8.42E-07	4.43E-07	5.88E-04	7.73E-04	1.29E-06	2.23E-04	8.63E-03	2.35E-03	3.58E-04	1.73E-02
Concrete/Industrial Saws	4.60E-07	1.02E-06	8.79E-06	1.53E-08	6.39E-07	1.07E-06	1.02E-06	7.67E-07	4.86E-07	2.56E-07	3.39E-04	4.45E-04	7.41E-07	1.95E-04	7.53E-03	2.05E-03	3.12E-04	1.51E-02
Rubber Tired Loaders	1.04E-06	2.31E-06	1.99E-05	3.47E-08	1.45E-06	2.43E-06	2.31E-06	1.74E-06	1.10E-06	5.79E-07	7.68E-04	1.01E-03	1.68E-06	1.46E-04	5.65E-03	1.54E-03	2.34E-04	1.13E-02
LDA-TOT	1.86E-07	-	2.61E-05	9.30E-09	1.86E-07	-	1.86E-07	-	1.86E-07	-	-	1.67E-04	-	1.69E-05	8.67E-06	7.68E-05	3.26E-05	4.90E-05
Dust	4.89E-08	1.22E-08	2.17E-06	3.47E-09	6.04E-07	5.06E-07	3.26E-06	3.67E-08	4.89E-08	8.16E-09	1.28E-05	1.10E-05	2.90E-07	-	-	-	-	-
	3.14E-06	6.46E-06	8.37E-05	1.09E-07	4.82E-06	7.27E-06	9.89E-06	4.87E-06	3.30E-06	1.62E-06	2.15E-03	2.99E-03	4.96E-06	7.54E-04	2.85E-02	7.84E-03	1.22E-03	5.71E-02
Hoist/swing/winch	1.81E-06	4.03E-06	3.47E-05	6.04E-08	2.52E-06	4.23E-06	4.03E-06	3.02E-06	1.91E-06	1.01E-06	1.34E-03	1.76E-03	2.92E-06	5.06E-04	1.96E-02	5.33E-03	8.12E-04	3.92E-02
Hoist/swing/winch	7.75E-07	1.72E-06	1.48E-05	2.58E-08	1.08E-06	1.81E-06	1.72E-06	1.29E-06	8.18E-07	4.31E-07	5.72E-04	7.51E-04	1.25E-06	2.20E-04	8.53E-03	2.32E-03	3.54E-04	1.71E-02
Generator Sets	1.29E-06	2.87E-06	2.46E-05	4.30E-08	1.79E-06	3.01E-06	2.87E-06	2.15E-06	1.36E-06	7.16E-07	9.51E-04	1.25E-03	2.08E-06	3.46E-04	1.34E-02	3.64E-03	5.55E-04	2.68E-02
Generator Sets	9.62E-07	2.14E-06	1.84E-05	3.21E-08	1.34E-06	2.25E-06	2.14E-06	1.60E-06	1.02E-06	5.35E-07	7.09E-04	9.32E-04	1.55E-06	8.48E-05	3.28E-03	8.93E-04	1.36E-04	6.57E-03
Hoist/swing/winch	1.60E-06	3.55E-06	3.05E-05	5.32E-08	2.22E-06	3.72E-06	3.55E-06	2.66E-06	1.68E-06	8.87E-07	1.18E-03	1.55E-03	2.57E-06	4.46E-04	1.73E-02	4.70E-03	7.16E-04	3.45E-02
NA	2.95E-06	6.56E-06	5.64E-05	9.84E-08	4.10E-06	6.89E-06	6.56E-06	4.92E-06	3.12E-06	1.64E-06	2.18E-03	2.86E-03	4.76E-06	---	---	5.68E-03	1.84E-04	2.63E-04
NA	5.29E-07	1.18E-06	1.01E-05	1.76E-08	7.34E-07	1.23E-06	1.18E-06	8.81E-07	5.58E-07	2.94E-07	3.90E-04	5.12E-04	8.52E-07	---	---	1.70E-03	5.50E-05	7.86E-05
LDA-TOT	2.42E-07	-	3.39E-05	1.21E-08	2.42E-07	-	2.42E-07	-	2.42E-07	-	-	2.18E-04	-	2.20E-05	1.13E-05	9.98E-05	4.23E-05	6.37E-05
Dust	6.36E-08	1.59E-08	2.83E-06	4.51E-09	7.85E-07	6.57E-07	4.24E-06	4.77E-08	6.36E-08	1.06E-08	1.66E-05	1.43E-05	3.76E-07	-	-	-	-	-
	1.02E-05	2.21E-05	2.26E-04	3.47E-07	1.48E-05	2.38E-05	2.65E-05	1.66E-05	1.08E-05	5.52E-06	7.33E-03	9.84E-03	1.64E-05	1.62E-03	6.20E-02	2.44E-02	2.85E-03	1.25E-01
Hoist/swing/winch	1.81E-06	4.03E-06	3.47E-05	6.04E-08	2.52E-06	4.23E-06	4.03E-06	3.02E-06	1.91E-06	1.01E-06	1.34E-03	1.76E-03	2.92E-06	5.06E-04	1.96E-02	5.33E-03	8.12E-04	3.92E-02
Hoist/swing/winch	1.60E-06	3.55E-06	3.05E-05	5.32E-08	2.22E-06	3.72E-06	3.55E-06	2.66E-06	1.68E-06	8.87E-07	1.18E-03	1.55E-03	2.57E-06	4.46E-04	1.73E-02	4.70E-03	7.16E-04	3.45E-02
Excavators	1.04E-06	2.31E-06	1.99E-05	3.47E-08	1.45E-06	2.43E-06	2.31E-06	1.74E-06	1.10E-06	5.79E-07	7.68E-04	1.01E-03	1.68E-06	2.32E-04	8.98E-03	2.44E-03	3.72E-04	1.80E-02
HHDT-DSL	5.95E-08	1.32E-07	1.14E-06	1.98E-09	8.27E-08	1.39E-07	1.32E-07	9.92E-08	6.28E-08	3.31E-08	4.39E-05	5.76E-05	9.59E-08	1.05E-05	4.08E-04	1.11E-04	1.69E-05	8.17E-04
Dust	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
NA	2.95E-06	6.56E-06	5.64E-05	9.84E-08	4.10E-06	6.89E-06	6.56E-06	4.92E-06	3.12E-06	1.64E-06	2.18E-03	2.86E-03	4.76E-06	---	---	5.68E-03	1.84E-04	2.63E-04
NA	5.29E-07	1.18E-06	1.01E-05	1.76E-08	7.34E-07	1.23E-06	1.18E-06	8.81E-07	5.58E-07	2.94E-07	3.90E-04	5.12E-04	8.52E-07	---	---	1.70E-03	5.50E-05	7.86E-05
LDA-TOT	2.42E-07	-	3.39E-05	1.21E-08	2.42E-07	-	2.42E-07	-	2.42E-07	-	-	2.18E-04	-	2.20E-05	1.13E-05	9.98E-05	4.23E-05	6.37E-05
Dust	6.36E-08	1.59E-08	2.83E-06	4.51E-09	7.85E-07	6.57E-07	4.24E-06	4.77E-08	6.36E-08	1.06E-08	1.66E-05	1.43E-05	3.76E-07	-	-	-	-	-
	8.32E-06	1.78E-05	1.90E-04	2.84E-07	1.24E-05	1.95E-05	2.35E-05	1.34E-05	8.76E-06	4.45E-06	5.91E-03	7.97E-03	1.34E-05	1.22E-03	4.62E-02	2.01E-02	2.20E-03	9.29E-02
Hoist/swing/winch	1.81E-06	4.03E-06	3.47E-05	6.04E-08	2.52E-06	4.23E-06	4.03E-06	3.02E-06	1.91E-06	1.01E-06	1.34E-03	1.76E-03	2.92E-06	5.06E-04	1.96E-02	5.33E-03	8.12E-04	3.92E-02

HRA Appendix - Attachment A

Offroad																		
Equipment																		
Category	BROMINE	CADMIUM	CHLORINE	CHROMIUM VI	COPPER	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	benzene	ethybenzene	formaldehy
Hoist/swing/winch	1.60E-06	3.55E-06	3.05E-05	5.32E-08	2.22E-06	3.72E-06	3.55E-06	2.66E-06	1.68E-06	8.87E-07	1.18E-03	1.55E-03	2.57E-06	4.46E-04	1.73E-02	4.70E-03	7.16E-04	3.45E-02
NA	<u>2.95E-06</u>	<u>6.56E-06</u>	<u>5.64E-05</u>	<u>9.84E-08</u>	<u>4.10E-06</u>	<u>6.89E-06</u>	<u>6.56E-06</u>	<u>4.92E-06</u>	<u>3.12E-06</u>	<u>1.64E-06</u>	<u>2.18E-03</u>	<u>2.86E-03</u>	<u>4.76E-06</u>	-	-	<u>5.68E-03</u>	<u>1.84E-04</u>	<u>2.63E-04</u>
NA	<u>5.29E-07</u>	<u>1.18E-06</u>	<u>1.01E-05</u>	<u>1.76E-08</u>	<u>7.34E-07</u>	<u>1.23E-06</u>	<u>1.18E-06</u>	<u>8.81E-07</u>	<u>5.58E-07</u>	<u>2.94E-07</u>	<u>3.90E-04</u>	<u>5.12E-04</u>	<u>8.52E-07</u>	-	-	<u>1.70E-03</u>	<u>5.50E-05</u>	<u>7.86E-05</u>
LDA-TOT	2.42E-07	-	3.39E-05	1.21E-08	2.42E-07	-	2.42E-07	-	2.42E-07	-	2.18E-04	-	-	2.20E-05	1.13E-05	9.98E-05	4.23E-05	6.37E-05
Dust	6.36E-08	1.59E-08	2.83E-06	4.51E-09	7.85E-07	6.57E-07	4.24E-06	4.77E-08	6.36E-08	1.06E-08	1.66E-05	1.43E-05	3.76E-07	-	-	-	-	-
	<u>7.20E-06</u>	<u>1.53E-05</u>	<u>1.68E-04</u>	<u>2.46E-07</u>	<u>1.06E-05</u>	<u>1.67E-05</u>	<u>1.98E-05</u>	<u>1.15E-05</u>	<u>7.58E-06</u>	<u>3.84E-06</u>	<u>5.10E-03</u>	<u>6.90E-03</u>	<u>1.15E-05</u>	<u>9.74E-04</u>	<u>3.68E-02</u>	<u>1.75E-02</u>	<u>1.81E-03</u>	<u>7.41E-02</u>
Hoist/swing/winch	1.81E-06	4.03E-06	3.47E-05	6.04E-08	2.52E-06	4.23E-06	4.03E-06	3.02E-06	1.91E-06	1.01E-06	1.34E-03	1.76E-03	2.92E-06	5.06E-04	1.96E-02	5.33E-03	8.12E-04	3.92E-02
Hoist/swing/winch	7.98E-07	1.77E-06	1.53E-05	2.66E-08	1.11E-06	1.86E-06	1.77E-06	1.33E-06	8.42E-07	4.43E-07	5.88E-04	7.73E-04	1.29E-06	2.23E-04	8.63E-03	2.35E-03	3.58E-04	1.73E-02
Generator Sets	<u>7.62E-07</u>	<u>1.69E-06</u>	<u>1.46E-05</u>	<u>2.54E-08</u>	<u>1.06E-06</u>	<u>1.78E-06</u>	<u>1.69E-06</u>	<u>1.27E-06</u>	<u>8.05E-07</u>	<u>4.24E-07</u>	<u>5.62E-04</u>	<u>7.38E-04</u>	<u>1.23E-06</u>	<u>1.19E-04</u>	<u>4.62E-03</u>	<u>1.26E-03</u>	<u>1.92E-04</u>	<u>9.25E-03</u>
LDA-TOT	1.86E-07	-	2.61E-05	9.30E-09	1.86E-07	-	1.86E-07	-	1.86E-07	-	-	1.67E-04	-	1.69E-05	8.67E-06	7.68E-05	3.26E-05	4.90E-05
Dust	4.89E-08	1.22E-08	2.17E-06	3.47E-09	6.04E-07	5.06E-07	3.26E-06	3.67E-08	4.89E-08	8.16E-09	1.28E-05	1.10E-05	2.90E-07	-	-	-	-	-
	<u>3.61E-06</u>	<u>7.51E-06</u>	<u>9.27E-05</u>	<u>1.25E-07</u>	<u>5.48E-06</u>	<u>8.38E-06</u>	<u>1.09E-05</u>	<u>5.66E-06</u>	<u>3.80E-06</u>	<u>1.88E-06</u>	<u>2.50E-03</u>	<u>3.45E-03</u>	<u>5.72E-06</u>	<u>8.65E-04</u>	<u>3.28E-02</u>	<u>9.01E-03</u>	<u>1.39E-03</u>	<u>6.57E-02</u>
Excavators	<u>1.04E-06</u>	<u>2.31E-06</u>	<u>1.99E-05</u>	<u>3.47E-08</u>	<u>1.45E-06</u>	<u>2.43E-06</u>	<u>2.31E-06</u>	<u>1.74E-06</u>	<u>1.10E-06</u>	<u>5.79E-07</u>	<u>7.68E-04</u>	<u>1.01E-03</u>	<u>1.68E-06</u>	<u>2.32E-04</u>	<u>8.98E-03</u>	<u>2.44E-03</u>	<u>3.72E-04</u>	<u>1.80E-02</u>
Rubber Tired Loaders	<u>1.04E-06</u>	<u>2.31E-06</u>	<u>1.99E-05</u>	<u>3.47E-08</u>	<u>1.45E-06</u>	<u>2.43E-06</u>	<u>2.31E-06</u>	<u>1.74E-06</u>	<u>1.10E-06</u>	<u>5.79E-07</u>	<u>7.68E-04</u>	<u>1.01E-03</u>	<u>1.68E-06</u>	<u>1.46E-04</u>	<u>5.65E-03</u>	<u>1.54E-03</u>	<u>2.34E-04</u>	<u>1.13E-02</u>
HHDT-DSL	5.95E-08	1.32E-07	1.14E-06	1.98E-09	8.27E-08	1.39E-07	1.32E-07	9.92E-08	6.28E-08	3.31E-08	4.39E-05	5.76E-05	9.59E-08	1.05E-05	4.08E-04	1.11E-04	1.69E-05	8.17E-04
Dust	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
	4.38E-08	4.88E-08	5.31E-06	1.64E-08	1.73E-07	8.76E-07	1.44E-06	2.50E-08	9.50E-08	3.75E-09	4.64E-06	7.37E-06	4.14E-07	-	-	-	-	-
LDA-TOT	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05	3.92E-05
Dust	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-	-
	<u>2.39E-06</u>	<u>4.83E-06</u>	<u>6.97E-05</u>	<u>9.94E-08</u>	<u>4.02E-06</u>	<u>6.48E-06</u>	<u>1.03E-05</u>	<u>3.64E-06</u>	<u>2.56E-06</u>	<u>1.20E-06</u>	<u>1.60E-03</u>	<u>2.23E-03</u>	<u>4.21E-06</u>	<u>4.02E-04</u>	<u>1.50E-02</u>	<u>4.15E-03</u>	<u>6.50E-04</u>	<u>3.01E-02</u>
HHDT-DSL	2.68E-07	5.95E-07	5.12E-06	8.93E-09	3.72E-07	6.25E-07	5.95E-07	4.46E-07	2.83E-07	1.49E-07	1.97E-04	2.59E-04	4.32E-07	4.75E-05	1.84E-03	5.00E-04	7.62E-05	3.68E-03
Dust	8.81E-08	2.20E-08	3.91E-06	6.24E-09	1.09E-06	9.10E-07	5.87E-06	6.61E-08	8.81E-08	1.47E-08	2.30E-05	1.98E-05	5.21E-07	-	-	-	-	-
Graders	<u>1.04E-06</u>	<u>2.31E-06</u>	<u>1.99E-05</u>	<u>3.47E-08</u>	<u>1.45E-06</u>	<u>2.43E-06</u>	<u>2.31E-06</u>	<u>1.74E-06</u>	<u>1.10E-06</u>	<u>5.79E-07</u>	<u>7.68E-04</u>	<u>1.01E-03</u>	<u>1.68E-06</u>	<u>1.10E-04</u>	<u>4.26E-03</u>	<u>1.16E-03</u>	<u>1.77E-04</u>	<u>8.52E-03</u>
Rollers	<u>1.04E-06</u>	<u>2.31E-06</u>	<u>1.99E-05</u>	<u>3.47E-08</u>	<u>1.45E-06</u>	<u>2.43E-06</u>	<u>2.31E-06</u>	<u>1.74E-06</u>	<u>1.10E-06</u>	<u>5.79E-07</u>	<u>7.68E-04</u>	<u>1.01E-03</u>	<u>1.68E-06</u>	<u>1.10E-04</u>	<u>4.26E-03</u>	<u>1.16E-03</u>	<u>1.77E-04</u>	<u>8.52E-03</u>
LDA-TOT	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05	3.92E-05
Dust	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-	-
	<u>2.63E-06</u>	<u>5.26E-06</u>	<u>7.14E-05</u>	<u>9.48E-08</u>	<u>4.98E-06</u>	<u>6.80E-06</u>	<u>1.39E-05</u>	<u>4.01E-06</u>	<u>2.76E-06</u>	<u>1.33E-06</u>	<u>1.77E-03</u>	<u>2.44E-03</u>	<u>4.54E-06</u>	<u>2.81E-04</u>	<u>1.04E-02</u>	<u>2.88E-03</u>	<u>4.55E-04</u>	<u>2.07E-02</u>
Tractors/Loaders/Backhoes	9.53E-07	2.12E-06	1.82E-05	3.18E-08	1.32E-06	2.22E-06	2.12E-06	1.59E-06	1.01E-06	5.30E-07	7.03E-04	9.23E-04	1.54E-06	2.15E-04	8.34E-03	2.27E-03	3.46E-04	1.67E-02
Trenchers	<u>1.04E-06</u>	<u>2.31E-06</u>	<u>1.99E-05</u>	<u>3.47E-08</u>	<u>1.45E-06</u>	<u>2.43E-06</u>	<u>2.31E-06</u>	<u>1.74E-06</u>	<u>1.10E-06</u>	<u>5.79E-07</u>	<u>7.68E-04</u>	<u>1.01E-03</u>	<u>1.68E-06</u>	<u>1.10E-04</u>	<u>4.26E-03</u>	<u>1.16E-03</u>	<u>1.77E-04</u>	<u>8.52E-03</u>
LDT2-TOT	1.65E-06	-	2.31E-04	8.27E-08	1.65E-06	-	1.65E-06	-	1.65E-06	-	-	1.49E-03	-	2.87E-05	1.47E-05	1.30E-04	5.52E-05	8.32E-05
Dust	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
LDA-TOT	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05	3.92E-05
Dust	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-	-
	<u>3.86E-06</u>	<u>4.45E-06</u>	<u>2.93E-04</u>	<u>1.61E-07</u>	<u>5.30E-06</u>	<u>5.26E-06</u>	<u>1.02E-05</u>	<u>3.37E-06</u>	<u>3.97E-06</u>	<u>1.12E-06</u>	<u>1.49E-03</u>	<u>3.57E-03</u>	<u>3.56E-06</u>	<u>3.68E-04</u>	<u>1.26E-02</u>	<u>3.62E-03</u>	<u>6.04E-04</u>	<u>2.53E-02</u>
Concrete/Industrial Saws	<u>1.05E-06</u>	<u>2.33E-06</u>	<u>2.00E-05</u>	<u>3.49E-08</u>	<u>1.46E-06</u>	<u>2.44E-06</u>	<u>2.33E-06</u>	<u>1.75E-06</u>	<u>1.11E-06</u>	<u>5.82E-07</u>	<u>7.72E-04</u>	<u>1.01E-03</u>	<u>1.69E-06</u>	<u>7.54E-05</u>	<u>2.92E-03</u>	<u>7.94E-04</u>	<u>1.21E-04</u>	<u>5.84E-03</u>
Rubber Tired Loaders	<u>1.04E-06</u>	<u>2.31E-06</u>	<u>1.99E-05</u>	<u>3.47E-08</u>	<u>1.45E-06</u>	<u>2.43E-06</u>	<u>2.31E-06</u>	<u>1.74E-06</u>	<u>1.10E-06</u>	<u>5.79E-07</u>	<u>7.68E-04</u>	<u>1.01E-03</u>	<u>1.68E-06</u>	<u>1.46E-04</u>	<u>5.65E-03</u>	<u>1.54E-03</u>	<u>2.34E-04</u>	<u>1.13E-02</u>
HHDT-DSL	8.33E-07	1.85E-06	1.59E-05	2.78E-08	1.16E-06	1.94E-06	1.85E-06	1.39E-06	8.80E-07	4.63E-07	6.14E-04	8.07E-04	1.34E-06	1.48E-04	5.71E-03	1.56E-03	2.37E-04	1.14E-02
Dust	2.74E-07	6.85E-08	1.22E-05	1.94E-08	3.38E-06	2.83E-06	1.83E-05	2.06E-07	2.74E-07	4.57E-08	7.15E-05	6.15E-05	1.62E-06	-	-	-	-	-
HHDT-DSL	<u>1.19E-07</u>	<u>2.65E-07</u>	<u>2.28E-06</u>	<u>3.97E-09</u>	<u>1.65E-07</u>	<u>2.78E-07</u>	<u>1.98E-07</u>	<u>1.26E-07</u>	<u>6.51E-08</u>	<u>8.78E-05</u>	<u>1.15E-04</u>	<u>1.92E-07</u>	<u>2.11E-05</u>	<u>8.16E-04</u>	<u>2.22E-04</u>	<u>3.39E-05</u>	<u>1.63E-03</u>	<u>1.63E-03</u>
Dust	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-	-
LDT2-TOT	1.12E-07	-	1.57E-05	5.62E-09	1.12E-07	-	1.12E-07	-	1.12E-07	-	-	1.01E-04	-	7.99E-06	4.09E-06	3.62E-05	1.54E-05	2.31E-05

HRA Appendix - Attachment A

Offroad																		
Equipment	BROMINE	CADMIUM	CHLORINE	CHROMIUM VI	COPPER	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	benzene	ethylbenzene	formaldehy
Category	7726956	7440439	7782505	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414	50000
Dust	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
LDA-TOT	1.86E-07	-	2.61E-05	9.30E-09	1.86E-07	-	1.86E-07	-	1.86E-07	-	-	1.67E-04	-	1.69E-05	8.67E-06	7.68E-05	3.26E-05	4.90E-05
Dust	4.89E-08	1.22E-08	2.17E-06	3.47E-09	6.04E-07	5.06E-07	3.26E-06	3.67E-08	4.89E-08	8.16E-09	1.28E-05	1.10E-05	2.90E-07	-	-	-	-	-
	<u>3.72E-06</u>	<u>6.85E-06</u>	<u>1.17E-04</u>	<u>1.43E-07</u>	<u>9.23E-06</u>	<u>1.10E-05</u>	<u>3.25E-05</u>	<u>5.36E-06</u>	<u>3.89E-06</u>	<u>1.75E-06</u>	<u>2.34E-03</u>	<u>3.30E-03</u>	<u>7.16E-06</u>	<u>4.15E-04</u>	<u>1.51E-02</u>	<u>4.22E-03</u>	<u>6.74E-04</u>	<u>3.03E-02</u>
Graders	<u>1.04E-06</u>	<u>2.31E-06</u>	<u>1.99E-05</u>	<u>3.47E-08</u>	<u>1.45E-06</u>	<u>2.43E-06</u>	<u>2.31E-06</u>	<u>1.74E-06</u>	<u>1.10E-06</u>	<u>5.79E-07</u>	<u>7.68E-04</u>	<u>1.01E-03</u>	<u>1.68E-06</u>	<u>1.10E-04</u>	<u>4.26E-03</u>	<u>1.16E-03</u>	<u>1.77E-04</u>	<u>8.52E-03</u>
Rubber Tired Dozers	<u>2.08E-06</u>	<u>4.63E-06</u>	<u>3.98E-05</u>	<u>6.94E-08</u>	<u>2.89E-06</u>	<u>4.86E-06</u>	<u>4.63E-06</u>	<u>3.47E-06</u>	<u>2.20E-06</u>	<u>1.16E-06</u>	<u>1.54E-03</u>	<u>2.02E-03</u>	<u>3.36E-06</u>	<u>2.20E-04</u>	<u>8.51E-03</u>	<u>2.32E-03</u>	<u>3.53E-04</u>	<u>1.70E-02</u>
Rollers	<u>1.04E-06</u>	<u>2.31E-06</u>	<u>1.99E-05</u>	<u>3.47E-08</u>	<u>1.45E-06</u>	<u>2.43E-06</u>	<u>2.31E-06</u>	<u>1.74E-06</u>	<u>1.10E-06</u>	<u>5.79E-07</u>	<u>7.68E-04</u>	<u>1.01E-03</u>	<u>1.68E-06</u>	<u>1.10E-04</u>	<u>4.26E-03</u>	<u>1.16E-03</u>	<u>1.77E-04</u>	<u>8.52E-03</u>
	1.78E-06	1.98E-06	2.16E-04	6.65E-07	7.01E-06	3.56E-05	5.84E-05	1.02E-06	3.86E-06	1.52E-07	1.89E-04	2.99E-04	1.68E-05	-	-	-	-	-
LDA-TOT	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05	3.92E-05
Dust	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-	-
	<u>6.13E-06</u>	<u>1.12E-05</u>	<u>3.18E-04</u>	<u>8.14E-07</u>	<u>1.34E-05</u>	<u>4.57E-05</u>	<u>7.04E-05</u>	<u>7.99E-06</u>	<u>8.44E-06</u>	<u>2.47E-06</u>	<u>3.27E-03</u>	<u>4.48E-03</u>	<u>2.37E-05</u>	<u>4.53E-04</u>	<u>1.70E-02</u>	<u>4.69E-03</u>	<u>7.32E-04</u>	<u>3.41E-02</u>
Tractors/Loaders/Backhoes	9.53E-07	2.12E-06	1.82E-05	3.18E-08	1.32E-06	2.22E-06	2.12E-06	1.59E-06	1.01E-06	5.30E-07	7.03E-04	9.23E-04	1.54E-06	2.15E-04	8.34E-03	2.27E-03	3.46E-04	1.67E-02
Pavers	<u>1.04E-06</u>	<u>2.31E-06</u>	<u>1.99E-05</u>	<u>3.47E-08</u>	<u>1.45E-06</u>	<u>2.43E-06</u>	<u>2.31E-06</u>	<u>1.74E-06</u>	<u>1.10E-06</u>	<u>5.79E-07</u>	<u>7.68E-04</u>	<u>1.01E-03</u>	<u>1.68E-06</u>	<u>1.10E-04</u>	<u>4.26E-03</u>	<u>1.16E-03</u>	<u>1.77E-04</u>	<u>8.52E-03</u>
HHDT-DSL	2.98E-08	6.61E-08	5.69E-07	9.92E-10	4.13E-08	6.94E-08	6.61E-08	4.96E-08	3.14E-08	1.65E-08	2.19E-05	2.88E-05	4.79E-08	5.27E-06	2.04E-04	5.55E-05	8.47E-06	4.08E-04
Dust	9.79E-09	2.45E-09	4.35E-07	6.93E-10	1.21E-07	1.01E-07	6.53E-07	7.34E-09	9.79E-09	1.63E-09	2.55E-06	2.20E-06	5.79E-08	-	-	-	-	-
LDT2-TOT	1.12E-07	-	1.57E-05	5.62E-09	1.12E-07	-	1.12E-07	-	1.12E-07	-	-	1.01E-04	-	7.99E-06	4.09E-06	3.62E-05	1.54E-05	2.31E-05
Dust	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.52E-03	-
LDA-TOT	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05	3.92E-05
Dust	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-	-
	<u>2.35E-06</u>	<u>4.52E-06</u>	<u>7.83E-05</u>	<u>8.54E-08</u>	<u>3.92E-06</u>	<u>5.43E-06</u>	<u>9.33E-06</u>	<u>3.43E-06</u>	<u>2.47E-06</u>	<u>1.14E-06</u>	<u>1.51E-03</u>	<u>2.21E-03</u>	<u>3.67E-06</u>	<u>3.52E-04</u>	<u>1.28E-02</u>	<u>3.58E-03</u>	<u>2.09E-03</u>	<u>2.57E-02</u>
Trenchers	<u>1.04E-06</u>	<u>2.31E-06</u>	<u>1.99E-05</u>	<u>3.47E-08</u>	<u>1.45E-06</u>	<u>2.43E-06</u>	<u>2.31E-06</u>	<u>1.74E-06</u>	<u>1.10E-06</u>	<u>5.79E-07</u>	<u>7.68E-04</u>	<u>1.01E-03</u>	<u>1.68E-06</u>	<u>1.10E-04</u>	<u>4.26E-03</u>	<u>1.16E-03</u>	<u>1.77E-04</u>	<u>8.52E-03</u>
LDA-TOT	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05	3.92E-05
Dust	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-	-
	<u>1.23E-06</u>	<u>2.32E-06</u>	<u>4.25E-05</u>	<u>4.49E-08</u>	<u>2.08E-06</u>	<u>2.84E-06</u>	<u>5.07E-06</u>	<u>1.77E-06</u>	<u>1.29E-06</u>	<u>5.85E-07</u>	<u>7.78E-04</u>	<u>1.15E-03</u>	<u>1.91E-06</u>	<u>1.23E-04</u>	<u>4.26E-03</u>	<u>1.22E-03</u>	<u>2.03E-04</u>	<u>8.55E-03</u>
HHDT-DSL	5.95E-08	1.32E-07	1.14E-06	1.98E-09	8.27E-08	1.39E-07	1.32E-07	9.92E-08	6.28E-08	3.31E-08	4.39E-05	5.76E-05	9.59E-08	1.05E-05	4.08E-04	1.11E-04	1.69E-05	8.17E-04
Dust	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
	<u>7.91E-08</u>	<u>1.37E-07</u>	<u>2.01E-06</u>	<u>3.37E-09</u>	<u>3.24E-07</u>	<u>3.41E-07</u>	<u>1.44E-06</u>	<u>1.14E-07</u>	<u>8.24E-08</u>	<u>3.63E-08</u>	<u>4.90E-05</u>	<u>6.20E-05</u>	<u>2.12E-07</u>	<u>1.05E-05</u>	<u>4.08E-04</u>	<u>1.11E-04</u>	<u>1.69E-05</u>	<u>8.17E-04</u>
	<u>5.49E-05</u>	<u>1.09E-04</u>	<u>1.75E-03</u>	<u>2.56E-06</u>	<u>9.13E-05</u>	<u>1.60E-04</u>	<u>2.44E-04</u>	<u>8.17E-05</u>	<u>5.97E-05</u>	<u>2.69E-05</u>	<u>3.58E-02</u>	<u>5.06E-02</u>	<u>1.01E-04</u>	<u>7.84E-03</u>	<u>2.94E-01</u>	<u>1.03E-01</u>	<u>1.49E-02</u>	<u>5.90E-01</u>
Excavators	<u>1.04E-06</u>	<u>2.31E-06</u>	<u>1.99E-05</u>	<u>3.47E-08</u>	<u>1.45E-06</u>	<u>2.43E-06</u>	<u>2.31E-06</u>	<u>1.74E-06</u>	<u>1.10E-06</u>	<u>5.79E-07</u>	<u>7.68E-04</u>	<u>1.01E-03</u>	<u>1.68E-06</u>	<u>2.32E-04</u>	<u>8.98E-03</u>	<u>2.44E-03</u>	<u>3.72E-04</u>	<u>1.80E-02</u>
Rubber Tired Loaders	<u>1.04E-06</u>	<u>2.31E-06</u>	<u>1.99E-05</u>	<u>3.47E-08</u>	<u>1.45E-06</u>	<u>2.43E-06</u>	<u>2.31E-06</u>	<u>1.74E-06</u>	<u>1.10E-06</u>	<u>5.79E-07</u>	<u>7.68E-04</u>	<u>1.01E-03</u>	<u>1.68E-06</u>	<u>1.46E-04</u>	<u>5.65E-03</u>	<u>1.54E-03</u>	<u>2.34E-04</u>	<u>1.13E-02</u>
HHDT-DSL	5.95E-08	1.32E-07	1.14E-06	1.98E-09	8.27E-08	1.39E-07	1.32E-07	9.92E-08	6.28E-08	3.31E-08	4.39E-05	5.76E-05	9.59E-08	1.05E-05	4.08E-04	1.11E-04	1.69E-05	8.17E-04
Dust	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
	4.38E-07	4.88E-07	5.31E-05	1.64E-07	1.73E-06	8.76E-06	1.44E-05	2.50E-07	9.50E-07	3.75E-08	4.64E-05	7.37E-05	4.14E-06	-	-	-	-	-
LDA-TOT	1.86E-07	-	2.61E-05	9.30E-09	1.86E-07	-	1.86E-07	-	1.86E-07	-	-	1.67E-04	-	1.69E-05	8.67E-06	7.68E-05	3.26E-05	4.90E-05
Dust	4.89E-08	1.22E-08	2.17E-06	3.47E-09	6.04E-07	5.06E-07	3.26E-06	3.67E-08	4.89E-08	8.16E-09	1.28E-05	1.10E-05	2.90E-07	-	-	-	-	-
	<u>2.84E-06</u>	<u>5.27E-06</u>	<u>1.23E-04</u>	<u>2.49E-07</u>	<u>5.73E-06</u>	<u>1.45E-05</u>	<u>2.39E-05</u>	<u>3.87E-06</u>	<u>3.47E-06</u>	<u>1.24E-06</u>	<u>1.64E-03</u>	<u>2.33E-03</u>	<u>8.00E-06</u>	<u>4.05E-04</u>	<u>1.50E-02</u>	<u>4.17E-03</u>	<u>6.56E-04</u>	<u>3.01E-02</u>

HRA Appendix - Attachment A

Offroad																		
Equipment																		
Category	7726956	7440439	7782505	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414	50000
HHDT-DSL	4.17E-07	9.26E-07	7.96E-06	1.39E-08	5.79E-07	9.72E-07	9.26E-07	6.94E-07	4.40E-07	2.31E-07	3.07E-04	4.03E-04	6.71E-07	7.38E-05	2.86E-03	7.78E-04	1.19E-04	5.72E-03
Dust	1.37E-07	3.43E-08	6.09E-06	9.71E-09	1.69E-06	1.42E-06	9.14E-06	1.03E-07	1.37E-07	2.28E-08	3.58E-05	3.07E-05	8.11E-07	-	-	-	-	-
Graders	<u>1.04E-06</u>	<u>2.31E-06</u>	<u>1.99E-05</u>	<u>3.47E-08</u>	<u>1.45E-06</u>	<u>2.43E-06</u>	<u>2.31E-06</u>	<u>1.74E-06</u>	<u>1.10E-06</u>	<u>5.79E-07</u>	<u>7.68E-04</u>	<u>1.01E-03</u>	<u>1.68E-06</u>	<u>1.10E-04</u>	<u>4.26E-03</u>	<u>1.16E-03</u>	<u>1.77E-04</u>	<u>8.52E-03</u>
Rollers	<u>1.04E-06</u>	<u>2.31E-06</u>	<u>1.99E-05</u>	<u>3.47E-08</u>	<u>1.45E-06</u>	<u>2.43E-06</u>	<u>2.31E-06</u>	<u>1.74E-06</u>	<u>1.10E-06</u>	<u>5.79E-07</u>	<u>7.68E-04</u>	<u>1.01E-03</u>	<u>1.68E-06</u>	<u>1.10E-04</u>	<u>4.26E-03</u>	<u>1.16E-03</u>	<u>1.77E-04</u>	<u>8.52E-03</u>
LDA-TOT	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05	3.92E-05
Dust	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-	-
	<u>2.83E-06</u>	<u>5.60E-06</u>	<u>7.64E-05</u>	<u>1.03E-07</u>	<u>5.79E-06</u>	<u>7.65E-06</u>	<u>1.75E-05</u>	<u>4.30E-06</u>	<u>2.96E-06</u>	<u>1.42E-06</u>	<u>1.89E-03</u>	<u>2.59E-03</u>	<u>5.07E-06</u>	<u>3.07E-04</u>	<u>1.14E-02</u>	<u>3.15E-03</u>	<u>4.98E-04</u>	<u>2.28E-02</u>
Tractors/Loaders/Backhoes	9.53E-07	2.12E-06	1.82E-05	3.18E-08	1.32E-06	2.22E-06	2.12E-06	1.59E-06	1.01E-06	5.30E-07	7.03E-04	9.23E-04	1.54E-06	2.15E-04	8.34E-03	2.27E-03	3.46E-04	1.67E-02
Trenchers	<u>1.04E-06</u>	<u>2.31E-06</u>	<u>1.99E-05</u>	<u>3.47E-08</u>	<u>1.45E-06</u>	<u>2.43E-06</u>	<u>2.31E-06</u>	<u>1.74E-06</u>	<u>1.10E-06</u>	<u>5.79E-07</u>	<u>7.68E-04</u>	<u>1.01E-03</u>	<u>1.68E-06</u>	<u>1.10E-04</u>	<u>4.26E-03</u>	<u>1.16E-03</u>	<u>1.77E-04</u>	<u>8.52E-03</u>
LDT2-TOT	1.12E-07	-	1.57E-05	5.62E-09	1.12E-07	-	1.12E-07	-	1.12E-07	-	-	1.01E-04	-	7.99E-06	4.09E-06	3.62E-05	1.54E-05	2.31E-05
Dust	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
LDA-TOT	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05	3.92E-05
Dust	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-	-
	<u>2.32E-06</u>	<u>4.45E-06</u>	<u>7.73E-05</u>	<u>8.37E-08</u>	<u>3.76E-06</u>	<u>5.26E-06</u>	<u>8.61E-06</u>	<u>3.37E-06</u>	<u>2.43E-06</u>	<u>1.12E-06</u>	<u>1.49E-03</u>	<u>2.18E-03</u>	<u>3.56E-06</u>	<u>3.47E-04</u>	<u>1.26E-02</u>	<u>3.52E-03</u>	<u>5.64E-04</u>	<u>2.53E-02</u>
Concrete/Industrial Saws	<u>1.05E-06</u>	<u>2.33E-06</u>	<u>2.00E-05</u>	<u>3.49E-08</u>	<u>1.46E-06</u>	<u>2.44E-06</u>	<u>2.33E-06</u>	<u>1.75E-06</u>	<u>1.11E-06</u>	<u>5.82E-07</u>	<u>7.72E-04</u>	<u>1.01E-03</u>	<u>1.69E-06</u>	<u>7.54E-05</u>	<u>2.92E-03</u>	<u>7.94E-04</u>	<u>1.21E-04</u>	<u>5.84E-03</u>
Rubber Tired Loaders	<u>1.04E-06</u>	<u>2.31E-06</u>	<u>1.99E-05</u>	<u>3.47E-08</u>	<u>1.45E-06</u>	<u>2.43E-06</u>	<u>2.31E-06</u>	<u>1.74E-06</u>	<u>1.10E-06</u>	<u>5.79E-07</u>	<u>7.68E-04</u>	<u>1.01E-03</u>	<u>1.68E-06</u>	<u>1.46E-04</u>	<u>5.65E-03</u>	<u>1.54E-03</u>	<u>2.34E-04</u>	<u>1.13E-02</u>
HHDT-DSL	<u>8.33E-07</u>	<u>1.85E-06</u>	<u>1.59E-05</u>	<u>2.78E-08</u>	<u>1.16E-06</u>	<u>1.94E-06</u>	<u>1.85E-06</u>	<u>1.39E-06</u>	<u>8.80E-07</u>	<u>4.63E-07</u>	<u>6.14E-04</u>	<u>8.07E-04</u>	<u>1.34E-06</u>	<u>1.48E-04</u>	<u>5.71E-03</u>	<u>1.56E-03</u>	<u>2.37E-04</u>	<u>1.14E-02</u>
Dust	2.74E-07	6.85E-08	1.22E-05	1.94E-08	3.38E-06	2.83E-06	1.83E-05	2.06E-07	2.74E-07	4.57E-08	7.15E-05	6.15E-05	1.62E-06	-	-	-	-	-
HHDT-DSL	2.68E-07	5.95E-07	5.12E-06	8.93E-09	3.72E-07	6.25E-07	5.95E-07	4.46E-07	2.83E-07	1.49E-07	1.97E-04	2.59E-04	4.32E-07	4.75E-05	1.84E-03	5.00E-04	7.62E-05	3.68E-03
Dust	8.81E-08	2.20E-08	3.91E-06	6.24E-09	1.09E-06	9.10E-07	5.87E-06	6.61E-08	8.81E-08	1.47E-08	2.30E-05	1.98E-05	5.21E-07	-	-	-	-	-
LDT2-TOT	1.12E-07	-	1.57E-05	5.62E-09	1.12E-07	-	1.12E-07	-	1.12E-07	-	-	1.01E-04	-	7.99E-06	4.09E-06	3.62E-05	1.54E-05	2.31E-05
Dust	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
LDA-TOT	1.86E-07	-	2.61E-05	9.30E-09	1.86E-07	-	1.86E-07	-	1.86E-07	-	-	1.67E-04	-	1.69E-05	8.67E-06	7.68E-05	3.26E-05	4.90E-05
Dust	4.89E-08	1.22E-08	2.17E-06	3.47E-09	6.04E-07	5.06E-07	3.26E-06	3.67E-08	4.89E-08	8.16E-09	1.28E-05	1.10E-05	2.90E-07	-	-	-	-	-
	<u>3.92E-06</u>	<u>7.20E-06</u>	<u>1.22E-04</u>	<u>1.52E-07</u>	<u>1.00E-05</u>	<u>1.19E-05</u>	<u>3.61E-05</u>	<u>5.64E-06</u>	<u>4.10E-06</u>	<u>1.84E-06</u>	<u>2.46E-03</u>	<u>3.45E-03</u>	<u>7.69E-06</u>	<u>4.41E-04</u>	<u>1.61E-02</u>	<u>4.50E-03</u>	<u>7.17E-04</u>	<u>3.23E-02</u>
Graders	<u>1.04E-06</u>	<u>2.31E-06</u>	<u>1.99E-05</u>	<u>3.47E-08</u>	<u>1.45E-06</u>	<u>2.43E-06</u>	<u>2.31E-06</u>	<u>1.74E-06</u>	<u>1.10E-06</u>	<u>5.79E-07</u>	<u>7.68E-04</u>	<u>1.01E-03</u>	<u>1.68E-06</u>	<u>1.10E-04</u>	<u>4.26E-03</u>	<u>1.16E-03</u>	<u>1.77E-04</u>	<u>8.52E-03</u>
Rubber Tired Dozers	2.08E-06	4.63E-06	3.98E-05	6.94E-08	2.89E-06	4.86E-06	4.63E-06	3.47E-06	2.20E-06	1.16E-06	1.54E-03	2.02E-03	3.36E-06	8.74E-04	3.38E-02	9.21E-03	1.40E-03	6.77E-02
Rollers	<u>1.04E-06</u>	<u>2.31E-06</u>	<u>1.99E-05</u>	<u>3.47E-08</u>	<u>1.45E-06</u>	<u>2.43E-06</u>	<u>2.31E-06</u>	<u>1.74E-06</u>	<u>1.10E-06</u>	<u>5.79E-07</u>	<u>7.68E-04</u>	<u>1.01E-03</u>	<u>1.68E-06</u>	<u>1.10E-04</u>	<u>4.26E-03</u>	<u>1.16E-03</u>	<u>1.77E-04</u>	<u>8.52E-03</u>
	1.78E-06	1.98E-06	2.16E-04	6.65E-07	7.01E-06	3.56E-05	5.84E-05	1.02E-06	3.86E-06	1.52E-07	1.89E-04	2.99E-04	1.68E-05	-	-	-	-	-
LDA-TOT	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05	3.92E-05
Dust	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-	-
	<u>6.13E-06</u>	<u>1.12E-05</u>	<u>3.18E-04</u>	<u>8.14E-07</u>	<u>1.34E-05</u>	<u>4.57E-05</u>	<u>7.04E-05</u>	<u>7.99E-06</u>	<u>8.44E-06</u>	<u>2.47E-06</u>	<u>3.27E-03</u>	<u>4.48E-03</u>	<u>2.37E-05</u>	<u>1.11E-03</u>	<u>4.23E-02</u>	<u>1.16E-02</u>	<u>1.78E-03</u>	<u>8.48E-02</u>
Tractors/Loaders/Backhoes	9.53E-07	2.12E-06	1.82E-05	3.18E-08	1.32E-06	2.22E-06	2.12E-06	1.59E-06	1.01E-06	5.30E-07	7.03E-04	9.23E-04	1.54E-06	2.15E-04	8.34E-03	2.27E-03	3.46E-04	1.67E-02
Pavers	<u>1.04E-06</u>	<u>2.31E-06</u>	<u>1.99E-05</u>	<u>3.47E-08</u>	<u>1.45E-06</u>	<u>2.43E-06</u>	<u>2.31E-06</u>	<u>1.74E-06</u>	<u>1.10E-06</u>	<u>5.79E-07</u>	<u>7.68E-04</u>	<u>1.01E-03</u>	<u>1.68E-06</u>	<u>1.10E-04</u>	<u>4.26E-03</u>	<u>1.16E-03</u>	<u>1.77E-04</u>	<u>8.52E-03</u>
HHDT-DSL	2.98E-08	6.61E-08	5.69E-07	9.92E-10	4.13E-08	6.94E-08	6.61E-08	4.96E-08	3.14E-08	1.65E-08	2.19E-05	2.88E-05	4.79E-08	5.27E-06	2.04E-04	5.55E-05	8.47E-06	4.08E-04
Dust	9.79E-09	2.45E-09	4.35E-07	6.93E-10	1.21E-07	1.01E-07	6.53E-07	7.34E-09	9.79E-09	1.63E-09	2.55E-06	2.20E-06	5.79E-08	-	-	-	-	-
LDT2-TOT	1.12E-07	-	1.57E-05	5.62E-09	1.12E-07	-	1.12E-07	-	1.12E-07	-	-	1.01E-04	-	7.99E-06	4.09E-06	3.62E-05	1.54E-05	2.31E-05
Dust	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.52E-03	-
LDA-TOT	1.49E-07	-	2.08E-05	7.44E-09	1.49E-07	-	1.49E-07	-	1.49E-07	-	-	1.34E-04	-	1.35E-05	6.93E-06	6.14E-05	2.60E-05	3.92E-05
Dust	3.92E-08	9.79E-09	1.74E-06	2.77E-09	4.83E-07	4.05E-07	2.61E-06	2.94E-08	3.92E-08	6.53E-09	1.02E-05	8.78E-06	2.32E-07	-	-	-	-	-

HRA Appendix - Attachment A

Offroad																		
Equipment																		
	BROMINE	CADMIUM	CHLORINE	CHROMIUM VI	COPPER	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehy de	benzene	ethylbenzene	formaldeh
Category	7726956	7440439	7782505	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414	50000
	2.35E-06	4.52E-06	7.83E-05	8.54E-08	3.92E-06	5.43E-06	9.33E-06	3.43E-06	2.47E-06	1.14E-06	1.51E-03	2.21E-03	3.67E-06	3.52E-04	1.28E-02	3.58E-03	2.09E-03	2.57E-02
	1.04E-06	2.31E-06	1.99E-05	3.47E-08	1.45E-06	2.43E-06	2.31E-06	1.74E-06	1.10E-06	5.79E-07	7.68E-04	1.01E-03	1.68E-06	1.10E-04	4.26E-03	1.16E-03	1.77E-04	8.52E-03
Trenchers	9.30E-08	-	1.30E-05	4.65E-09	9.30E-08	-	9.30E-08	-	9.30E-08	-	-	8.37E-05	-	8.46E-06	4.33E-06	3.84E-05	1.63E-05	2.45E-05
LDA-TOT	2.45E-08	6.12E-09	1.09E-06	1.73E-09	3.02E-07	2.53E-07	1.63E-06	1.84E-08	2.45E-08	4.08E-09	6.39E-06	5.49E-06	1.45E-07	-	-	-	-	-
Dust	2.45E-08	6.12E-09	1.09E-06	1.73E-09	3.02E-07	2.53E-07	1.63E-06	1.84E-08	2.45E-08	4.08E-09	6.39E-06	5.49E-06	1.45E-07	-	-	-	-	-
	1.16E-06	2.32E-06	3.40E-05	4.11E-08	1.84E-06	2.68E-06	4.04E-06	1.75E-06	1.22E-06	5.83E-07	7.74E-04	1.10E-03	1.82E-06	1.18E-04	4.26E-03	1.20E-03	1.93E-04	8.54E-03
	1.04E-06	2.31E-06	1.99E-05	3.47E-08	1.45E-06	2.43E-06	2.31E-06	1.74E-06	1.10E-06	5.79E-07	7.68E-04	1.01E-03	1.68E-06	1.10E-04	4.26E-03	1.16E-03	1.77E-04	8.52E-03
Trenchers	9.30E-08	-	1.30E-05	4.65E-09	9.30E-08	-	9.30E-08	-	9.30E-08	-	-	8.37E-05	-	8.46E-06	4.33E-06	3.84E-05	1.63E-05	2.45E-05
LDA-TOT	9.30E-08	-	1.30E-05	4.65E-09	9.30E-08	-	9.30E-08	-	9.30E-08	-	-	8.37E-05	-	8.46E-06	4.33E-06	3.84E-05	1.63E-05	2.45E-05
Dust	2.45E-08	6.12E-09	1.09E-06	1.73E-09	3.02E-07	2.53E-07	1.63E-06	1.84E-08	2.45E-08	4.08E-09	6.39E-06	5.49E-06	1.45E-07	-	-	-	-	-
	2.45E-08	6.12E-09	1.09E-06	1.73E-09	3.02E-07	2.53E-07	1.63E-06	1.84E-08	2.45E-08	4.08E-09	6.39E-06	5.49E-06	1.45E-07	-	-	-	-	-
	1.16E-06	2.32E-06	3.40E-05	4.11E-08	1.84E-06	2.68E-06	4.04E-06	1.75E-06	1.22E-06	5.83E-07	7.74E-04	1.10E-03	1.82E-06	1.18E-04	4.26E-03	1.20E-03	1.93E-04	8.54E-03
	1.04E-06	2.31E-06	1.99E-05	3.47E-08	1.45E-06	2.43E-06	2.31E-06	1.74E-06	1.10E-06	5.79E-07	7.68E-04	1.01E-03	1.68E-06	1.10E-04	4.26E-03	1.16E-03	1.77E-04	8.52E-03
Air Compressors	2.83E-06	6.28E-06	5.40E-05	9.42E-08	3.93E-06	6.60E-06	6.28E-06	4.71E-06	2.98E-06	1.57E-06	2.08E-03	2.74E-03	4.55E-06	5.45E-04	2.11E-02	5.74E-03	8.74E-04	4.22E-02
HHDT-DSL	2.98E-08	6.61E-08	5.69E-07	9.92E-10	4.13E-08	6.94E-08	6.61E-08	4.96E-08	3.14E-08	1.65E-08	2.19E-05	2.88E-05	4.79E-08	5.27E-06	2.04E-04	5.55E-05	8.47E-06	4.08E-04
HHDT-DSL	2.98E-08	6.61E-08	5.69E-07	9.92E-10	4.13E-08	6.94E-08	6.61E-08	4.96E-08	3.14E-08	1.65E-08	2.19E-05	2.88E-05	4.79E-08	5.27E-06	2.04E-04	5.55E-05	8.47E-06	4.08E-04
Dust	9.79E-09	2.45E-09	4.35E-07	6.93E-10	1.21E-07	1.01E-07	6.53E-07	7.34E-09	9.79E-09	1.63E-09	2.55E-06	2.20E-06	5.79E-08	-	-	-	-	-
HHDT-DSL	5.95E-08	1.32E-07	1.14E-06	1.98E-09	8.27E-08	1.39E-07	1.32E-07	9.92E-08	6.28E-08	3.31E-08	4.39E-05	5.76E-05	9.59E-08	1.05E-05	4.08E-04	1.11E-04	1.69E-05	8.17E-04
Dust	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
Off-Highway Trucks	1.41E-06	3.14E-06	2.70E-05	4.71E-08	1.96E-06	3.30E-06	3.14E-06	2.35E-06	1.49E-06	7.85E-07	1.04E-03	1.37E-03	2.28E-06	4.50E-04	1.74E-02	4.74E-03	7.23E-04	3.49E-02
Tractors/Loaders/Backhoes	9.53E-07	2.12E-06	1.82E-05	3.18E-08	1.32E-06	2.22E-06	2.12E-06	1.59E-06	1.01E-06	5.30E-07	7.03E-04	9.23E-04	1.54E-06	2.15E-04	8.34E-03	2.27E-03	3.46E-04	1.67E-02
Cranes	9.25E-07	2.06E-06	1.77E-05	3.08E-08	1.29E-06	2.16E-06	2.06E-06	1.54E-06	9.77E-07	5.14E-07	6.82E-04	8.96E-04	1.49E-06	2.18E-04	8.44E-03	2.30E-03	3.50E-04	1.69E-02
Forklifts	5.01E-07	1.11E-06	9.58E-06	1.67E-08	6.96E-07	1.17E-06	1.11E-06	8.36E-07	5.29E-07	2.79E-07	3.70E-04	4.85E-04	8.08E-07	1.59E-04	6.14E-03	1.67E-03	2.55E-04	1.23E-02
LDA-TOT	2.79E-07	-	3.91E-05	1.40E-08	2.79E-07	-	2.79E-07	-	2.79E-07	-	-	2.51E-04	-	2.54E-05	1.30E-05	1.15E-04	4.88E-05	7.36E-05
Dust	7.34E-08	1.84E-08	3.26E-06	5.20E-09	9.05E-07	7.59E-07	4.89E-06	5.51E-08	7.34E-08	1.22E-08	1.92E-05	1.65E-05	4.34E-07	-	-	-	-	-
	7.09E-06	1.49E-05	1.72E-04	2.45E-07	1.09E-05	1.67E-05	2.20E-05	1.13E-05	7.46E-06	3.74E-06	4.97E-03	6.77E-03	1.14E-05	1.63E-03	6.20E-02	1.70E-02	2.62E-03	1.24E-01
	5.95E-08	1.32E-07	1.14E-06	1.98E-09	8.27E-08	1.39E-07	1.32E-07	9.92E-08	6.28E-08	3.31E-08	4.39E-05	5.76E-05	9.59E-08	1.05E-05	4.08E-04	1.11E-04	1.69E-05	8.17E-04
HHDT-DSL	5.95E-08	1.32E-07	1.14E-06	1.98E-09	8.27E-08	1.39E-07	1.32E-07	9.92E-08	6.28E-08	3.31E-08	4.39E-05	5.76E-05	9.59E-08	1.05E-05	4.08E-04	1.11E-04	1.69E-05	8.17E-04
Dust	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
	1.96E-08	4.89E-09	8.70E-07	1.39E-09	2.41E-07	2.02E-07	1.31E-06	1.47E-08	1.96E-08	3.26E-09	5.11E-06	4.39E-06	1.16E-07	-	-	-	-	-
	7.91E-08	1.37E-07	2.01E-06	3.37E-09	3.24E-07	3.41E-07	1.44E-06	1.14E-07	8.24E-08	3.63E-08	4.90E-05	6.20E-05	2.12E-07	1.05E-05	4.08E-04	1.11E-04	1.69E-05	8.17E-04
	2.99E-05	5.80E-05	1.04E-03	1.82E-06	5.75E-05	1.13E-04	1.97E-04	4.35E-05	3.38E-05	1.42E-05	1.88E-02	2.63E-02	6.70E-05	4.84E-03	1.81E-01	5.00E-02	9.33E-03	3.63E-01

HRA Appendix - Attachment A

Offroad												Annual							
Equipment	Acetylene	Acetone	Methyl ethyl ketone (mek) (2-butanol)	m-xylene	naphthalene	n-hexane	o-xylene	propene	p-xylene	styrene	toluene	acrolein (2-propenal)	ROG	PM10	Diesel PM	ARSENIC	BROMINE	CADMIUM	CHLORINE
Category	67561	78933	108383	91203	110543	95476	115071	106423	100425	108883	107028	tons/yr	tons/yr	tons/yr	9901	7440382	7726956	7440439	7782505
Cranes	2.74E-05	1.35E-03	5.58E-04	7.76E-05	1.43E-04	3.06E-04	2.37E-03	8.67E-05	5.29E-05	1.34E-03	-	0.01	0.00	-	-	-	-	-	-
Hoist/swing/win	3.52E-05	1.73E-03	7.17E-04	9.97E-05	1.84E-04	3.93E-04	3.05E-03	1.11E-04	6.81E-05	1.73E-03	-	0.01	0.00	-	-	-	-	-	-
Crushing/Proc. Equipment	<u>1.74E-05</u>	<u>8.55E-04</u>	<u>3.54E-04</u>	<u>4.92E-05</u>	<u>9.09E-05</u>	<u>1.94E-04</u>	<u>1.50E-03</u>	<u>5.50E-05</u>	<u>3.36E-05</u>	<u>8.52E-04</u>	-	<u>0.00</u>	<u>0.00</u>	-	-	-	-	-	-
Rubber Tired Loaders	<u>2.31E-05</u>	<u>1.14E-03</u>	<u>4.70E-04</u>	<u>6.53E-05</u>	<u>1.21E-04</u>	<u>2.57E-04</u>	<u>2.00E-03</u>	<u>7.30E-05</u>	<u>4.46E-05</u>	<u>1.13E-03</u>	-	<u>0.01</u>	<u>0.00</u>	-	-	-	-	-	-
HHDT-DSL	8.33E-07	4.10E-05	1.70E-05	2.36E-06	4.36E-06	9.30E-06	7.21E-05	2.64E-06	1.61E-06	4.09E-05	-	0.00	0.00	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	1.06E-10	9.79E-11	2.45E-11	4.35E-09	-
LDA-TOT	7.59E-06	1.13E-06	2.21E-04	2.93E-06	9.93E-05	7.69E-05	1.90E-04	-	7.63E-06	3.57E-04	8.22E-06	0.00	0.00	-	1.86E-09	-	-	-	2.61E-07
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	5.30E-10	4.89E-10	1.22E-10	2.17E-08	-
	<u>1.11E-04</u>	<u>5.11E-03</u>	<u>2.34E-03</u>	<u>2.97E-04</u>	<u>6.43E-04</u>	<u>1.24E-03</u>	<u>9.18E-03</u>	<u>3.29E-04</u>	<u>2.08E-04</u>	<u>5.46E-03</u>	<u>8.22E-06</u>	<u>2.75E-02</u>	<u>1.55E-02</u>	<u>0</u>	<u>6.36E-10</u>	<u>2.45E-09</u>	<u>1.47E-10</u>	<u>2.87E-07</u>	<u>2.87E-07</u>
Excavators	<u>3.66E-05</u>	<u>1.80E-03</u>	<u>7.46E-04</u>	<u>1.04E-04</u>	<u>1.92E-04</u>	<u>4.09E-04</u>	<u>3.17E-03</u>	<u>1.16E-04</u>	<u>7.08E-05</u>	<u>1.80E-03</u>	-	<u>0.03</u>	<u>0.01</u>	-	-	-	-	-	-
Rubber Tired Loaders	<u>2.31E-05</u>	<u>1.14E-03</u>	<u>4.70E-04</u>	<u>6.53E-05</u>	<u>1.21E-04</u>	<u>2.57E-04</u>	<u>2.00E-03</u>	<u>7.30E-05</u>	<u>4.46E-05</u>	<u>1.13E-03</u>	-	<u>0.02</u>	<u>0.01</u>	-	-	-	-	-	-
HHDT-DSL	1.67E-06	8.20E-05	3.39E-05	4.72E-06	8.72E-06	1.86E-05	1.44E-04	5.27E-06	3.22E-06	8.18E-05	-	0.00	0.00	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	6.36E-10	5.87E-10	1.47E-10	2.61E-08	-
	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	2.88E-08	4.20E-08	4.68E-08	5.10E-06	-
LDA-TOT	3.79E-06	5.67E-07	1.11E-04	1.46E-06	4.96E-05	3.84E-05	9.51E-05	-	3.81E-06	1.79E-04	4.11E-06	0.00	0.00	-	5.58E-09	-	-	-	7.82E-07
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	1.59E-09	1.47E-09	3.67E-10	6.52E-08	-
	<u>6.51E-05</u>	<u>3.02E-03</u>	<u>1.36E-03</u>	<u>1.75E-04</u>	<u>3.71E-04</u>	<u>7.24E-04</u>	<u>5.41E-03</u>	<u>1.94E-04</u>	<u>1.22E-04</u>	<u>3.19E-03</u>	<u>4.11E-06</u>	<u>4.80E-02</u>	<u>2.93E-02</u>	<u>0</u>	<u>2.94E-08</u>	<u>4.82E-08</u>	<u>4.69E-08</u>	<u>5.91E-06</u>	<u>5.91E-06</u>
Hoist/swing/win	7.99E-05	3.93E-03	1.63E-03	2.26E-04	4.18E-04	8.92E-04	6.91E-03	2.53E-04	1.54E-04	3.92E-03	-	0.02	0.01	-	-	-	-	-	-
Hoist/swing/win	3.52E-05	1.73E-03	7.17E-04	9.97E-05	1.84E-04	3.93E-04	3.05E-03	1.11E-04	6.81E-05	1.73E-03	-	0.01	0.00	-	-	-	-	-	-
Hoist/swing/win	2.34E-05	1.15E-03	4.76E-04	6.63E-05	1.22E-04	2.61E-04	2.02E-03	7.41E-05	4.52E-05	1.15E-03	-	0.00	0.00	-	-	-	-	-	-
Generator Sets	<u>2.27E-05</u>	<u>1.12E-03</u>	<u>4.63E-04</u>	<u>6.44E-05</u>	<u>1.19E-04</u>	<u>2.54E-04</u>	<u>1.97E-03</u>	<u>7.19E-05</u>	<u>4.39E-05</u>	<u>1.12E-03</u>	-	<u>0.00</u>	<u>0.00</u>	-	-	-	-	-	-
Generator Sets	<u>1.04E-05</u>	<u>5.13E-04</u>	<u>2.12E-04</u>	<u>2.95E-05</u>	<u>5.45E-05</u>	<u>1.16E-04</u>	<u>9.02E-04</u>	<u>3.30E-05</u>	<u>2.01E-05</u>	<u>5.11E-04</u>	-	<u>0.00</u>	<u>0.00</u>	-	-	-	-	-	-
Generator Sets	<u>1.88E-05</u>	<u>9.28E-04</u>	<u>3.84E-04</u>	<u>5.34E-05</u>	<u>9.86E-05</u>	<u>2.10E-04</u>	<u>1.63E-03</u>	<u>5.97E-05</u>	<u>3.64E-05</u>	<u>9.26E-04</u>	-	<u>0.00</u>	<u>0.00</u>	-	-	-	-	-	-
LDA-TOT	2.66E-06	3.97E-07	7.74E-05	1.02E-06	3.48E-05	2.69E-05	6.66E-05	-	2.67E-06	1.25E-04	2.88E-06	0.00	0.00	-	9.77E-10	-	-	-	1.37E-07
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	2.78E-10	2.57E-10	6.42E-11	1.14E-08	-
	<u>1.93E-04</u>	<u>9.38E-03</u>	<u>3.96E-03</u>	<u>5.41E-04</u>	<u>1.03E-03</u>	<u>2.15E-03</u>	<u>1.66E-02</u>	<u>6.03E-04</u>	<u>3.71E-04</u>	<u>9.48E-03</u>	<u>2.88E-06</u>	<u>3.81E-02</u>	<u>1.86E-02</u>	<u>0</u>	<u>2.78E-10</u>	<u>1.23E-09</u>	<u>6.42E-11</u>	<u>1.48E-07</u>	<u>1.48E-07</u>
Hoist/swing/win	7.99E-05	3.93E-03	1.63E-03	2.26E-04	4.18E-04	8.92E-04	6.91E-03	2.53E-04	1.54E-04	3.92E-03	-	0.02	0.01	-	-	-	-	-	-
Hoist/swing/win	3.52E-05	1.73E-03	7.17E-04	9.97E-05	1.84E-04	3.93E-04	3.05E-03	1.11E-04	6.81E-05	1.73E-03	-	0.01	0.00	-	-	-	-	-	-
Generator Sets	6.32E-05	3.11E-03	1.29E-03	1.79E-04	3.31E-04	7.06E-04	5.47E-03	2.00E-04	1.22E-04	3.10E-03	-	0.02	0.01	-	-	-	-	-	-
Air Compressors	5.43E-05	2.67E-03	1.11E-03	1.54E-04	2.84E-04	6.06E-04	4.70E-03	1.72E-04	1.05E-04	2.67E-03	-	0.01	0.01	-	-	-	-	-	-
LDA-TOT	3.79E-06	5.67E-07	1.11E-04	1.46E-06	4.96E-05	3.84E-05	9.51E-05	-	3.81E-06	1.79E-04	4.11E-06	0.00	0.00	-	1.86E-09	-	-	-	2.61E-07
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	5.30E-10	4.89E-10	1.22E-10	2.17E-08	-
	<u>2.36E-04</u>	<u>1.15E-02</u>	<u>4.85E-03</u>	<u>6.60E-04</u>	<u>1.27E-03</u>	<u>2.64E-03</u>	<u>2.02E-02</u>	<u>7.36E-04</u>	<u>4.53E-04</u>	<u>1.16E-02</u>	<u>4.11E-06</u>	<u>5.97E-02</u>	<u>2.28E-02</u>	<u>0</u>	<u>0.00E+00</u>	<u>1.86E-09</u>	<u>0.00E+00</u>	<u>2.61E-07</u>	<u>2.61E-07</u>

HRA Appendix - Attachment A

Offroad												Annual							
Equipment	Acetylene	methanol	methyl ethyl ketone (mek) (2-butanol)	m-xylene	naphthalene	n-hexane	o-xylene	propene	p-xylene	styrene	toluene	acrolein (2-propenal)	ROG		Diesel PM	ARSENIC	BROMINE	CADMIUM	CHLORINE
													tons/yr	PM10 tons/yr					
Category	67561	78933	108383	91203	110543	95476	115071	106423	100425	108883	107028	tons/yr	tons/yr	9901	7440382	7726956	7440439	7782505	
Hoist/swing/win	7.99E-05	3.93E-03	1.63E-03	2.26E-04	4.18E-04	8.92E-04	6.91E-03	2.53E-04	1.54E-04	3.92E-03	-	0.01	0.00	-	-	-	-	-	
Hoist/swing/win	3.52E-05	1.73E-03	7.17E-04	9.97E-05	1.84E-04	3.93E-04	3.05E-03	1.11E-04	6.81E-05	1.73E-03	-	0.00	0.00	-	-	-	-	-	
LDA-TOT	2.66E-06	3.97E-07	7.74E-05	1.02E-06	3.48E-05	2.69E-05	6.66E-05	-	2.67E-06	1.25E-04	2.88E-06	0.00	0.00	-	-	3.26E-10	-	4.56E-08	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	9.28E-11	8.57E-11	2.14E-11	3.80E-09	
	1.18E-04	5.67E-03	2.42E-03	3.27E-04	6.37E-04	1.31E-03	1.00E-02	3.64E-04	2.25E-04	5.77E-03	2.88E-06	7.68E-03	2.91E-03	0	9.28E-11	4.11E-10	2.14E-11	4.94E-08	
Hoist/swing/win	7.99E-05	3.93E-03	1.63E-03	2.26E-04	4.18E-04	8.92E-04	6.91E-03	2.53E-04	1.54E-04	3.92E-03	-	0.02	0.01	-	-	-	-	-	
Hoist/swing/win	3.52E-05	1.73E-03	7.17E-04	9.97E-05	1.84E-04	3.93E-04	3.05E-03	1.11E-04	6.81E-05	1.73E-03	-	0.01	0.00	-	-	-	-	-	
Generator Sets	1.88E-05	9.28E-04	3.84E-04	5.34E-05	9.86E-05	2.10E-04	1.63E-03	5.97E-05	3.64E-05	9.26E-04	-	0.01	0.00	-	-	-	-	-	
LDA-TOT	3.79E-06	5.67E-07	1.11E-04	1.46E-06	4.96E-05	3.84E-05	9.51E-05	-	3.81E-06	1.79E-04	4.11E-06	0.00	0.00	-	-	1.86E-09	-	2.61E-07	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	5.30E-10	4.89E-10	1.22E-10	2.17E-08	
	1.38E-04	6.59E-03	2.84E-03	3.81E-04	7.50E-04	1.53E-03	1.17E-02	4.24E-04	2.63E-04	6.75E-03	4.11E-06	3.57E-02	1.50E-02	0	5.30E-10	2.35E-09	1.22E-10	2.82E-07	
Hoist/swing/win	7.99E-05	3.93E-03	1.63E-03	2.26E-04	4.18E-04	8.92E-04	6.91E-03	2.53E-04	1.54E-04	3.92E-03	-	0.00	0.00	-	-	-	-	-	
Hoist/swing/win	3.48E-05	1.71E-03	7.09E-04	9.86E-05	1.82E-04	3.89E-04	3.01E-03	1.10E-04	6.73E-05	1.71E-03	-	0.00	0.00	-	-	-	-	-	
Generator Sets	5.46E-05	2.69E-03	1.11E-03	1.55E-04	2.86E-04	6.10E-04	4.73E-03	1.73E-04	1.06E-04	2.68E-03	-	0.00	0.00	-	-	-	-	-	
Generator Sets	1.34E-05	6.59E-04	2.73E-04	3.79E-05	7.01E-05	1.50E-04	1.16E-03	4.24E-05	2.59E-05	6.58E-04	-	0.00	0.00	-	-	-	-	-	
Hoist/swing/win	7.04E-05	3.47E-03	1.43E-03	1.99E-04	3.68E-04	7.86E-04	6.09E-03	2.23E-04	1.36E-04	3.46E-03	-	0.00	0.00	-	-	-	-	-	
NA	-	-	1.18E-03	1.84E-04	4.18E-03	8.15E-04	1.20E-02	-	-	5.65E-03	-	0.00	0.00	-	-	-	-	-	
NA	-	-	3.54E-04	5.50E-05	1.25E-03	2.44E-04	3.59E-03	-	-	1.69E-03	-	0.00	0.00	-	-	-	-	-	
LDA-TOT	4.93E-06	7.37E-07	1.44E-04	1.90E-06	6.45E-05	5.00E-05	1.24E-04	-	4.96E-06	2.32E-04	5.35E-06	0.00	0.00	-	-	3.63E-10	-	5.08E-08	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	1.03E-10	9.54E-11	2.39E-11	4.24E-09	
	2.58E-04	1.25E-02	6.83E-03	9.58E-04	6.82E-03	3.93E-03	3.76E-02	8.01E-04	4.94E-04	2.00E-02	5.35E-06	1.22E-02	5.46E-03	0	1.03E-10	4.58E-10	2.39E-11	5.50E-08	
Hoist/swing/win	7.99E-05	3.93E-03	1.63E-03	2.26E-04	4.18E-04	8.92E-04	6.91E-03	2.53E-04	1.54E-04	3.92E-03	-	0.00	0.00	-	-	-	-	-	
Hoist/swing/win	7.04E-05	3.47E-03	1.43E-03	1.99E-04	3.68E-04	7.86E-04	6.09E-03	2.23E-04	1.36E-04	3.46E-03	-	0.00	0.00	-	-	-	-	-	
Excavators	3.66E-05	1.80E-03	7.46E-04	1.04E-04	1.92E-04	4.09E-04	3.17E-03	1.16E-04	7.08E-05	1.80E-03	-	0.00	0.00	-	-	-	-	-	
HHDT-DSL	8.33E-07	4.10E-05	1.70E-05	2.36E-06	4.36E-06	9.30E-06	7.21E-05	2.64E-06	1.61E-06	4.09E-05	-	0.00	0.00	-	-	-	-	-	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	1.06E-11	9.79E-12	2.45E-12	4.35E-10	
NA	-	-	1.18E-03	1.84E-04	4.18E-03	8.15E-04	1.20E-02	-	-	5.65E-03	-	0.00	0.00	-	-	-	-	-	
NA	-	-	3.54E-04	5.50E-05	1.25E-03	2.44E-04	3.59E-03	-	-	1.69E-03	-	0.00	0.00	-	-	-	-	-	
LDA-TOT	4.93E-06	7.37E-07	1.44E-04	1.90E-06	6.45E-05	5.00E-05	1.24E-04	-	4.96E-06	2.32E-04	5.35E-06	0.00	0.00	-	-	3.63E-10	-	5.08E-08	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	1.03E-10	9.54E-11	2.39E-11	4.24E-09	
	1.93E-04	9.24E-03	5.50E-03	7.73E-04	6.48E-03	3.20E-03	3.19E-02	5.94E-04	3.68E-04	1.68E-02	5.35E-06	9.53E-03	4.14E-03	0	1.14E-10	4.68E-10	2.63E-11	5.55E-08	
Hoist/swing/win	7.99E-05	3.93E-03	1.63E-03	2.26E-04	4.18E-04	8.92E-04	6.91E-03	2.53E-04	1.54E-04	3.92E-03	-	0.00	0.00	-	-	-	-	-	
Hoist/swing/win	7.04E-05	3.47E-03	1.43E-03	1.99E-04	3.68E-04	7.86E-04	6.09E-03	2.23E-04	1.36E-04	3.46E-03	-	0.00	0.00	-	-	-	-	-	
NA	-	-	1.18E-03	1.84E-04	4.18E-03	8.15E-04	1.20E-02	-	-	5.65E-03	-	0.00	0.00	-	-	-	-	-	
NA	-	-	3.54E-04	5.50E-05	1.25E-03	2.44E-04	3.59E-03	-	-	1.69E-03	-	0.00	0.00	-	-	-	-	-	
LDA-TOT	4.93E-06	7.37E-07	1.44E-04	1.90E-06	6.45E-05	5.00E-05	1.24E-04	-	4.96E-06	2.32E-04	5.35E-06	0.00	0.00	-	-	3.63E-10	-	5.08E-08	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	1.03E-10	9.54E-11	2.39E-11	4.24E-09	
	1.55E-04	7.40E-03	4.74E-03	6.67E-04	6.28E-03	2.79E-03	2.87E-02	4.76E-04	2.95E-04	1.50E-02	5.35E-06	8.07E-03	3.44E-03	0	1.03E-10	4.58E-10	2.39E-11	5.50E-08	
HHDT-DSL	5.83E-06	2.87E-04	1.19E-04	1.65E-05	3.05E-05	6.51E-05	5.05E-04	1.85E-05	1.13E-05	2.86E-04	-	0.00	0.00	-	-	-	-	-	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	2.39E-10	2.20E-10	5.51E-11	9.78E-09	

HRA Appendix - Attachment A

Offroad												Annual							
Equipment	Acetylene											acrolein (2-propenal)			Diesel PM	ARSENIC	BROMINE	CADMIUM	CHLORINE
		methanol	methyl ethyl ketone (mek) (2-butanone)	m-xylene	naphthalene	n-hexane	o-xylene	propene	p-xylene	styrene	toluene		ROG	PM10					
Category	67561	78933	108383	91203	110543	95476	115071	106423	100425	108883	107028	tons/yr	tons/yr	9901	7440382	7726956	7440439	7782505	
Graders	1.74E-05	8.55E-04	3.54E-04	4.92E-05	9.09E-05	1.94E-04	1.50E-03	5.50E-05	3.36E-05	8.52E-04	-	0.00	0.00	-	-	-	-	-	
Rollers	1.74E-05	8.55E-04	3.54E-04	4.92E-05	9.09E-05	1.94E-04	1.50E-03	5.50E-05	3.36E-05	8.52E-04	-	0.00	0.00	-	-	-	-	-	
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	0.00	0.00	-	-	1.12E-09	-	1.56E-07	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	-	3.18E-10	2.94E-10	7.34E-11	
	4.36E-05	2.00E-03	9.14E-04	1.16E-04	2.52E-04	4.84E-04	3.59E-03	1.28E-04	8.15E-05	2.13E-03	3.29E-06	7.11E-03	7.08E-03	0	5.57E-10	1.63E-09	1.28E-10	1.79E-07	
Tractors/Loaders/Backhoes	3.40E-05	1.67E-03	6.93E-04	9.64E-05	1.78E-04	3.80E-04	2.94E-03	1.08E-04	6.58E-05	1.67E-03	-	0.01	0.00	-	-	-	-	-	
Trenchers	1.74E-05	8.55E-04	3.54E-04	4.92E-05	9.09E-05	1.94E-04	1.50E-03	5.50E-05	3.36E-05	8.52E-04	-	0.00	0.00	-	-	-	-	-	
LDT2-TOT	1.79E-06	2.67E-07	5.22E-05	6.91E-07	2.34E-05	1.81E-05	4.49E-05	-	1.80E-06	8.43E-05	1.94E-06	0.00	0.00	-	-	1.12E-09	-	1.57E-07	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	-	2.12E-10	1.96E-10	4.89E-11	
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	0.00	0.00	-	-	1.49E-09	-	2.08E-07	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	-	4.24E-10	3.92E-10	9.79E-11	
	5.62E-05	2.53E-03	1.19E-03	1.47E-04	3.32E-04	6.23E-04	4.57E-03	1.63E-04	1.04E-04	2.75E-03	5.23E-06	1.37E-02	8.92E-03	0	6.36E-10	3.20E-09	1.47E-10	3.92E-07	
Crushing/Proc. Equipment	1.74E-05	8.55E-04	3.54E-04	4.92E-05	9.09E-05	1.94E-04	1.50E-03	5.50E-05	3.36E-05	8.52E-04	-	0.00	0.00	-	-	-	-	-	
Rubber Tired Loaders	2.31E-05	1.14E-03	4.70E-04	6.53E-05	1.21E-04	2.57E-04	2.00E-03	7.30E-05	4.46E-05	1.13E-03	-	0.00	0.00	-	-	-	-	-	
HHDT-DSL	5.83E-06	2.87E-04	1.19E-04	1.65E-05	3.05E-05	6.51E-05	5.05E-04	1.85E-05	1.13E-05	2.86E-04	-	0.00	0.00	-	-	-	-	-	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	-	5.20E-10	4.80E-10	1.20E-10	
HHDT-DSL	3.33E-06	1.64E-04	6.78E-05	9.44E-06	1.74E-05	3.72E-05	2.88E-04	1.05E-05	6.44E-06	1.64E-04	-	-	-	-	-	-	-	-	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
LDT2-TOT	1.79E-06	2.67E-07	5.22E-05	6.91E-07	2.34E-05	1.81E-05	4.49E-05	-	1.80E-06	8.43E-05	1.94E-06	0.00	0.00	-	-	7.87E-10	-	1.10E-07	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	-	1.48E-10	1.37E-10	3.43E-11	
LDA-TOT	3.79E-06	5.67E-07	1.11E-04	1.46E-06	4.96E-05	3.84E-05	9.51E-05	-	3.81E-06	1.79E-04	4.11E-06	0.00	0.00	-	-	1.30E-09	-	1.82E-07	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	-	3.71E-10	3.43E-10	8.57E-11	
	5.52E-05	2.44E-03	1.17E-03	1.43E-04	3.33E-04	6.10E-04	4.43E-03	1.57E-04	1.01E-04	2.70E-03	6.05E-06	7.71E-03	6.65E-03	0	1.04E-09	3.05E-09	2.40E-10	3.35E-07	
Graders	1.74E-05	8.55E-04	3.54E-04	4.92E-05	9.09E-05	1.94E-04	1.50E-03	5.50E-05	3.36E-05	8.52E-04	-	0.00	0.00	-	-	-	-	-	
Rubber Tired Dozers	3.47E-05	1.71E-03	7.07E-04	9.84E-05	1.82E-04	3.88E-04	3.01E-03	1.10E-04	6.71E-05	1.70E-03	-	0.00	0.00	-	-	-	-	-	
Rollers	1.74E-05	8.55E-04	3.54E-04	4.92E-05	9.09E-05	1.94E-04	1.50E-03	5.50E-05	3.36E-05	8.52E-04	-	0.00	0.00	-	-	-	-	-	
	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	-	2.44E-08	3.55E-08	3.96E-08	
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	0.00	0.00	-	-	3.72E-10	-	5.21E-08	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	-	1.06E-10	9.79E-11	2.45E-11	
	7.25E-05	3.42E-03	1.50E-03	1.98E-04	4.03E-04	8.06E-04	6.09E-03	2.20E-04	1.37E-04	3.55E-03	3.29E-06	4.64E-03	5.65E-03	0	2.45E-08	3.60E-08	3.96E-08	4.37E-06	
Tractors/Loaders/Backhoes	3.40E-05	1.67E-03	6.93E-04	9.64E-05	1.78E-04	3.80E-04	2.94E-03	1.08E-04	6.58E-05	1.67E-03	-	0.00	0.00	-	-	-	-	-	
Pavers	1.74E-05	8.55E-04	3.54E-04	4.92E-05	9.09E-05	1.94E-04	1.50E-03	5.50E-05	3.36E-05	8.52E-04	-	0.00	0.00	-	-	-	-	-	
HHDT-DSL	8.33E-07	4.10E-05	1.70E-05	2.36E-06	4.36E-06	9.30E-06	7.21E-05	2.64E-06	1.61E-06	4.09E-05	-	0.00	0.00	-	-	-	-	-	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	-	2.65E-11	2.45E-11	6.12E-12	
LDT2-TOT	1.79E-06	2.67E-07	5.22E-05	6.91E-07	2.34E-05	1.81E-05	4.49E-05	-	1.80E-06	8.43E-05	1.94E-06	0.00	0.00	-	-	2.81E-10	-	3.94E-08	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	-	5.30E-11	4.89E-11	1.22E-11	
	-	-	-	-	-	2.44E-03	-	-	-	4.22E-03	-	0.00	-	-	-	-	-	-	
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	0.00	0.00	-	-	3.72E-10	-	5.21E-08	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	-	1.06E-10	9.79E-11	2.45E-11	
	5.70E-05	2.57E-03	1.20E-03	1.50E-04	3.36E-04	3.07E-03	4.64E-03	1.65E-04	1.06E-04	7.01E-03	5.23E-06	4.75E-03	2.24E-03	0	1.86E-10	8.25E-10	4.28E-11	9.91E-08	

HRA Appendix - Attachment A

Offroad												Annual								
Equipment	Acetylene	methanol	Diethyl ketone (MEK) (2-butanone)		m-xylene	naphthalene	p-hexane	o-xylene	propene	p-xylene	styrene	toluene	acrolein (2-propenal)	ROG	PM10	Diesel PM	ARSENIC	BROMINE	CADMIUM	CHLORINE
			tons/yr	tons/yr										9901	7440382	7726956	7440439	7782505		
Category	67561	78933	108383	91203	110543	95476	115071	106423	100425	108883	107028	tons/yr	tons/yr							
Trenchers	1.74E-05	8.55E-04	3.54E-04	4.92E-05	9.09E-05	1.94E-04	1.50E-03	5.50E-05	3.36E-05	8.52E-04	_____	0.00	0.00		-	-	-	-		
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	0.00	0.00		-	1.12E-09	-	1.56E-07		
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00		3.18E-10	2.94E-10	7.34E-11	1.30E-08		
	2.04E-05	8.55E-04	4.42E-04	5.04E-05	1.31E-04	2.25E-04	1.58E-03	5.50E-05	3.66E-05	9.95E-04	3.29E-06	3.49E-03	3.50E-03	0	3.18E-10	1.41E-09	7.34E-11	1.69E-07		
HHDT-DSL	1.67E-06	8.20E-05	3.39E-05	4.72E-06	8.72E-06	1.86E-05	1.44E-04	5.27E-06	3.22E-06	8.18E-05	-	0.00	0.00		-	-	-	-		
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00		1.06E-09	9.79E-10	2.45E-10	4.35E-08		
	1.67E-06	8.20E-05	3.39E-05	4.72E-06	8.72E-06	1.86E-05	1.44E-04	5.27E-06	3.22E-06	8.18E-05	-	2.78E-04	2.47E-04	0.00	1.06E-09	9.79E-10	2.45E-10	4.35E-08		
	1.77E-03	8.42E-02	4.13E-02	5.59E-03	2.61E-02	2.54E-02	1.96E-01	5.42E-03	3.37E-03	1.13E-01	6.87E-05	2.88E-01	1.51E-01	1.5E-01	5.96E-08	1.05E-07	8.79E-08	1.27E-05		
Cranes	2.74E-05	1.35E-03	5.58E-04	7.76E-05	1.43E-04	3.06E-04	2.37E-03	8.67E-05	5.29E-05	1.34E-03	-	0.00	0.00		-	-	-	-		
Hoist/swing/win	3.52E-05	1.73E-03	7.17E-04	9.97E-05	1.84E-04	3.93E-04	3.05E-03	1.11E-04	6.81E-05	1.73E-03	-	0.00	0.00		-	-	-	-		
Concrete/Industrial Saws	3.07E-05	1.51E-03	6.26E-04	8.70E-05	1.61E-04	3.43E-04	2.66E-03	9.73E-05	5.94E-05	1.51E-03	-	0.00	0.00		-	-	-	-		
Rubber Tired Loaders	2.31E-05	1.14E-03	4.70E-04	6.53E-05	1.21E-04	2.57E-04	2.00E-03	7.30E-05	4.46E-05	1.13E-03	_____	0.00	0.00		-	-	-	-		
LDA-TOT	3.79E-06	5.67E-07	1.11E-04	1.46E-06	4.96E-05	3.84E-05	9.51E-05	-	3.81E-06	1.79E-04	4.11E-06	0.00	0.00		-	9.30E-10	-	1.30E-07		
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00		2.65E-10	2.45E-10	6.12E-11	1.09E-08		
	1.20E-04	5.73E-03	2.48E-03	3.31E-04	6.59E-04	1.34E-03	1.02E-02	3.68E-04	2.29E-04	5.89E-03	4.11E-06	1.55E-02	6.47E-03	0	2.65E-10	1.18E-09	6.12E-11	1.41E-07		
Hoist/swing/win	7.99E-05	3.93E-03	1.63E-03	2.26E-04	4.18E-04	8.92E-04	6.91E-03	2.53E-04	1.54E-04	3.92E-03	-	0.01	0.00		-	-	-	-		
Hoist/swing/win	3.48E-05	1.71E-03	7.09E-04	9.86E-05	1.82E-04	3.89E-04	3.01E-03	1.10E-04	6.73E-05	1.71E-03	-	0.00	0.00		-	-	-	-		
Generator Sets	5.46E-05	2.69E-03	1.11E-03	1.55E-04	2.86E-04	6.10E-04	4.73E-03	1.73E-04	1.06E-04	2.68E-03	-	0.01	0.00		-	-	-	-		
Generator Sets	1.34E-05	6.59E-04	2.73E-04	3.79E-05	7.01E-05	1.50E-04	1.16E-03	4.24E-05	2.59E-05	6.58E-04	_____	0.00	0.00		-	-	-	-		
Hoist/swing/win	7.04E-05	3.47E-03	1.43E-03	1.99E-04	3.68E-04	7.86E-04	6.09E-03	2.23E-04	1.36E-04	3.46E-03	-	0.01	0.00		-	-	-	-		
NA	_____	_____	1.18E-03	1.84E-04	4.18E-03	8.15E-04	1.20E-02	_____	_____	5.65E-03	_____	0.01	0.00		-	-	-	-		
NA	_____	_____	3.54E-04	5.50E-05	1.25E-03	2.44E-04	3.59E-03	_____	_____	1.69E-03	_____	0.00	0.00		-	-	-	-		
LDA-TOT	4.93E-06	7.37E-07	1.44E-04	1.90E-06	6.45E-05	5.00E-05	1.24E-04	-	4.96E-06	2.32E-04	5.35E-06	0.00	0.00		-	1.21E-09	-	1.69E-07		
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00		3.45E-10	3.18E-10	7.95E-11	1.41E-08		
	2.58E-04	1.25E-02	6.83E-03	9.58E-04	6.82E-03	3.93E-03	3.76E-02	8.01E-04	4.94E-04	2.00E-02	5.35E-06	4.06E-02	1.82E-02	0	3.45E-10	1.53E-09	7.95E-11	1.83E-07		
Hoist/swing/win	7.99E-05	3.93E-03	1.63E-03	2.26E-04	4.18E-04	8.92E-04	6.91E-03	2.53E-04	1.54E-04	3.92E-03	-	0.01	0.00		-	-	-	-		
Hoist/swing/win	7.04E-05	3.47E-03	1.43E-03	1.99E-04	3.68E-04	7.86E-04	6.09E-03	2.23E-04	1.36E-04	3.46E-03	-	0.01	0.00		-	-	-	-		
Excavators	3.66E-05	1.80E-03	7.46E-04	1.04E-04	1.92E-04	4.09E-04	3.17E-03	1.16E-04	7.08E-05	1.80E-03	_____	0.00	0.00		-	-	-	-		
HHDT-DSL	1.67E-06	8.20E-05	3.39E-05	4.72E-06	8.72E-06	1.86E-05	1.44E-04	5.27E-06	3.22E-06	8.18E-05	-	0.00	0.00		-	-	-	-		
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00		4.24E-11	3.92E-11	9.79E-12	1.74E-09		
NA	_____	_____	1.18E-03	1.84E-04	4.18E-03	8.15E-04	1.20E-02	_____	_____	5.65E-03	_____	0.01	0.00		-	-	-	-		
NA	_____	_____	3.54E-04	5.50E-05	1.25E-03	2.44E-04	3.59E-03	_____	_____	1.69E-03	_____	0.00	0.00		-	-	-	-		
LDA-TOT	4.93E-06	7.37E-07	1.44E-04	1.90E-06	6.45E-05	5.00E-05	1.24E-04	-	4.96E-06	2.32E-04	5.35E-06	0.00	0.00		-	1.21E-09	-	1.69E-07		
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00		3.45E-10	3.18E-10	7.95E-11	1.41E-08		
	1.93E-04	9.28E-03	5.52E-03	7.75E-04	6.48E-03	3.21E-03	3.20E-02	5.97E-04	3.70E-04	1.68E-02	5.35E-06	3.18E-02	1.38E-02	0	3.87E-10	1.57E-09	8.93E-11	1.85E-07		
Hoist/swing/win	7.99E-05	3.93E-03	1.63E-03	2.26E-04	4.18E-04	8.92E-04	6.91E-03	2.53E-04	1.54E-04	3.92E-03	-	0.01	0.00		-	-	-	-		

HRA Appendix - Attachment A

Offroad												Annual						
Equipment	Acetaldehyde	Acetone	Diethyl ether	Diethyl ketone (mex)	Diethyl ketone (n)	Diethyl ketone (n)	Diethyl ketone (n)	Diethyl ketone (n)	Diethyl ketone (n)	Diethyl ketone (n)	Diethyl ketone (n)	Diethyl ketone (n)	Diethyl ketone (n)	Diethyl ketone (n)	Diethyl ketone (n)	Diethyl ketone (n)	Diethyl ketone (n)	Diethyl ketone (n)
Category	67561	78933	108383	91203	110543	95476	115071	106423	100425	108883	107028	tons/yr	tons/yr	9901	7440382	7726956	7440439	7782505
Hoist/swing/win	7.04E-05	3.47E-03	1.43E-03	1.99E-04	3.68E-04	7.86E-04	6.09E-03	2.23E-04	1.36E-04	3.46E-03	-	0.01	0.00	-	-	-	-	-
NA	-	-	1.18E-03	1.84E-04	4.18E-03	8.15E-04	1.20E-02	-	-	5.65E-03	-	0.01	0.00	-	-	-	-	-
NA	-	-	3.54E-04	5.50E-05	1.25E-03	2.44E-04	3.59E-03	-	-	1.69E-03	-	0.00	0.00	-	-	-	-	-
LDA-TOT	4.93E-06	7.37E-07	1.44E-04	1.90E-06	6.45E-05	5.00E-05	1.24E-04	-	4.96E-06	2.32E-04	5.35E-06	0.00	0.00	-	-	1.21E-09	-	1.69E-07
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	3.45E-10	3.18E-10	7.95E-11	1.41E-08
	1.55E-04	7.40E-03	4.74E-03	6.67E-04	6.28E-03	2.79E-03	2.87E-02	4.76E-04	2.95E-04	1.50E-02	5.35E-06	2.69E-02	1.15E-02	0	3.45E-10	1.53E-09	7.95E-11	1.83E-07
Hoist/swing/win	7.99E-05	3.93E-03	1.63E-03	2.26E-04	4.18E-04	8.92E-04	6.91E-03	2.53E-04	1.54E-04	3.92E-03	-	0.02	0.01	-	-	-	-	-
Hoist/swing/win	3.52E-05	1.73E-03	7.17E-04	9.97E-05	1.84E-04	3.93E-04	3.05E-03	1.11E-04	6.81E-05	1.73E-03	-	0.01	0.00	-	-	-	-	-
Generator Sets	1.88E-05	9.28E-04	3.84E-04	5.34E-05	9.86E-05	2.10E-04	1.63E-03	5.97E-05	3.64E-05	9.26E-04	-	0.01	0.00	-	-	-	-	-
LDA-TOT	3.79E-06	5.67E-07	1.11E-04	1.46E-06	4.96E-05	3.84E-05	9.51E-05	-	3.81E-06	1.79E-04	4.11E-06	0.00	0.00	-	-	1.86E-09	-	2.61E-07
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	5.30E-10	4.89E-10	1.22E-10	2.17E-08
	1.38E-04	6.59E-03	2.84E-03	3.81E-04	7.50E-04	1.53E-03	1.17E-02	4.24E-04	2.63E-04	6.75E-03	4.11E-06	3.57E-02	1.50E-02	0	5.30E-10	2.35E-09	1.22E-10	2.82E-07
Excavators	3.66E-05	1.80E-03	7.46E-04	1.04E-04	1.92E-04	4.09E-04	3.17E-03	1.16E-04	7.08E-05	1.80E-03	-	0.01	0.01	-	-	-	-	-
Rubber Tired Loaders	2.31E-05	1.14E-03	4.70E-04	6.53E-05	1.21E-04	2.57E-04	2.00E-03	7.30E-05	4.46E-05	1.13E-03	-	0.01	0.01	-	-	-	-	-
HHDT-DSL	1.67E-06	8.20E-05	3.39E-05	4.72E-06	8.72E-06	1.86E-05	1.44E-04	5.27E-06	3.22E-06	8.18E-05	-	0.00	0.00	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	3.18E-10	2.94E-10	7.34E-11	1.30E-08
	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	3.60E-09	5.25E-09	5.85E-09	6.38E-07
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	0.00	0.00	-	-	2.23E-09	-	3.13E-07
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	6.36E-10	5.87E-10	1.47E-10	2.61E-08
	6.44E-05	3.02E-03	1.34E-03	1.75E-04	3.61E-04	7.16E-04	5.39E-03	1.94E-04	1.22E-04	3.16E-03	3.29E-06	2.40E-02	1.42E-02	0	4.55E-09	8.36E-09	6.07E-09	9.89E-07
HHDT-DSL	7.49E-06	3.69E-04	1.53E-04	2.12E-05	3.92E-05	8.37E-05	6.49E-04	2.37E-05	1.45E-05	3.68E-04	-	0.00	0.00	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	7.16E-10	6.61E-10	1.65E-10	2.93E-08
Graders	1.74E-05	8.55E-04	3.54E-04	4.92E-05	9.09E-05	1.94E-04	1.50E-03	5.50E-05	3.36E-05	8.52E-04	-	0.00	0.00	-	-	-	-	-
Rollers	1.74E-05	8.55E-04	3.54E-04	4.92E-05	9.09E-05	1.94E-04	1.50E-03	5.50E-05	3.36E-05	8.52E-04	-	0.00	0.00	-	-	-	-	-
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	0.00	0.00	-	-	1.12E-09	-	1.56E-07
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	3.18E-10	2.94E-10	7.34E-11	1.30E-08
	4.53E-05	2.08E-03	9.48E-04	1.21E-04	2.61E-04	5.02E-04	3.73E-03	1.34E-04	8.47E-05	2.22E-03	3.29E-06	7.15E-03	7.14E-03	0	1.03E-09	2.07E-09	2.39E-10	1.99E-07
Tractors/Loaders/Backhoes	3.40E-05	1.67E-03	6.93E-04	9.64E-05	1.78E-04	3.80E-04	2.94E-03	1.08E-04	6.58E-05	1.67E-03	-	0.00	0.00	-	-	-	-	-
Trenchers	1.74E-05	8.55E-04	3.54E-04	4.92E-05	9.09E-05	1.94E-04	1.50E-03	5.50E-05	3.36E-05	8.52E-04	-	0.00	0.00	-	-	-	-	-
LDT2-TOT	6.44E-06	9.62E-07	1.88E-04	2.48E-06	8.42E-05	6.52E-05	1.61E-04	-	6.47E-06	3.03E-04	6.98E-06	0.00	0.00	-	-	8.27E-09	-	1.16E-06
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	1.06E-10	9.79E-11	2.45E-11	4.35E-09
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	0.00	0.00	-	-	7.44E-10	-	1.04E-07
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	2.12E-10	1.96E-10	4.89E-11	8.70E-09
	6.09E-05	2.53E-03	1.32E-03	1.49E-04	3.93E-04	6.70E-04	4.68E-03	1.63E-04	1.09E-04	2.97E-03	1.03E-05	6.89E-03	4.48E-03	0	3.18E-10	9.31E-09	7.34E-11	1.27E-06
Concrete/Industrial Saws	1.19E-05	5.86E-04	2.42E-04	3.37E-05	6.23E-05	1.33E-04	1.03E-03	3.77E-05	2.30E-05	5.85E-04	-	0.00	0.00	-	-	-	-	-
Rubber Tired Loaders	2.31E-05	1.14E-03	4.70E-04	6.53E-05	1.21E-04	2.57E-04	2.00E-03	7.30E-05	4.46E-05	1.13E-03	-	0.00	0.00	-	-	-	-	-
HHDT-DSL	2.33E-05	1.15E-03	4.75E-04	6.61E-05	1.22E-04	2.60E-04	2.02E-03	7.38E-05	4.51E-05	1.14E-03	-	0.00	0.00	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	7.42E-10	6.85E-10	1.71E-10	3.04E-08
HHDT-DSL	3.33E-06	1.64E-04	6.78E-05	9.44E-06	1.74E-05	3.72E-05	2.88E-04	1.05E-05	6.44E-06	1.64E-04	-	0.00	0.00	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	1.06E-10	9.79E-11	2.45E-11	4.35E-09
LDT2-TOT	1.79E-06	2.67E-07	5.22E-05	6.91E-07	2.34E-05	1.81E-05	4.49E-05	-	1.80E-06	8.43E-05	1.94E-06	0.00	0.00	-	-	2.81E-10	-	3.94E-08

HRA Appendix - Attachment A

Offroad												Annual								
Equipment	Acetylene	methyl ethyl ketone (methyl 2-butanone)				o-xylene	propene	p-xylene	styrene	toluene	acrolein (2-propenal)	ROG		PM10	Diesel PM		ARSENIC	BROMINE	CADMIUM	CHLORINE
		methanol		m-xylene	naphthalene							n-hexane	tons/yr		tons/yr	9901				
Category	67561	78933	108383	91203	110543	95476	115071	106423	100425	108883	107028	tons/yr	tons/yr	9901	7440382	7726956	7440439	7782505		
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	5.30E-11	4.89E-11	1.22E-11	2.17E-09		
LDA-TOT	3.79E-06	5.67E-07	1.11E-04	1.46E-06	4.96E-05	3.84E-05	9.51E-05	-	3.81E-06	1.79E-04	4.11E-06	0.00	0.00	-	-	4.65E-10	-	6.51E-08		
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	1.33E-10	1.22E-10	3.06E-11	5.43E-09		
	<u>6.72E-05</u>	<u>3.03E-03</u>	<u>1.42E-03</u>	<u>1.77E-04</u>	<u>3.95E-04</u>	<u>7.44E-04</u>	<u>5.47E-03</u>	<u>1.95E-04</u>	<u>1.25E-04</u>	<u>3.29E-03</u>	<u>6.05E-06</u>	<u>2.56E-03</u>	<u>2.53E-03</u>	<u>0</u>	<u>1.03E-09</u>	<u>1.70E-09</u>	<u>2.39E-10</u>	<u>1.47E-07</u>		
Graders	<u>1.74E-05</u>	<u>8.55E-04</u>	<u>3.54E-04</u>	<u>4.92E-05</u>	<u>9.09E-05</u>	<u>1.94E-04</u>	<u>1.50E-03</u>	<u>5.50E-05</u>	<u>3.36E-05</u>	<u>8.52E-04</u>	-	<u>0.00</u>	<u>0.00</u>	-	-	-	-	-		
Rubber Tired Dozers	<u>3.47E-05</u>	<u>1.71E-03</u>	<u>7.07E-04</u>	<u>9.84E-05</u>	<u>1.82E-04</u>	<u>3.88E-04</u>	<u>3.01E-03</u>	<u>1.10E-04</u>	<u>6.71E-05</u>	<u>1.70E-03</u>	-	<u>0.00</u>	<u>0.00</u>	-	-	-	-	-		
Rollers	<u>1.74E-05</u>	<u>8.55E-04</u>	<u>3.54E-04</u>	<u>4.92E-05</u>	<u>9.09E-05</u>	<u>1.94E-04</u>	<u>1.50E-03</u>	<u>5.50E-05</u>	<u>3.36E-05</u>	<u>8.52E-04</u>	-	<u>0.00</u>	<u>0.00</u>	-	-	-	-	-		
	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	2.44E-08	3.55E-08	3.96E-08	4.32E-06		
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	0.00	0.00	-	3.72E-10	-	-	5.21E-08		
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	1.06E-10	9.79E-11	2.45E-11	4.35E-09		
	<u>7.25E-05</u>	<u>3.42E-03</u>	<u>1.50E-03</u>	<u>1.98E-04</u>	<u>4.03E-04</u>	<u>8.06E-04</u>	<u>6.09E-03</u>	<u>2.20E-04</u>	<u>1.37E-04</u>	<u>3.55E-03</u>	<u>3.29E-06</u>	<u>4.64E-03</u>	<u>5.65E-03</u>	<u>0</u>	<u>2.45E-08</u>	<u>3.60E-08</u>	<u>3.96E-08</u>	<u>4.37E-06</u>		
Tractors/Loaders/Backhoes	3.40E-05	1.67E-03	6.93E-04	9.64E-05	1.78E-04	3.80E-04	2.94E-03	1.08E-04	6.58E-05	1.67E-03	-	0.00	0.00	-	-	-	-	-		
Pavers	<u>1.74E-05</u>	<u>8.55E-04</u>	<u>3.54E-04</u>	<u>4.92E-05</u>	<u>9.09E-05</u>	<u>1.94E-04</u>	<u>1.50E-03</u>	<u>5.50E-05</u>	<u>3.36E-05</u>	<u>8.52E-04</u>	-	<u>0.00</u>	<u>0.00</u>	-	-	-	-	-		
HHDT-DSL	8.33E-07	4.10E-05	1.70E-05	2.36E-06	4.36E-06	9.30E-06	7.21E-05	2.64E-06	1.61E-06	4.09E-05	-	0.00	0.00	-	-	-	-	-		
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	2.65E-11	2.45E-11	6.12E-12	1.09E-09		
LDT2-TOT	1.79E-06	2.67E-07	5.22E-05	6.91E-07	2.34E-05	1.81E-05	4.49E-05	-	1.80E-06	8.43E-05	1.94E-06	0.00	0.00	-	2.81E-10	-	-	3.94E-08		
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	5.30E-11	4.89E-11	1.22E-11	2.17E-09		
	-	-	-	-	-	2.44E-03	-	-	-	4.22E-03	-	0.00	-	-	-	-	-	-		
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	0.00	0.00	-	3.72E-10	-	-	5.21E-08		
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	1.06E-10	9.79E-11	2.45E-11	4.35E-09		
	<u>5.70E-05</u>	<u>2.57E-03</u>	<u>1.20E-03</u>	<u>1.50E-04</u>	<u>3.36E-04</u>	<u>3.07E-03</u>	<u>4.64E-03</u>	<u>1.65E-04</u>	<u>1.06E-04</u>	<u>7.01E-03</u>	<u>5.23E-06</u>	<u>4.75E-03</u>	<u>2.24E-03</u>	<u>0</u>	<u>1.86E-10</u>	<u>8.25E-10</u>	<u>4.28E-11</u>	<u>9.91E-08</u>		
Trenchers	<u>1.74E-05</u>	<u>8.55E-04</u>	<u>3.54E-04</u>	<u>4.92E-05</u>	<u>9.09E-05</u>	<u>1.94E-04</u>	<u>1.50E-03</u>	<u>5.50E-05</u>	<u>3.36E-05</u>	<u>8.52E-04</u>	-	<u>0.00</u>	<u>0.00</u>	-	-	-	-	-		
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	0.00	0.00	-	1.12E-09	-	-	1.56E-07		
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	3.18E-10	2.94E-10	7.34E-11	1.30E-08		
	<u>2.04E-05</u>	<u>8.55E-04</u>	<u>4.42E-04</u>	<u>5.04E-05</u>	<u>1.31E-04</u>	<u>2.25E-04</u>	<u>1.58E-03</u>	<u>5.50E-05</u>	<u>3.66E-05</u>	<u>9.95E-04</u>	<u>3.29E-06</u>	<u>3.49E-03</u>	<u>3.50E-03</u>	<u>0</u>	<u>3.18E-10</u>	<u>1.41E-09</u>	<u>7.34E-11</u>	<u>1.69E-07</u>		
HHDT-DSL	1.67E-06	8.20E-05	3.39E-05	4.72E-06	8.72E-06	1.86E-05	1.44E-04	5.27E-06	3.22E-06	8.18E-05	-	0.00	0.00	-	-	-	-	-		
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	7.42E-10	6.85E-10	1.71E-10	3.04E-08		
	<u>1.67E-06</u>	<u>8.20E-05</u>	<u>3.39E-05</u>	<u>4.72E-06</u>	<u>8.72E-06</u>	<u>1.86E-05</u>	<u>1.44E-04</u>	<u>5.27E-06</u>	<u>3.22E-06</u>	<u>8.18E-05</u>	-	<u>1.94E-04</u>	<u>1.73E-04</u>	<u>0.00</u>	<u>7.42E-10</u>	<u>6.85E-10</u>	<u>1.71E-10</u>	<u>3.04E-08</u>		
	<u>1.25E-03</u>	<u>5.91E-02</u>	<u>3.06E-02</u>	<u>4.14E-03</u>	<u>2.33E-02</u>	<u>1.96E-02</u>	<u>1.52E-01</u>	<u>3.80E-03</u>	<u>2.37E-03</u>	<u>8.77E-02</u>	<u>5.90E-05</u>	<u>2.04E-01</u>	<u>1.05E-01</u>	<u>9.2E-02</u>	<u>3.45E-08</u>	<u>6.85E-08</u>	<u>4.70E-08</u>	<u>8.26E-06</u>		
Excavators	<u>3.66E-05</u>	<u>1.80E-03</u>	<u>7.46E-04</u>	<u>1.04E-04</u>	<u>1.92E-04</u>	<u>4.09E-04</u>	<u>3.17E-03</u>	<u>1.16E-04</u>	<u>7.08E-05</u>	<u>1.80E-03</u>	-	<u>0.01</u>	<u>0.01</u>	-	-	-	-	-		
Rubber Tired Loaders	<u>2.31E-05</u>	<u>1.14E-03</u>	<u>4.70E-04</u>	<u>6.53E-05</u>	<u>1.21E-04</u>	<u>2.57E-04</u>	<u>2.00E-03</u>	<u>7.30E-05</u>	<u>4.46E-05</u>	<u>1.13E-03</u>	-	<u>0.01</u>	<u>0.01</u>	-	-	-	-	-		
HHDT-DSL	1.67E-06	8.20E-05	3.39E-05	4.72E-06	8.72E-06	1.86E-05	1.44E-04	5.27E-06	3.22E-06	8.18E-05	-	0.00	0.00	-	-	-	-	-		
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	3.18E-10	2.94E-10	7.34E-11	1.30E-08		
	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	3.60E-08	5.25E-08	5.85E-08	6.38E-06		
LDA-TOT	3.79E-06	5.67E-07	1.11E-04	1.46E-06	4.96E-05	3.84E-05	9.51E-05	-	3.81E-06	1.79E-04	4.11E-06	0.00	0.00	-	2.79E-09	-	-	3.91E-07		
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	7.95E-10	7.34E-10	1.84E-10	3.26E-08		
	<u>6.51E-05</u>	<u>3.02E-03</u>	<u>1.36E-03</u>	<u>1.75E-04</u>	<u>3.71E-04</u>	<u>7.24E-04</u>	<u>5.41E-03</u>	<u>1.94E-04</u>	<u>1.22E-04</u>	<u>3.19E-03</u>	<u>4.11E-06</u>	<u>2.40E-02</u>	<u>1.55E-02</u>	<u>0.01</u>	<u>3.71E-08</u>	<u>5.63E-08</u>	<u>5.88E-08</u>	<u>6.81E-06</u>		

HRA Appendix - Attachment A

Offroad												Annual						
Equipment	Acetylene	Acetylene	Acetylene	Acetylene	Acetylene	Acetylene	Acetylene	Acetylene	Acetylene	Acetylene	Acetylene	Acetylene	Acetylene	Acetylene	Acetylene	Acetylene	Acetylene	Acetylene
Category	67561	78933	108383	91203	110543	95476	115071	106423	100425	108883	107028	tons/yr	tons/yr	9901	7440382	7726956	7440439	7782505
HHDT-DSL	1.17E-05	5.74E-04	2.37E-04	3.30E-05	6.10E-05	1.30E-04	1.01E-03	3.69E-05	2.25E-05	5.72E-04	-	0.00	0.00	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	7.42E-10	6.85E-10	1.71E-10	3.04E-08
Graders	1.74E-05	8.55E-04	3.54E-04	4.92E-05	9.09E-05	1.94E-04	1.50E-03	5.50E-05	3.36E-05	8.52E-04	-	0.00	0.00	-	-	-	-	-
Rollers	1.74E-05	8.55E-04	3.54E-04	4.92E-05	9.09E-05	1.94E-04	1.50E-03	5.50E-05	3.36E-05	8.52E-04	-	0.00	0.00	-	-	-	-	-
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	0.00	0.00	-	7.44E-10	-	-	1.04E-07
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	2.12E-10	1.96E-10	4.89E-11	8.70E-09
	4.94E-05	2.28E-03	1.03E-03	1.33E-04	2.82E-04	5.49E-04	4.09E-03	1.47E-04	9.27E-05	2.42E-03	3.29E-06	4.84E-03	4.82E-03	Q	9.54E-10	1.63E-09	2.20E-10	1.43E-07
Tractors/Loaders/Backhoes	3.40E-05	1.67E-03	6.93E-04	9.64E-05	1.78E-04	3.80E-04	2.94E-03	1.08E-04	6.58E-05	1.67E-03	-	0.00	0.00	-	-	-	-	-
Trenchers	1.74E-05	8.55E-04	3.54E-04	4.92E-05	9.09E-05	1.94E-04	1.50E-03	5.50E-05	3.36E-05	8.52E-04	-	0.00	0.00	-	-	-	-	-
LDT2-TOT	1.79E-06	2.67E-07	5.22E-05	6.91E-07	2.34E-05	1.81E-05	4.49E-05	-	1.80E-06	8.43E-05	1.94E-06	0.00	0.00	-	5.62E-10	-	-	7.87E-08
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	1.06E-10	9.79E-11	2.45E-11	4.35E-09
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	0.00	0.00	-	7.44E-10	-	-	1.04E-07
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	2.12E-10	1.96E-10	4.89E-11	8.70E-09
	5.62E-05	2.53E-03	1.19E-03	1.47E-04	3.32E-04	6.23E-04	4.57E-03	1.63E-04	1.04E-04	2.75E-03	5.23E-06	6.87E-03	4.46E-03	Q	3.18E-10	1.60E-09	7.34E-11	1.96E-07
Concrete/Industrial Saws	1.19E-05	5.86E-04	2.42E-04	3.37E-05	6.23E-05	1.33E-04	1.03E-03	3.77E-05	2.30E-05	5.85E-04	-	0.00	0.00	-	-	-	-	-
Rubber Tired Loaders	2.31E-05	1.14E-03	4.70E-04	6.53E-05	1.21E-04	2.57E-04	2.00E-03	7.30E-05	4.46E-05	1.13E-03	-	0.00	0.00	-	-	-	-	-
HHDT-DSL	2.33E-05	1.15E-03	4.75E-04	6.61E-05	1.22E-04	2.60E-04	2.02E-03	7.38E-05	4.51E-05	1.14E-03	-	0.00	0.00	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	7.42E-10	6.85E-10	1.71E-10	3.04E-08
HHDT-DSL	7.49E-06	3.69E-04	1.53E-04	2.12E-05	3.92E-05	8.37E-05	6.49E-04	2.37E-05	1.45E-05	3.68E-04	-	0.00	0.00	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	2.39E-10	2.20E-10	5.51E-11	9.78E-09
LDT2-TOT	1.79E-06	2.67E-07	5.22E-05	6.91E-07	2.34E-05	1.81E-05	4.49E-05	-	1.80E-06	8.43E-05	1.94E-06	0.00	0.00	-	2.81E-10	-	-	3.94E-08
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	5.30E-11	4.89E-11	1.22E-11	2.17E-09
LDA-TOT	3.79E-06	5.67E-07	1.11E-04	1.46E-06	4.96E-05	3.84E-05	9.51E-05	-	3.81E-06	1.79E-04	4.11E-06	0.00	0.00	-	4.65E-10	-	-	6.51E-08
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	1.33E-10	1.22E-10	3.06E-11	5.43E-09
	7.14E-05	3.24E-03	1.50E-03	1.88E-04	4.17E-04	7.91E-04	5.83E-03	2.08E-04	1.33E-04	3.49E-03	6.05E-06	2.60E-03	2.57E-03	Q	1.17E-09	1.82E-09	2.69E-10	1.52E-07
Graders	1.74E-05	8.55E-04	3.54E-04	4.92E-05	9.09E-05	1.94E-04	1.50E-03	5.50E-05	3.36E-05	8.52E-04	-	0.00	0.00	-	-	-	-	-
Rubber Tired Dozers	1.38E-04	6.80E-03	2.81E-03	3.91E-04	7.22E-04	1.54E-03	1.19E-02	4.37E-04	2.67E-04	6.78E-03	-	0.01	0.00	-	-	-	-	-
Rollers	1.74E-05	8.55E-04	3.54E-04	4.92E-05	9.09E-05	1.94E-04	1.50E-03	5.50E-05	3.36E-05	8.52E-04	-	0.00	0.00	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	2.44E-08	3.55E-08	3.96E-08	4.32E-06
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	0.00	0.00	-	3.72E-10	-	-	5.21E-08
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	1.06E-10	9.79E-11	2.45E-11	4.35E-09
	1.76E-04	8.51E-03	3.61E-03	4.91E-04	9.44E-04	1.96E-03	1.50E-02	5.47E-04	3.37E-04	8.62E-03	3.29E-06	1.15E-02	5.65E-03	Q	2.45E-08	3.60E-08	3.96E-08	4.37E-06
Tractors/Loaders/Backhoes	3.40E-05	1.67E-03	6.93E-04	9.64E-05	1.78E-04	3.80E-04	2.94E-03	1.08E-04	6.58E-05	1.67E-03	-	0.00	0.00	-	-	-	-	-
Pavers	1.74E-05	8.55E-04	3.54E-04	4.92E-05	9.09E-05	1.94E-04	1.50E-03	5.50E-05	3.36E-05	8.52E-04	-	0.00	0.00	-	-	-	-	-
HHDT-DSL	8.33E-07	4.10E-05	1.70E-05	2.36E-06	4.36E-06	9.30E-06	7.21E-05	2.64E-06	1.61E-06	4.09E-05	-	0.00	0.00	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	2.65E-11	2.45E-11	6.12E-12	1.09E-09
LDT2-TOT	1.79E-06	2.67E-07	5.22E-05	6.91E-07	2.34E-05	1.81E-05	4.49E-05	-	1.80E-06	8.43E-05	1.94E-06	0.00	0.00	-	2.81E-10	-	-	3.94E-08
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	5.30E-11	4.89E-11	1.22E-11	2.17E-09
	-	-	-	-	-	2.44E-03	-	-	-	4.22E-03	-	0.00	-	-	-	-	-	-
LDA-TOT	3.04E-06	4.54E-07	8.85E-05	1.17E-06	3.97E-05	3.07E-05	7.61E-05	-	3.05E-06	1.43E-04	3.29E-06	0.00	0.00	-	3.72E-10	-	-	5.21E-08
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	1.06E-10	9.79E-11	2.45E-11	4.35E-09

HRA Appendix - Attachment A

Offroad												Annual							
Equipment	Acetylene	Acetone	Diethyl ether (2-butanone)	m-xylene	naphthalene	n-hexane	o-xylene	propene	p-xylene	styrene	toluene	acrolein (2-propenal)	PM10		Diesel PM	ARSENIC	BROMINE	CADMIUM	CHLORINE
													ROG	PM10					
Category	67561	78933	108383	91203	110543	95476	115071	106423	100425	108883	107028	tons/yr	tons/yr	9901	7440382	7726956	7440439	7782505	
	<u>5.70E-05</u>	<u>2.57E-03</u>	<u>1.20E-03</u>	<u>1.50E-04</u>	<u>3.36E-04</u>	<u>3.07E-03</u>	<u>4.64E-03</u>	<u>1.65E-04</u>	<u>1.06E-04</u>	<u>7.01E-03</u>	<u>5.23E-06</u>	<u>4.75E-03</u>	<u>2.24E-03</u>	<u>0</u>	<u>1.86E-10</u>	<u>8.25E-10</u>	<u>4.28E-11</u>	<u>9.91E-08</u>	
Trenchers	<u>1.74E-05</u>	<u>8.55E-04</u>	<u>3.54E-04</u>	<u>4.92E-05</u>	<u>9.09E-05</u>	<u>1.94E-04</u>	<u>1.50E-03</u>	<u>5.50E-05</u>	<u>3.36E-05</u>	<u>8.52E-04</u>	-	<u>0.00</u>	<u>0.00</u>		-	-	-	-	
LDA-TOT	1.90E-06	2.84E-07	5.53E-05	7.32E-07	2.48E-05	1.92E-05	4.75E-05	-	1.91E-06	8.94E-05	2.06E-06	0.00	0.00		-	6.98E-10	-	9.77E-08	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00		1.99E-10	1.84E-10	4.59E-11	8.15E-09	
	<u>1.93E-05</u>	<u>8.55E-04</u>	<u>4.09E-04</u>	<u>4.99E-05</u>	<u>1.16E-04</u>	<u>2.13E-04</u>	<u>1.55E-03</u>	<u>5.50E-05</u>	<u>3.55E-05</u>	<u>9.42E-04</u>	<u>2.06E-06</u>	<u>3.48E-03</u>	<u>3.49E-03</u>	<u>0</u>	<u>1.99E-10</u>	<u>8.81E-10</u>	<u>4.59E-11</u>	<u>1.06E-07</u>	
Trenchers	<u>1.74E-05</u>	<u>8.55E-04</u>	<u>3.54E-04</u>	<u>4.92E-05</u>	<u>9.09E-05</u>	<u>1.94E-04</u>	<u>1.50E-03</u>	<u>5.50E-05</u>	<u>3.36E-05</u>	<u>8.52E-04</u>	-	<u>0.00</u>	<u>0.00</u>		-	-	-	-	
LDA-TOT	1.90E-06	2.84E-07	5.53E-05	7.32E-07	2.48E-05	1.92E-05	4.75E-05	-	1.91E-06	8.94E-05	2.06E-06	0.00	0.00		-	2.33E-10	-	3.26E-08	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00		6.63E-11	6.12E-11	1.53E-11	2.72E-09	
	<u>1.93E-05</u>	<u>8.55E-04</u>	<u>4.09E-04</u>	<u>4.99E-05</u>	<u>1.16E-04</u>	<u>2.13E-04</u>	<u>1.55E-03</u>	<u>5.50E-05</u>	<u>3.55E-05</u>	<u>9.42E-04</u>	<u>2.06E-06</u>	<u>1.16E-03</u>	<u>1.16E-03</u>	<u>0</u>	<u>6.63E-11</u>	<u>2.94E-10</u>	<u>1.53E-11</u>	<u>3.53E-08</u>	
Air Compressors	8.60E-05	4.23E-03	1.75E-03	2.44E-04	4.50E-04	9.60E-04	7.44E-03	2.72E-04	1.66E-04	4.22E-03	-	0.21	0.11		-	-	-	-	
HHDT-DSL	8.33E-07	4.10E-05	1.70E-05	2.36E-06	4.36E-06	9.30E-06	7.21E-05	2.64E-06	1.61E-06	4.09E-05	-	0.00	0.00		-	-	-	-	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00		1.06E-10	9.79E-11	2.45E-11	4.35E-09	
HHDT-DSL	1.67E-06	8.20E-05	3.39E-05	4.72E-06	8.72E-06	1.86E-05	1.44E-04	5.27E-06	3.22E-06	8.18E-05	-	0.00	0.00		-	-	-	-	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00		9.54E-11	8.81E-11	2.20E-11	3.91E-09	
Off-Highway Trucks	7.11E-05	3.50E-03	1.45E-03	2.01E-04	3.72E-04	7.94E-04	6.15E-03	2.25E-04	1.37E-04	3.49E-03	-	0.09	0.03		-	-	-	-	
Tractors/Loaders/Backhoes	3.40E-05	1.67E-03	6.93E-04	9.64E-05	1.78E-04	3.80E-04	2.94E-03	1.08E-04	6.58E-05	1.67E-03	-	0.08	0.04		-	-	-	-	
Cranes	3.44E-05	1.70E-03	7.01E-04	9.76E-05	1.80E-04	3.84E-04	2.98E-03	1.09E-04	6.66E-05	1.69E-03	-	0.08	0.04		-	-	-	-	
Forklifts	2.50E-05	1.23E-03	5.10E-04	7.10E-05	1.31E-04	2.80E-04	2.17E-03	7.93E-05	4.84E-05	1.23E-03	-	0.06	0.02		-	-	-	-	
LDA-TOT	5.69E-06	8.51E-07	1.66E-04	2.20E-06	7.45E-05	5.77E-05	1.43E-04	-	5.72E-06	2.68E-04	6.17E-06	0.00	0.00		-	2.51E-08	-	3.52E-06	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00		7.16E-09	6.61E-09	1.65E-09	2.93E-07	
	<u>2.59E-04</u>	<u>1.25E-02</u>	<u>5.32E-03</u>	<u>7.19E-04</u>	<u>1.40E-03</u>	<u>2.88E-03</u>	<u>2.21E-02</u>	<u>8.01E-04</u>	<u>4.95E-04</u>	<u>1.27E-02</u>	<u>6.17E-06</u>	<u>5.17E-01</u>	<u>2.37E-01</u>	<u>0</u>	<u>7.36E-09</u>	<u>3.19E-08</u>	<u>1.70E-09</u>	<u>3.82E-06</u>	
HHDT-DSL	1.67E-06	8.20E-05	3.39E-05	4.72E-06	8.72E-06	1.86E-05	1.44E-04	5.27E-06	3.22E-06	8.18E-05	-	0.00	0.00		-	-	-	-	
Dust	-	-	-	-	-	-	-	-	-	-	-	-	0.00		7.42E-10	6.85E-10	1.71E-10	3.04E-08	
	<u>1.67E-06</u>	<u>8.20E-05</u>	<u>3.39E-05</u>	<u>4.72E-06</u>	<u>8.72E-06</u>	<u>1.86E-05</u>	<u>1.44E-04</u>	<u>5.27E-06</u>	<u>3.22E-06</u>	<u>8.18E-05</u>	-	<u>1.94E-04</u>	<u>1.73E-04</u>	<u>0</u>	<u>7.42E-10</u>	<u>6.85E-10</u>	<u>1.71E-10</u>	<u>3.04E-08</u>	
	<u>7.74E-04</u>	<u>3.64E-02</u>	<u>1.61E-02</u>	<u>2.11E-03</u>	<u>4.32E-03</u>	<u>1.10E-02</u>	<u>6.49E-02</u>	<u>2.34E-03</u>	<u>1.46E-03</u>	<u>4.21E-02</u>	<u>3.75E-05</u>	<u>5.76E-01</u>	<u>2.77E-01</u>	<u>3E-01</u>	<u>7.26E-08</u>	<u>1.32E-07</u>	<u>1.01E-07</u>	<u>1.58E-05</u>	

HRA Appendix - Attachment A

Offroad																		
Equipment	CHROMIUM VI	COPPER	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	benzene	ethylbenzene	formaldehyde	methanol	methyl ethyl ketone (mek)	m-xylene
Category	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414	50000	67561	78933	108383
Cranes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/winch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crushing/Proc. Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubber Tired Loaders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	6.93E-12	1.21E-09	1.01E-09	6.53E-09	7.34E-11	9.79E-11	1.63E-11	2.55E-08	2.20E-08	5.79E-10	-	-	-	-	-	-	-	-
LDA-TOT	9.30E-11	1.86E-09	-	1.86E-09	-	1.86E-09	-	-	1.67E-06	-	1.69E-07	8.67E-08	7.68E-07	3.26E-07	4.90E-07	3.79E-08	5.67E-09	1.11E-06
Dust	3.47E-11	6.04E-09	5.06E-09	3.26E-08	3.67E-10	4.89E-10	8.16E-11	1.28E-07	1.10E-07	2.90E-09	-	-	-	-	-	-	-	-
	<u>1.35E-10</u>	<u>9.10E-09</u>	<u>6.07E-09</u>	<u>4.10E-08</u>	<u>4.40E-10</u>	<u>2.45E-09</u>	<u>9.79E-11</u>	<u>1.53E-07</u>	<u>1.81E-06</u>	<u>3.47E-09</u>	<u>1.69E-07</u>	<u>8.67E-08</u>	<u>7.68E-07</u>	<u>3.26E-07</u>	<u>4.90E-07</u>	<u>3.79E-08</u>	<u>5.67E-09</u>	<u>1.11E-06</u>
Excavators	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubber Tired Loaders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	4.16E-11	7.24E-09	6.07E-09	3.92E-08	4.40E-10	5.87E-10	9.79E-11	1.53E-07	1.32E-07	3.47E-09	-	-	-	-	-	-	-	-
	1.57E-08	1.66E-07	8.41E-07	1.38E-06	2.40E-08	9.12E-08	3.60E-09	4.46E-06	7.07E-06	3.97E-07	-	-	-	-	-	-	-	-
LDA-TOT	2.79E-10	5.58E-09	-	5.58E-09	-	5.58E-09	-	-	5.02E-06	-	5.08E-07	2.60E-07	2.30E-06	9.77E-07	1.47E-06	1.14E-07	1.70E-08	3.32E-06
Dust	1.04E-10	1.81E-08	1.52E-08	9.79E-08	1.10E-09	1.47E-09	2.45E-10	3.83E-07	3.29E-07	8.69E-09	-	-	-	-	-	-	-	-
	<u>1.60E-08</u>	<u>1.78E-07</u>	<u>8.47E-07</u>	<u>1.42E-06</u>	<u>2.44E-08</u>	<u>9.74E-08</u>	<u>3.70E-09</u>	<u>4.61E-06</u>	<u>1.22E-05</u>	<u>4.01E-07</u>	<u>5.08E-07</u>	<u>2.60E-07</u>	<u>2.30E-06</u>	<u>9.77E-07</u>	<u>1.47E-06</u>	<u>1.14E-07</u>	<u>1.70E-08</u>	<u>3.32E-06</u>
Hoist/swing/winch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/winch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/winch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	4.88E-11	9.77E-10	-	9.77E-10	-	9.77E-10	-	-	8.79E-07	-	8.89E-08	4.55E-08	4.03E-07	1.71E-07	2.57E-07	1.99E-08	2.98E-09	5.81E-07
Dust	1.82E-11	3.17E-09	2.66E-09	1.71E-08	1.93E-10	2.57E-10	4.28E-11	6.70E-08	5.76E-08	1.52E-09	-	-	-	-	-	-	-	-
	<u>6.70E-11</u>	<u>4.15E-09</u>	<u>2.66E-09</u>	<u>1.81E-08</u>	<u>1.93E-10</u>	<u>1.23E-09</u>	<u>4.28E-11</u>	<u>6.70E-08</u>	<u>9.37E-07</u>	<u>1.52E-09</u>	<u>8.89E-08</u>	<u>4.55E-08</u>	<u>4.03E-07</u>	<u>1.71E-07</u>	<u>2.57E-07</u>	<u>1.99E-08</u>	<u>2.98E-09</u>	<u>5.81E-07</u>
Hoist/swing/winch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/winch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Air Compressors	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	9.30E-11	1.86E-09	-	1.86E-09	-	1.86E-09	-	-	1.67E-06	-	1.69E-07	8.67E-08	7.68E-07	3.26E-07	4.90E-07	3.79E-08	5.67E-09	1.11E-06
Dust	3.47E-11	6.04E-09	5.06E-09	3.26E-08	3.67E-10	4.89E-10	8.16E-11	1.28E-07	1.10E-07	2.90E-09	-	-	-	-	-	-	-	-
	<u>9.30E-11</u>	<u>1.86E-09</u>	<u>0.00E+00</u>	<u>1.86E-09</u>	<u>0.00E+00</u>	<u>1.86E-09</u>	<u>0.00E+00</u>	<u>0.00E+00</u>	<u>1.67E-06</u>	<u>0.00E+00</u>	<u>1.69E-07</u>	<u>8.67E-08</u>	<u>7.68E-07</u>	<u>3.26E-07</u>	<u>4.90E-07</u>	<u>3.79E-08</u>	<u>5.67E-09</u>	<u>1.11E-06</u>

HRA Appendix - Attachment A

Offroad																		
Equipment	CHROMIUM VI	COPPER	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	benzene	ethylbenzene	formaldehyde	methanol	methyl ethyl ketone (methyl isobutyl ketone)	m-xylene
Category	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414	50000	67561	78933	108383
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	1.63E-11	3.26E-10	-	3.26E-10	-	3.26E-10	-	-	2.93E-07	-	2.96E-08	1.52E-08	1.34E-07	5.70E-08	8.58E-08	6.64E-09	9.92E-10	1.94E-07
Dust	6.07E-12	1.06E-09	8.85E-10	5.71E-09	6.42E-11	8.57E-11	1.43E-11	2.23E-08	1.92E-08	5.07E-10	-	-	-	-	-	-	-	-
	2.23E-11	1.38E-09	8.85E-10	6.04E-09	6.42E-11	4.11E-10	1.43E-11	2.23E-08	3.12E-07	5.07E-10	2.96E-08	1.52E-08	1.34E-07	5.70E-08	8.58E-08	6.64E-09	9.92E-10	1.94E-07
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	9.30E-11	1.86E-09	-	1.86E-09	-	1.86E-09	-	-	1.67E-06	-	1.69E-07	8.67E-08	7.68E-07	3.26E-07	4.90E-07	3.79E-08	5.67E-09	1.11E-06
Dust	3.47E-11	6.04E-09	5.06E-09	3.26E-08	3.67E-10	4.89E-10	8.16E-11	1.28E-07	1.10E-07	2.90E-09	-	-	-	-	-	-	-	-
	1.28E-10	7.90E-09	5.06E-09	3.45E-08	3.67E-10	2.35E-09	8.16E-11	1.28E-07	1.78E-06	2.90E-09	1.69E-07	8.67E-08	7.68E-07	3.26E-07	4.90E-07	3.79E-08	5.67E-09	1.11E-06
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	1.81E-11	3.63E-10	-	3.63E-10	-	3.63E-10	-	-	3.27E-07	-	3.30E-08	1.69E-08	1.50E-07	6.35E-08	9.56E-08	7.40E-09	1.11E-09	2.16E-07
Dust	6.76E-12	1.18E-09	9.86E-10	6.36E-09	7.16E-11	9.54E-11	1.59E-11	2.49E-08	2.14E-08	5.65E-10	-	-	-	-	-	-	-	-
	2.49E-11	1.54E-09	9.86E-10	6.73E-09	7.16E-11	4.58E-10	1.59E-11	2.49E-08	3.48E-07	5.65E-10	3.30E-08	1.69E-08	1.50E-07	6.35E-08	9.56E-08	7.40E-09	1.11E-09	2.16E-07
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Excavators	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	6.93E-13	1.21E-10	1.01E-10	6.53E-10	7.34E-12	9.79E-12	1.63E-12	2.55E-09	2.20E-09	5.79E-11	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	1.81E-11	3.63E-10	-	3.63E-10	-	3.63E-10	-	-	3.27E-07	-	3.30E-08	1.69E-08	1.50E-07	6.35E-08	9.56E-08	7.40E-09	1.11E-09	2.16E-07
Dust	6.76E-12	1.18E-09	9.86E-10	6.36E-09	7.16E-11	9.54E-11	1.59E-11	2.49E-08	2.14E-08	5.65E-10	-	-	-	-	-	-	-	-
	2.56E-11	1.66E-09	1.09E-09	7.38E-09	7.89E-11	4.68E-10	1.75E-11	2.75E-08	3.50E-07	6.23E-10	3.30E-08	1.69E-08	1.50E-07	6.35E-08	9.56E-08	7.40E-09	1.11E-09	2.16E-07
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	1.81E-11	3.63E-10	-	3.63E-10	-	3.63E-10	-	-	3.27E-07	-	3.30E-08	1.69E-08	1.50E-07	6.35E-08	9.56E-08	7.40E-09	1.11E-09	2.16E-07
Dust	6.76E-12	1.18E-09	9.86E-10	6.36E-09	7.16E-11	9.54E-11	1.59E-11	2.49E-08	2.14E-08	5.65E-10	-	-	-	-	-	-	-	-
	2.49E-11	1.54E-09	9.86E-10	6.73E-09	7.16E-11	4.58E-10	1.59E-11	2.49E-08	3.48E-07	5.65E-10	3.30E-08	1.69E-08	1.50E-07	6.35E-08	9.56E-08	7.40E-09	1.11E-09	2.16E-07
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	1.56E-11	2.72E-09	2.28E-09	1.47E-08	1.65E-10	2.20E-10	3.67E-11	5.75E-08	4.94E-08	1.30E-09	-	-	-	-	-	-	-	-

HRA Appendix - Attachment A

Offroad																		
Equipment	CHROMIUM VI	COPPER	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	benzene	ethylbenzene	formaldehyde	methanol	methyl ethyl ketone (mek)	m-xylene
Category	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414	50000	67561	78933	108383
Graders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rollers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	5.58E-11	1.12E-09	-	1.12E-09	-	1.12E-09	-	-	1.00E-06	-	1.02E-07	5.20E-08	4.61E-07	1.95E-07	2.94E-07	2.28E-08	3.40E-09	6.64E-07
Dust	2.08E-11	3.62E-09	3.03E-09	1.96E-08	2.20E-10	2.94E-10	4.89E-11	7.66E-08	6.59E-08	1.74E-09	-	-	-	-	-	-	-	-
	<u>9.22E-11</u>	<u>7.45E-09</u>	<u>5.31E-09</u>	<u>3.54E-08</u>	<u>3.85E-10</u>	<u>1.63E-09</u>	<u>8.57E-11</u>	<u>1.34E-07</u>	<u>1.12E-06</u>	<u>3.04E-09</u>	<u>1.02E-07</u>	<u>5.20E-08</u>	<u>4.61E-07</u>	<u>1.95E-07</u>	<u>2.94E-07</u>	<u>2.28E-08</u>	<u>3.40E-09</u>	<u>6.64E-07</u>
Tractors/Loaders/Backhoes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trenchers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDT2-TOT	5.62E-11	1.12E-09	-	1.12E-09	-	1.12E-09	-	-	1.01E-06	-	7.99E-08	4.09E-08	3.62E-07	1.54E-07	2.31E-07	1.79E-08	2.67E-09	5.22E-07
Dust	1.39E-11	2.41E-09	2.02E-09	1.31E-08	1.47E-10	1.96E-10	3.26E-11	5.11E-08	4.39E-08	1.16E-09	-	-	-	-	-	-	-	-
LDA-TOT	7.44E-11	1.49E-09	-	1.49E-09	-	1.49E-09	-	-	1.34E-06	-	1.35E-07	6.93E-08	6.14E-07	2.60E-07	3.92E-07	3.04E-08	4.54E-09	8.85E-07
Dust	2.77E-11	4.83E-09	4.05E-09	2.61E-08	2.94E-10	3.92E-10	6.53E-11	1.02E-07	8.78E-08	2.32E-09	-	-	-	-	-	-	-	-
	<u>1.72E-10</u>	<u>9.86E-09</u>	<u>6.07E-09</u>	<u>4.18E-08</u>	<u>4.40E-10</u>	<u>3.20E-09</u>	<u>9.79E-11</u>	<u>1.53E-07</u>	<u>2.48E-06</u>	<u>3.47E-09</u>	<u>2.15E-07</u>	<u>1.10E-07</u>	<u>9.76E-07</u>	<u>4.14E-07</u>	<u>6.24E-07</u>	<u>4.83E-08</u>	<u>7.21E-09</u>	<u>1.41E-06</u>
Crushing/Proc. Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubber Tired Loaders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	3.40E-11	5.92E-09	4.96E-09	3.20E-08	3.60E-10	4.80E-10	7.99E-11	1.25E-07	1.08E-07	2.84E-09	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDT2-TOT	3.94E-11	7.87E-10	-	7.87E-10	-	7.87E-10	-	-	7.08E-07	-	5.59E-08	2.86E-08	2.53E-07	1.08E-07	1.62E-07	1.25E-08	1.87E-09	3.65E-07
Dust	9.71E-12	1.69E-09	1.42E-09	9.14E-09	1.03E-10	1.37E-10	2.28E-11	3.58E-08	3.07E-08	8.11E-10	-	-	-	-	-	-	-	-
LDA-TOT	6.51E-11	1.30E-09	-	1.30E-09	-	1.30E-09	-	-	1.17E-06	-	1.19E-07	6.07E-08	5.37E-07	2.28E-07	3.43E-07	2.66E-08	3.97E-09	7.74E-07
Dust	2.43E-11	4.23E-09	3.54E-09	2.28E-08	2.57E-10	3.43E-10	5.71E-11	8.94E-08	7.69E-08	2.03E-09	-	-	-	-	-	-	-	-
	<u>1.72E-10</u>	<u>1.39E-08</u>	<u>9.91E-09</u>	<u>6.60E-08</u>	<u>7.19E-10</u>	<u>3.05E-09</u>	<u>1.60E-10</u>	<u>2.50E-07</u>	<u>2.10E-06</u>	<u>5.68E-09</u>	<u>1.74E-07</u>	<u>8.93E-08</u>	<u>7.91E-07</u>	<u>3.35E-07</u>	<u>5.05E-07</u>	<u>3.91E-08</u>	<u>5.84E-09</u>	<u>1.14E-06</u>
Graders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubber Tired Dozers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rollers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1.33E-08	1.40E-07	7.12E-07	1.17E-06	2.03E-08	7.72E-08	3.05E-09	3.77E-06	5.99E-06	3.36E-07	-	-	-	-	-	-	-	-
LDA-TOT	1.86E-11	3.72E-10	-	3.72E-10	-	3.72E-10	-	-	3.35E-07	-	3.39E-08	1.73E-08	1.54E-07	6.51E-08	9.81E-08	7.59E-09	1.13E-09	2.21E-07
Dust	6.93E-12	1.21E-09	1.01E-09	6.53E-09	7.34E-11	9.79E-11	1.63E-11	2.55E-08	2.20E-08	5.79E-10	-	-	-	-	-	-	-	-
	<u>1.33E-08</u>	<u>1.42E-07</u>	<u>7.13E-07</u>	<u>1.17E-06</u>	<u>2.04E-08</u>	<u>7.76E-08</u>	<u>3.06E-09</u>	<u>3.80E-06</u>	<u>6.34E-06</u>	<u>3.37E-07</u>	<u>3.39E-08</u>	<u>1.73E-08</u>	<u>1.54E-07</u>	<u>6.51E-08</u>	<u>9.81E-08</u>	<u>7.59E-09</u>	<u>1.13E-09</u>	<u>2.21E-07</u>
Tractors/Loaders/Backhoes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pavers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	1.73E-12	3.02E-10	2.53E-10	1.63E-09	1.84E-11	2.45E-11	4.08E-12	6.39E-09	5.49E-09	1.45E-10	-	-	-	-	-	-	-	-
LDT2-TOT	1.41E-11	2.81E-10	-	2.81E-10	-	2.81E-10	-	-	2.53E-07	-	2.00E-08	1.02E-08	9.05E-08	3.84E-08	5.78E-08	4.48E-09	6.69E-10	1.30E-07
Dust	3.47E-12	6.04E-10	5.06E-10	3.26E-09	3.67E-11	4.89E-11	8.16E-12	1.28E-08	1.10E-08	2.90E-10	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	3.03E-05	-	-	-	-
LDA-TOT	1.86E-11	3.72E-10	-	3.72E-10	-	3.72E-10	-	-	3.35E-07	-	3.39E-08	1.73E-08	1.54E-07	6.51E-08	9.81E-08	7.59E-09	1.13E-09	2.21E-07
Dust	6.93E-12	1.21E-09	1.01E-09	6.53E-09	7.34E-11	9.79E-11	1.63E-11	2.55E-08	2.20E-08	5.79E-10	-	-	-	-	-	-	-	-
	<u>4.48E-11</u>	<u>2.77E-09</u>	<u>1.77E-09</u>	<u>1.21E-08</u>	<u>1.28E-10</u>	<u>8.25E-10</u>	<u>2.86E-11</u>	<u>4.47E-08</u>	<u>6.26E-07</u>	<u>1.01E-09</u>	<u>5.38E-08</u>	<u>2.76E-08</u>	<u>2.44E-07</u>	<u>3.04E-05</u>	<u>1.56E-07</u>	<u>1.21E-08</u>	<u>1.80E-09</u>	<u>3.52E-07</u>

HRA Appendix - Attachment A

Offroad																		
Equipment	CHROMIUM VI	COPPER	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	benzene	ethylbenzene	formaldehyde	methanol	methyl ethyl ketone (methyl)	m-xylene
Category	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414	50000	67561	78933	108383
Trenchers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	5.58E-11	1.12E-09	-	1.12E-09	-	1.12E-09	-	-	1.00E-06	-	1.02E-07	5.20E-08	4.61E-07	1.95E-07	2.94E-07	2.28E-08	3.40E-09	6.64E-07
Dust	2.08E-11	3.62E-09	3.03E-09	1.96E-08	2.20E-10	2.94E-10	4.89E-11	7.66E-08	6.59E-08	1.74E-09	-	-	-	-	-	-	-	-
	7.66E-11	4.74E-09	3.03E-09	2.07E-08	2.20E-10	1.41E-09	4.89E-11	7.66E-08	1.07E-06	1.74E-09	1.02E-07	5.20E-08	4.61E-07	1.95E-07	2.94E-07	2.28E-08	3.40E-09	6.64E-07
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	6.93E-11	1.21E-08	1.01E-08	6.53E-08	7.34E-10	9.79E-10	1.63E-10	2.55E-07	2.20E-07	5.79E-09	-	-	-	-	-	-	-	-
	6.93E-11	1.21E-08	1.01E-08	6.53E-08	7.34E-10	9.79E-10	1.63E-10	2.55E-07	2.20E-07	5.79E-09	-	-	-	-	-	-	-	-
	3.05E-08	4.00E-07	1.61E-06	2.96E-06	4.87E-08	1.96E-07	7.63E-09	9.77E-06	3.38E-05	7.68E-07	1.91E-06	9.80E-07	8.68E-06	3.40E-05	5.54E-06	4.29E-07	6.41E-08	1.25E-05
Cranes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Concrete/Industrial Saws	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubber Tired Loaders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	4.65E-11	9.30E-10	-	9.30E-10	-	9.30E-10	-	-	8.37E-07	-	8.46E-08	4.33E-08	3.84E-07	1.63E-07	2.45E-07	1.90E-08	2.84E-09	5.53E-07
Dust	1.73E-11	3.02E-09	2.53E-09	1.63E-08	1.84E-10	2.45E-10	4.08E-11	6.39E-08	5.49E-08	1.45E-09	-	-	-	-	-	-	-	-
	6.39E-11	3.95E-09	2.53E-09	1.72E-08	1.84E-10	1.18E-09	4.08E-11	6.39E-08	8.92E-07	1.45E-09	8.46E-08	4.33E-08	3.84E-07	1.63E-07	2.45E-07	1.90E-08	2.84E-09	5.53E-07
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	6.05E-11	1.21E-09	-	1.21E-09	-	1.21E-09	-	-	1.09E-06	-	1.10E-07	5.63E-08	4.99E-07	2.12E-07	3.19E-07	2.47E-08	3.69E-09	7.19E-07
Dust	2.25E-11	3.92E-09	3.29E-09	2.12E-08	2.39E-10	3.18E-10	5.30E-11	8.30E-08	7.14E-08	1.88E-09	-	-	-	-	-	-	-	-
	8.30E-11	5.13E-09	3.29E-09	2.24E-08	2.39E-10	1.53E-09	5.30E-11	8.30E-08	1.16E-06	1.88E-09	1.10E-07	5.63E-08	4.99E-07	2.12E-07	3.19E-07	2.47E-08	3.69E-09	7.19E-07
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Excavators	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	2.77E-12	4.83E-10	4.05E-10	2.61E-09	2.94E-11	3.92E-11	6.53E-12	1.02E-08	8.78E-09	2.32E-10	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	6.05E-11	1.21E-09	-	1.21E-09	-	1.21E-09	-	-	1.09E-06	-	1.10E-07	5.63E-08	4.99E-07	2.12E-07	3.19E-07	2.47E-08	3.69E-09	7.19E-07
Dust	2.25E-11	3.92E-09	3.29E-09	2.12E-08	2.39E-10	3.18E-10	5.30E-11	8.30E-08	7.14E-08	1.88E-09	-	-	-	-	-	-	-	-
	8.58E-11	5.62E-09	3.69E-09	2.50E-08	2.68E-10	1.57E-09	5.95E-11	9.32E-08	1.17E-06	2.11E-09	1.10E-07	5.63E-08	4.99E-07	2.12E-07	3.19E-07	2.47E-08	3.69E-09	7.19E-07
Hoist/swing/win	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

HRA Appendix - Attachment A

Offroad																		
Equipment	CHROMIUM VI	COPPER	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	benzene	ethylbenzene	formaldehyde	methanol	methyl ethyl ketone (mek)	m-xylene
Category	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414	50000	67561	78933	108383
Hoist/swing/winch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	6.05E-11	1.21E-09	-	1.21E-09	-	1.21E-09	-	-	1.09E-06	-	1.10E-07	5.63E-08	4.99E-07	2.12E-07	3.19E-07	2.47E-08	3.69E-09	7.19E-07
Dust	2.25E-11	3.92E-09	3.29E-09	2.12E-08	2.39E-10	3.18E-10	5.30E-11	8.30E-08	7.14E-08	1.88E-09	-	-	-	-	-	-	-	-
	<u>8.30E-11</u>	<u>5.13E-09</u>	<u>3.29E-09</u>	<u>2.24E-08</u>	<u>2.39E-10</u>	<u>1.53E-09</u>	<u>5.30E-11</u>	<u>8.30E-08</u>	<u>1.16E-06</u>	<u>1.88E-09</u>	<u>1.10E-07</u>	<u>5.63E-08</u>	<u>4.99E-07</u>	<u>2.12E-07</u>	<u>3.19E-07</u>	<u>2.47E-08</u>	<u>3.69E-09</u>	<u>7.19E-07</u>
Hoist/swing/winch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoist/swing/winch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	9.30E-11	1.86E-09	-	1.86E-09	-	1.86E-09	-	-	1.67E-06	-	1.69E-07	8.67E-08	7.68E-07	3.26E-07	4.90E-07	3.79E-08	5.67E-09	1.11E-06
Dust	3.47E-11	6.04E-09	5.06E-09	3.26E-08	3.67E-10	4.89E-10	8.16E-11	1.28E-07	1.10E-07	2.90E-09	-	-	-	-	-	-	-	-
	<u>1.28E-10</u>	<u>7.90E-09</u>	<u>5.06E-09</u>	<u>3.45E-08</u>	<u>3.67E-10</u>	<u>2.35E-09</u>	<u>8.16E-11</u>	<u>1.28E-07</u>	<u>1.78E-06</u>	<u>2.90E-09</u>	<u>1.69E-07</u>	<u>8.67E-08</u>	<u>7.68E-07</u>	<u>3.26E-07</u>	<u>4.90E-07</u>	<u>3.79E-08</u>	<u>5.67E-09</u>	<u>1.11E-06</u>
Excavators	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubber Tired Loaders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	2.08E-11	3.62E-09	3.03E-09	1.96E-08	2.20E-10	2.94E-10	4.89E-11	7.66E-08	6.59E-08	1.74E-09	-	-	-	-	-	-	-	-
	1.97E-09	2.07E-08	1.05E-07	1.73E-07	3.00E-09	1.14E-08	4.50E-10	5.57E-07	8.84E-07	4.97E-08	-	-	-	-	-	-	-	-
LDA-TOT	1.12E-10	2.23E-09	-	2.23E-09	-	2.23E-09	-	-	2.01E-06	-	2.03E-07	1.04E-07	9.21E-07	3.91E-07	5.88E-07	4.55E-08	6.80E-09	1.33E-06
Dust	4.16E-11	7.24E-09	6.07E-09	3.92E-08	4.40E-10	5.87E-10	9.79E-11	1.53E-07	1.32E-07	3.47E-09	-	-	-	-	-	-	-	-
	<u>2.14E-09</u>	<u>3.38E-08</u>	<u>1.14E-07</u>	<u>2.33E-07</u>	<u>3.66E-09</u>	<u>1.45E-08</u>	<u>5.97E-10</u>	<u>7.87E-07</u>	<u>3.09E-06</u>	<u>5.49E-08</u>	<u>2.03E-07</u>	<u>1.04E-07</u>	<u>9.21E-07</u>	<u>3.91E-07</u>	<u>5.88E-07</u>	<u>4.55E-08</u>	<u>6.80E-09</u>	<u>1.33E-06</u>
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	4.68E-11	8.15E-09	6.83E-09	4.40E-08	4.96E-10	6.61E-10	1.10E-10	1.72E-07	1.48E-07	3.91E-09	-	-	-	-	-	-	-	-
Graders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rollers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	5.58E-11	1.12E-09	-	1.12E-09	-	1.12E-09	-	-	1.00E-06	-	1.02E-07	5.20E-08	4.61E-07	1.95E-07	2.94E-07	2.28E-08	3.40E-09	6.64E-07
Dust	2.08E-11	3.62E-09	3.03E-09	1.96E-08	2.20E-10	2.94E-10	4.89E-11	7.66E-08	6.59E-08	1.74E-09	-	-	-	-	-	-	-	-
	<u>1.23E-10</u>	<u>1.29E-08</u>	<u>9.86E-09</u>	<u>6.47E-08</u>	<u>7.16E-10</u>	<u>2.07E-09</u>	<u>1.59E-10</u>	<u>2.49E-07</u>	<u>1.22E-06</u>	<u>5.65E-09</u>	<u>1.02E-07</u>	<u>5.20E-08</u>	<u>4.61E-07</u>	<u>1.95E-07</u>	<u>2.94E-07</u>	<u>2.28E-08</u>	<u>3.40E-09</u>	<u>6.64E-07</u>
Tractors/Loaders/Backhoes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trenchers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDT2-TOT	4.13E-10	8.27E-09	-	8.27E-09	-	8.27E-09	-	-	7.44E-06	-	1.44E-07	7.35E-08	6.51E-07	2.76E-07	4.16E-07	3.22E-08	4.81E-09	9.38E-07
Dust	6.93E-12	1.21E-09	1.01E-09	6.53E-09	7.34E-11	9.79E-11	1.63E-11	2.55E-08	2.20E-08	5.79E-10	-	-	-	-	-	-	-	-
LDA-TOT	3.72E-11	7.44E-10	-	7.44E-10	-	7.44E-10	-	-	6.70E-07	-	6.77E-08	3.47E-08	3.07E-07	1.30E-07	1.96E-07	1.52E-08	2.27E-09	4.42E-07
Dust	1.39E-11	2.41E-09	2.02E-09	1.31E-08	1.47E-10	1.96E-10	3.26E-11	5.11E-08	4.39E-08	1.16E-09	-	-	-	-	-	-	-	-
	<u>4.71E-10</u>	<u>1.26E-08</u>	<u>3.03E-09</u>	<u>2.86E-08</u>	<u>2.20E-10</u>	<u>9.31E-09</u>	<u>4.89E-11</u>	<u>7.66E-08</u>	<u>8.18E-06</u>	<u>1.74E-09</u>	<u>2.11E-07</u>	<u>1.08E-07</u>	<u>9.58E-07</u>	<u>4.06E-07</u>	<u>6.12E-07</u>	<u>4.74E-08</u>	<u>7.08E-09</u>	<u>1.38E-06</u>
Concrete/Industrial Saws	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubber Tired Loaders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	4.85E-11	8.45E-09	7.08E-09	4.57E-08	5.14E-10	6.85E-10	1.14E-10	1.79E-07	1.54E-07	4.05E-09	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	6.93E-12	1.21E-09	1.01E-09	6.53E-09	7.34E-11	9.79E-11	1.63E-11	2.55E-08	2.20E-08	5.79E-10	-	-	-	-	-	-	-	-
LDT2-TOT	1.41E-11	2.81E-10	-	2.81E-10	-	2.81E-10	-	-	2.53E-07	-	2.00E-08	1.02E-08	9.05E-08	3.84E-08	5.78E-08	4.48E-09	6.69E-10	1.30E-07

HRA Appendix - Attachment A

Offroad																		
Equipment	CHROMIUM VI	COPPER	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	benzene	ethylbenzene	formaldehyde	methanol	methyl ethyl ketone (methyl isobutyl ketone)	m-xylene
Category	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414	50000	67561	78933	108383
Dust	3.47E-12	6.04E-10	5.06E-10	3.26E-09	3.67E-11	4.89E-11	8.16E-12	1.28E-08	1.10E-08	2.90E-10	-	-	-	-	-	-	-	-
LDA-TOT	2.33E-11	4.65E-10	-	4.65E-10	-	4.65E-10	-	-	4.19E-07	-	4.23E-08	2.17E-08	1.92E-07	8.14E-08	1.23E-07	9.49E-09	1.42E-09	2.77E-07
Dust	8.67E-12	1.51E-09	1.26E-09	8.16E-09	9.18E-11	1.22E-10	2.04E-11	3.19E-08	2.74E-08	7.24E-10	-	-	-	-	-	-	-	-
	<u>1.05E-10</u>	<u>1.25E-08</u>	<u>9.86E-09</u>	<u>6.44E-08</u>	<u>7.16E-10</u>	<u>1.70E-09</u>	<u>1.59E-10</u>	<u>2.49E-07</u>	<u>8.86E-07</u>	<u>5.65E-09</u>	<u>6.23E-08</u>	<u>3.19E-08</u>	<u>2.82E-07</u>	<u>1.20E-07</u>	<u>1.80E-07</u>	<u>1.40E-08</u>	<u>2.09E-09</u>	<u>4.07E-07</u>
Graders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubber Tired Dozers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rollers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1.33E-08	1.40E-07	7.12E-07	1.17E-06	2.03E-08	7.72E-08	3.05E-09	3.77E-06	5.99E-06	3.36E-07	-	-	-	-	-	-	-	-
LDA-TOT	1.86E-11	3.72E-10	-	3.72E-10	-	3.72E-10	-	-	3.35E-07	-	3.39E-08	1.73E-08	1.54E-07	6.51E-08	9.81E-08	7.59E-09	1.13E-09	2.21E-07
Dust	6.93E-12	1.21E-09	1.01E-09	6.53E-09	7.34E-11	9.79E-11	1.63E-11	2.55E-08	2.20E-08	5.79E-10	-	-	-	-	-	-	-	-
	<u>1.33E-08</u>	<u>1.42E-07</u>	<u>7.13E-07</u>	<u>1.17E-06</u>	<u>2.04E-08</u>	<u>7.76E-08</u>	<u>3.06E-09</u>	<u>3.80E-06</u>	<u>6.34E-06</u>	<u>3.37E-07</u>	<u>3.39E-08</u>	<u>1.73E-08</u>	<u>1.54E-07</u>	<u>6.51E-08</u>	<u>9.81E-08</u>	<u>7.59E-09</u>	<u>1.13E-09</u>	<u>2.21E-07</u>
Tractors/Loaders/Backhoes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pavers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	1.73E-12	3.02E-10	2.53E-10	1.63E-09	1.84E-11	2.45E-11	4.08E-12	6.39E-09	5.49E-09	1.45E-10	-	-	-	-	-	-	-	-
LDT2-TOT	1.41E-11	2.81E-10	-	2.81E-10	-	2.81E-10	-	-	2.53E-07	-	2.00E-08	1.02E-08	9.05E-08	3.84E-08	5.78E-08	4.48E-09	6.69E-10	1.30E-07
Dust	3.47E-12	6.04E-10	5.06E-10	3.26E-09	3.67E-11	4.89E-11	8.16E-12	1.28E-08	1.10E-08	2.90E-10	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	3.03E-05	-	-	-	-
LDA-TOT	1.86E-11	3.72E-10	-	3.72E-10	-	3.72E-10	-	-	3.35E-07	-	3.39E-08	1.73E-08	1.54E-07	6.51E-08	9.81E-08	7.59E-09	1.13E-09	2.21E-07
Dust	6.93E-12	1.21E-09	1.01E-09	6.53E-09	7.34E-11	9.79E-11	1.63E-11	2.55E-08	2.20E-08	5.79E-10	-	-	-	-	-	-	-	-
	<u>4.48E-11</u>	<u>2.77E-09</u>	<u>1.77E-09</u>	<u>1.21E-08</u>	<u>1.28E-10</u>	<u>8.25E-10</u>	<u>2.86E-11</u>	<u>4.47E-08</u>	<u>6.26E-07</u>	<u>1.01E-09</u>	<u>5.38E-08</u>	<u>2.76E-08</u>	<u>2.44E-07</u>	<u>3.04E-05</u>	<u>1.56E-07</u>	<u>1.21E-08</u>	<u>1.80E-09</u>	<u>3.52E-07</u>
Trenchers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	5.58E-11	1.12E-09	-	1.12E-09	-	1.12E-09	-	-	1.00E-06	-	1.02E-07	5.20E-08	4.61E-07	1.95E-07	2.94E-07	2.28E-08	3.40E-09	6.64E-07
Dust	2.08E-11	3.62E-09	3.03E-09	1.96E-08	2.20E-10	2.94E-10	4.89E-11	7.66E-08	6.59E-08	1.74E-09	-	-	-	-	-	-	-	-
	<u>7.66E-11</u>	<u>4.74E-09</u>	<u>3.03E-09</u>	<u>2.07E-08</u>	<u>2.20E-10</u>	<u>1.41E-09</u>	<u>4.89E-11</u>	<u>7.66E-08</u>	<u>1.07E-06</u>	<u>1.74E-09</u>	<u>1.02E-07</u>	<u>5.20E-08</u>	<u>4.61E-07</u>	<u>1.95E-07</u>	<u>2.94E-07</u>	<u>2.28E-08</u>	<u>3.40E-09</u>	<u>6.64E-07</u>
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	4.85E-11	8.45E-09	7.08E-09	4.57E-08	5.14E-10	6.85E-10	1.14E-10	1.79E-07	1.54E-07	4.05E-09	-	-	-	-	-	-	-	-
	<u>4.85E-11</u>	<u>8.45E-09</u>	<u>7.08E-09</u>	<u>4.57E-08</u>	<u>5.14E-10</u>	<u>6.85E-10</u>	<u>1.14E-10</u>	<u>1.79E-07</u>	<u>1.54E-07</u>	<u>4.05E-09</u>	-	-	-	-	-	-	-	-
	<u>1.68E-08</u>	<u>2.57E-07</u>	<u>8.80E-07</u>	<u>1.77E-06</u>	<u>2.79E-08</u>	<u>1.16E-07</u>	<u>4.51E-09</u>	<u>5.91E-06</u>	<u>2.77E-05</u>	<u>4.22E-07</u>	<u>1.35E-06</u>	<u>6.92E-07</u>	<u>6.13E-06</u>	<u>3.29E-05</u>	<u>3.92E-06</u>	<u>3.03E-07</u>	<u>4.53E-08</u>	<u>8.83E-06</u>
Excavators	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubber Tired Loaders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	2.08E-11	3.62E-09	3.03E-09	1.96E-08	2.20E-10	2.94E-10	4.89E-11	7.66E-08	6.59E-08	1.74E-09	-	-	-	-	-	-	-	-
	1.97E-08	2.07E-07	1.05E-06	1.73E-06	3.00E-08	1.14E-07	4.50E-09	5.57E-06	8.84E-06	4.97E-07	-	-	-	-	-	-	-	-
LDA-TOT	1.40E-10	2.79E-09	-	2.79E-09	-	2.79E-09	-	-	2.51E-06	-	2.54E-07	1.30E-07	1.15E-06	4.88E-07	7.36E-07	5.69E-08	8.51E-09	1.66E-06
Dust	5.20E-11	9.05E-09	7.59E-09	4.89E-08	5.51E-10	7.34E-10	1.22E-10	1.92E-07	1.65E-07	4.34E-09	-	-	-	-	-	-	-	-
	<u>1.99E-08</u>	<u>2.22E-07</u>	<u>1.06E-06</u>	<u>1.80E-06</u>	<u>3.08E-08</u>	<u>1.18E-07</u>	<u>4.67E-09</u>	<u>5.84E-06</u>	<u>1.16E-05</u>	<u>5.03E-07</u>	<u>2.54E-07</u>	<u>1.30E-07</u>	<u>1.15E-06</u>	<u>4.88E-07</u>	<u>7.36E-07</u>	<u>5.69E-08</u>	<u>8.51E-09</u>	<u>1.66E-06</u>

HRA Appendix - Attachment A

Offroad																		
Equipment	CHROMIUM VI	COPPER	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	benzene	ethylbenzene	formaldehyde	methanol	methyl ethyl ketone (methyl isobutyl ketone)	m-xylene
Category	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414	50000	67561	78933	108383
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	4.85E-11	8.45E-09	7.08E-09	4.57E-08	5.14E-10	6.85E-10	1.14E-10	1.79E-07	1.54E-07	4.05E-09	-	-	-	-	-	-	-	-
Graders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rollers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	3.72E-11	7.44E-10	-	7.44E-10	-	7.44E-10	-	-	6.70E-07	-	6.77E-08	3.47E-08	3.07E-07	1.30E-07	1.96E-07	1.52E-08	2.27E-09	4.42E-07
Dust	1.39E-11	2.41E-09	2.02E-09	1.31E-08	1.47E-10	1.96E-10	3.26E-11	5.11E-08	4.39E-08	1.16E-09	-	-	-	-	-	-	-	-
	<u>9.96E-11</u>	<u>1.16E-08</u>	<u>9.10E-09</u>	<u>5.95E-08</u>	<u>6.61E-10</u>	<u>1.63E-09</u>	<u>1.47E-10</u>	<u>2.30E-07</u>	<u>8.68E-07</u>	<u>5.21E-09</u>	<u>6.77E-08</u>	<u>3.47E-08</u>	<u>3.07E-07</u>	<u>1.30E-07</u>	<u>1.96E-07</u>	<u>1.52E-08</u>	<u>2.27E-09</u>	<u>4.42E-07</u>
Tractors/Loaders/Backhoes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trenchers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDT2-TOT	2.81E-11	5.62E-10	-	5.62E-10	-	5.62E-10	-	-	5.06E-07	-	3.99E-08	2.04E-08	1.81E-07	7.68E-08	1.16E-07	8.95E-09	1.34E-09	2.61E-07
Dust	6.93E-12	1.21E-09	1.01E-09	6.53E-09	7.34E-11	9.79E-11	1.63E-11	2.55E-08	2.20E-08	5.79E-10	-	-	-	-	-	-	-	-
LDA-TOT	3.72E-11	7.44E-10	-	7.44E-10	-	7.44E-10	-	-	6.70E-07	-	6.77E-08	3.47E-08	3.07E-07	1.30E-07	1.96E-07	1.52E-08	2.27E-09	4.42E-07
Dust	1.39E-11	2.41E-09	2.02E-09	1.31E-08	1.47E-10	1.96E-10	3.26E-11	5.11E-08	4.39E-08	1.16E-09	-	-	-	-	-	-	-	-
	<u>8.61E-11</u>	<u>4.93E-09</u>	<u>3.03E-09</u>	<u>2.09E-08</u>	<u>2.20E-10</u>	<u>1.60E-09</u>	<u>4.89E-11</u>	<u>7.66E-08</u>	<u>1.24E-06</u>	<u>1.74E-09</u>	<u>1.08E-07</u>	<u>5.51E-08</u>	<u>4.88E-07</u>	<u>2.07E-07</u>	<u>3.12E-07</u>	<u>2.41E-08</u>	<u>3.61E-09</u>	<u>7.03E-07</u>
Concrete/Industrial Saws	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubber Tired Loaders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	4.85E-11	8.45E-09	7.08E-09	4.57E-08	5.14E-10	6.85E-10	1.14E-10	1.79E-07	1.54E-07	4.05E-09	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	1.56E-11	2.72E-09	2.28E-09	1.47E-08	1.65E-10	2.20E-10	3.67E-11	5.75E-08	4.94E-08	1.30E-09	-	-	-	-	-	-	-	-
LDT2-TOT	1.41E-11	2.81E-10	-	2.81E-10	-	2.81E-10	-	-	2.53E-07	-	2.00E-08	1.02E-08	9.05E-08	3.84E-08	5.78E-08	4.48E-09	6.69E-10	1.30E-07
Dust	3.47E-12	6.04E-10	5.06E-10	3.26E-09	3.67E-11	4.89E-11	8.16E-12	1.28E-08	1.10E-08	2.90E-10	-	-	-	-	-	-	-	-
LDA-TOT	2.33E-11	4.65E-10	-	4.65E-10	-	4.65E-10	-	-	4.19E-07	-	4.23E-08	2.17E-08	1.92E-07	8.14E-08	1.23E-07	9.49E-09	1.42E-09	2.77E-07
Dust	8.67E-12	1.51E-09	1.26E-09	8.16E-09	9.18E-11	1.22E-10	2.04E-11	3.19E-08	2.74E-08	7.24E-10	-	-	-	-	-	-	-	-
	<u>1.14E-10</u>	<u>1.40E-08</u>	<u>1.11E-08</u>	<u>7.25E-08</u>	<u>8.08E-10</u>	<u>1.82E-09</u>	<u>1.79E-10</u>	<u>2.81E-07</u>	<u>9.13E-07</u>	<u>6.37E-09</u>	<u>6.23E-08</u>	<u>3.19E-08</u>	<u>2.82E-07</u>	<u>1.20E-07</u>	<u>1.80E-07</u>	<u>1.40E-08</u>	<u>2.09E-09</u>	<u>4.07E-07</u>
Graders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubber Tired Dozers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rollers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	1.33E-08	1.40E-07	7.12E-07	1.17E-06	2.03E-08	7.72E-08	3.05E-09	3.77E-06	5.99E-06	3.36E-07	-	-	-	-	-	-	-	-
Dust	1.86E-11	3.72E-10	-	3.72E-10	-	3.72E-10	-	-	3.35E-07	-	3.39E-08	1.73E-08	1.54E-07	6.51E-08	9.81E-08	7.59E-09	1.13E-09	2.21E-07
	<u>1.33E-08</u>	<u>1.42E-07</u>	<u>7.13E-07</u>	<u>1.17E-06</u>	<u>2.04E-08</u>	<u>7.76E-08</u>	<u>3.06E-09</u>	<u>3.80E-06</u>	<u>6.34E-06</u>	<u>3.37E-07</u>	<u>3.39E-08</u>	<u>1.73E-08</u>	<u>1.54E-07</u>	<u>6.51E-08</u>	<u>9.81E-08</u>	<u>7.59E-09</u>	<u>1.13E-09</u>	<u>2.21E-07</u>
Tractors/Loaders/Backhoes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pavers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	1.73E-12	3.02E-10	2.53E-10	1.63E-09	1.84E-11	2.45E-11	4.08E-12	6.39E-09	5.49E-09	1.45E-10	-	-	-	-	-	-	-	-
LDT2-TOT	1.41E-11	2.81E-10	-	2.81E-10	-	2.81E-10	-	-	2.53E-07	-	2.00E-08	1.02E-08	9.05E-08	3.84E-08	5.78E-08	4.48E-09	6.69E-10	1.30E-07
Dust	3.47E-12	6.04E-10	5.06E-10	3.26E-09	3.67E-11	4.89E-11	8.16E-12	1.28E-08	1.10E-08	2.90E-10	-	-	-	-	-	-	-	-
LDA-TOT	1.86E-11	3.72E-10	-	3.72E-10	-	3.72E-10	-	-	3.35E-07	-	3.39E-08	1.73E-08	1.54E-07	6.51E-08	9.81E-08	7.59E-09	1.13E-09	2.21E-07
Dust	6.93E-12	1.21E-09	1.01E-09	6.53E-09	7.34E-11	9.79E-11	1.63E-11	2.55E-08	2.20E-08	5.79E-10	-	-	-	-	-	-	-	-

HRA Appendix - Attachment A

Offroad																		
Equipment	CHROMIUM VI	COPPER	LEAD	MANGANESE	MERCURY	NICKEL	SELENIUM	SULFUR	SULFATES	VANADIUM	1,3-butadiene	acetaldehyde	benzene	ethylbenzene	formaldehyde	methanol	methyl ethyl ketone (mek)	m-xylene
Category	18540299	7440508	7439921	7439965	7439976	7440020	7782492	7704349	9960	7440622	106990	75070	71432	100414	50000	67561	78933	108383
	<u>4.48E-11</u>	<u>2.77E-09</u>	<u>1.77E-09</u>	<u>1.21E-08</u>	<u>1.28E-10</u>	<u>8.25E-10</u>	<u>2.86E-11</u>	<u>4.47E-08</u>	<u>6.26E-07</u>	<u>1.01E-09</u>	<u>5.38E-08</u>	<u>2.76E-08</u>	<u>2.44E-07</u>	<u>3.04E-05</u>	<u>1.56E-07</u>	<u>1.21E-08</u>	<u>1.80E-09</u>	<u>3.52E-07</u>
Trenchers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	3.49E-11	6.98E-10	-	6.98E-10	-	6.98E-10	-	-	6.28E-07	-	6.35E-08	3.25E-08	2.88E-07	1.22E-07	1.84E-07	1.42E-08	2.13E-09	4.15E-07
Dust	1.30E-11	2.26E-09	1.90E-09	1.22E-08	1.38E-10	1.84E-10	3.06E-11	4.79E-08	4.12E-08	1.09E-09	-	-	-	-	-	-	-	-
	<u>4.79E-11</u>	<u>2.96E-09</u>	<u>1.90E-09</u>	<u>1.29E-08</u>	<u>1.38E-10</u>	<u>8.81E-10</u>	<u>3.06E-11</u>	<u>4.79E-08</u>	<u>6.69E-07</u>	<u>1.09E-09</u>	<u>6.35E-08</u>	<u>3.25E-08</u>	<u>2.88E-07</u>	<u>1.22E-07</u>	<u>1.84E-07</u>	<u>1.42E-08</u>	<u>2.13E-09</u>	<u>4.15E-07</u>
Trenchers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	1.16E-11	2.33E-10	-	2.33E-10	-	2.33E-10	-	-	2.09E-07	-	2.12E-08	1.08E-08	9.59E-08	4.07E-08	6.13E-08	4.74E-09	7.09E-10	1.38E-07
Dust	4.33E-12	7.55E-10	6.32E-10	4.08E-09	4.59E-11	6.12E-11	1.02E-11	1.60E-08	1.37E-08	3.62E-10	-	-	-	-	-	-	-	-
	<u>1.60E-11</u>	<u>9.87E-10</u>	<u>6.32E-10</u>	<u>4.31E-09</u>	<u>4.59E-11</u>	<u>2.94E-10</u>	<u>1.02E-11</u>	<u>1.60E-08</u>	<u>2.23E-07</u>	<u>3.62E-10</u>	<u>2.12E-08</u>	<u>1.08E-08</u>	<u>9.59E-08</u>	<u>4.07E-08</u>	<u>6.13E-08</u>	<u>4.74E-09</u>	<u>7.09E-10</u>	<u>1.38E-07</u>
Air Compressors	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	6.93E-12	1.21E-09	1.01E-09	6.53E-09	7.34E-11	9.79E-11	1.63E-11	2.55E-08	2.20E-08	5.79E-10	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	6.24E-12	1.09E-09	9.10E-10	5.87E-09	6.61E-11	8.81E-11	1.47E-11	2.30E-08	1.98E-08	5.21E-10	-	-	-	-	-	-	-	-
Off-Highway Trucks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tractors/Loaders/Backhoes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cranes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forklifts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LDA-TOT	1.26E-09	2.51E-08	-	2.51E-08	-	2.51E-08	-	-	2.26E-05	-	2.29E-06	1.17E-06	1.04E-05	4.40E-06	6.62E-06	5.12E-07	7.65E-08	1.49E-05
Dust	4.68E-10	8.15E-08	6.83E-08	4.40E-07	4.96E-09	6.61E-09	1.10E-09	1.72E-06	1.48E-06	3.91E-08	-	-	-	-	-	-	-	-
	<u>1.74E-09</u>	<u>1.09E-07</u>	<u>7.02E-08</u>	<u>4.78E-07</u>	<u>5.09E-09</u>	<u>3.19E-08</u>	<u>1.13E-09</u>	<u>1.77E-06</u>	<u>2.41E-05</u>	<u>4.02E-08</u>	<u>2.29E-06</u>	<u>1.17E-06</u>	<u>1.04E-05</u>	<u>4.40E-06</u>	<u>6.62E-06</u>	<u>5.12E-07</u>	<u>7.65E-08</u>	<u>1.49E-05</u>
HHDT-DSL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dust	4.85E-11	8.45E-09	7.08E-09	4.57E-08	5.14E-10	6.85E-10	1.14E-10	1.79E-07	1.54E-07	4.05E-09	-	-	-	-	-	-	-	-
	<u>4.85E-11</u>	<u>8.45E-09</u>	<u>7.08E-09</u>	<u>4.57E-08</u>	<u>5.14E-10</u>	<u>6.85E-10</u>	<u>1.14E-10</u>	<u>1.79E-07</u>	<u>1.54E-07</u>	<u>4.05E-09</u>	-	-	-	-	-	-	-	-
	<u>3.54E-08</u>	<u>5.19E-07</u>	<u>1.88E-06</u>	<u>3.68E-06</u>	<u>5.88E-08</u>	<u>2.35E-07</u>	<u>9.42E-09</u>	<u>1.23E-05</u>	<u>4.68E-05</u>	<u>8.99E-07</u>	<u>2.95E-06</u>	<u>1.51E-06</u>	<u>1.34E-05</u>	<u>3.60E-05</u>	<u>8.54E-06</u>	<u>6.61E-07</u>	<u>9.88E-08</u>	<u>1.93E-05</u>

HRA Appendix - Attachment A

Offroad									
Equipment	2-butanol								
	naphthalene	n-hexane	o-xylene	propene	p-xylene	styrene	toluene	acrolein (2-propenal)	
Category	91203	110543	95476	115071	106423	100425	108883	107028	
Cranes	-	-	-	-	-	-	-	-	
Hoist/swing/winch	-	-	-	-	-	-	-	-	
Crushing/Proc. Equipment	-	-	-	-	-	-	-	-	
Rubber Tired Loaders	-	-	-	-	-	-	-	-	
HHDT-DSL	-	-	-	-	-	-	-	-	
Dust	-	-	-	-	-	-	-	-	
LDA-TOT	1.46E-08	4.96E-07	3.84E-07	9.51E-07	-	3.81E-08	1.79E-06	4.11E-08	
Dust	-	-	-	-	-	-	-	-	
	<u>1.46E-08</u>	<u>4.96E-07</u>	<u>3.84E-07</u>	<u>9.51E-07</u>	<u>0.00E+00</u>	<u>3.81E-08</u>	<u>1.79E-06</u>	<u>4.11E-08</u>	
Excavators	-	-	-	-	-	-	-	-	
Rubber Tired Loaders	-	-	-	-	-	-	-	-	
HHDT-DSL	-	-	-	-	-	-	-	-	
Dust	-	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	-	
LDA-TOT	4.39E-08	1.49E-06	1.15E-06	2.85E-06	-	1.14E-07	5.36E-06	1.23E-07	
Dust	-	-	-	-	-	-	-	-	
	<u>4.39E-08</u>	<u>1.49E-06</u>	<u>1.15E-06</u>	<u>2.85E-06</u>	<u>0.00E+00</u>	<u>1.14E-07</u>	<u>5.36E-06</u>	<u>1.23E-07</u>	
Hoist/swing/winch	-	-	-	-	-	-	-	-	
Hoist/swing/winch	-	-	-	-	-	-	-	-	
Hoist/swing/winch	-	-	-	-	-	-	-	-	
Generator Sets	-	-	-	-	-	-	-	-	
Generator Sets	-	-	-	-	-	-	-	-	
Generator Sets	-	-	-	-	-	-	-	-	
LDA-TOT	7.69E-09	2.61E-07	2.02E-07	4.99E-07	-	2.00E-08	9.38E-07	2.16E-08	
Dust	-	-	-	-	-	-	-	-	
	<u>7.69E-09</u>	<u>2.61E-07</u>	<u>2.02E-07</u>	<u>4.99E-07</u>	<u>0.00E+00</u>	<u>2.00E-08</u>	<u>9.38E-07</u>	<u>2.16E-08</u>	
Hoist/swing/winch	-	-	-	-	-	-	-	-	
Hoist/swing/winch	-	-	-	-	-	-	-	-	
Generator Sets	-	-	-	-	-	-	-	-	
Air Compressors	-	-	-	-	-	-	-	-	
LDA-TOT	1.46E-08	4.96E-07	3.84E-07	9.51E-07	-	3.81E-08	1.79E-06	4.11E-08	
Dust	-	-	-	-	-	-	-	-	
	<u>1.46E-08</u>	<u>4.96E-07</u>	<u>3.84E-07</u>	<u>9.51E-07</u>	<u>0.00E+00</u>	<u>3.81E-08</u>	<u>1.79E-06</u>	<u>4.11E-08</u>	

HRA Appendix - Attachment A

Offroad									
Equipment	2-butan naphthalene	n-hexane	o-xylene	propene	p-xylene	styrene	toluene	acrolein (2-propenal)	
Category	91203	110543	95476	115071	106423	100425	108883	107028	
Hoist/swing/winch	-	-	-	-	-	-	-	-	
Hoist/swing/winch	-	-	-	-	-	-	-	-	
LDA-TOT	2.56E-09	8.69E-08	6.73E-08	1.66E-07	-	6.67E-09	3.13E-07	7.20E-09	
Dust	-	-	-	-	-	-	-	-	
	2.56E-09	8.69E-08	6.73E-08	1.66E-07	-	6.67E-09	3.13E-07	7.20E-09	
Hoist/swing/winch	-	-	-	-	-	-	-	-	
Hoist/swing/winch	-	-	-	-	-	-	-	-	
Generator Sets	-	-	-	-	-	-	-	-	
LDA-TOT	1.46E-08	4.96E-07	3.84E-07	9.51E-07	-	3.81E-08	1.79E-06	4.11E-08	
Dust	-	-	-	-	-	-	-	-	
	1.46E-08	4.96E-07	3.84E-07	9.51E-07	-	3.81E-08	1.79E-06	4.11E-08	
Hoist/swing/winch	-	-	-	-	-	-	-	-	
Hoist/swing/winch	-	-	-	-	-	-	-	-	
Generator Sets	-	-	-	-	-	-	-	-	
Generator Sets	-	-	-	-	-	-	-	-	
Hoist/swing/winch	-	-	-	-	-	-	-	-	
NA	-	-	-	-	-	-	-	-	
NA	-	-	-	-	-	-	-	-	
LDA-TOT	2.86E-09	9.68E-08	7.50E-08	1.85E-07	-	7.44E-09	3.48E-07	8.02E-09	
Dust	-	-	-	-	-	-	-	-	
	2.86E-09	9.68E-08	7.50E-08	1.85E-07	-	7.44E-09	3.48E-07	8.02E-09	
Hoist/swing/winch	-	-	-	-	-	-	-	-	
Hoist/swing/winch	-	-	-	-	-	-	-	-	
Excavators	-	-	-	-	-	-	-	-	
HHDT-DSL	-	-	-	-	-	-	-	-	
Dust	-	-	-	-	-	-	-	-	
NA	-	-	-	-	-	-	-	-	
NA	-	-	-	-	-	-	-	-	
LDA-TOT	2.86E-09	9.68E-08	7.50E-08	1.85E-07	-	7.44E-09	3.48E-07	8.02E-09	
Dust	-	-	-	-	-	-	-	-	
	2.86E-09	9.68E-08	7.50E-08	1.85E-07	-	7.44E-09	3.48E-07	8.02E-09	
Hoist/swing/winch	-	-	-	-	-	-	-	-	
Hoist/swing/winch	-	-	-	-	-	-	-	-	
NA	-	-	-	-	-	-	-	-	
NA	-	-	-	-	-	-	-	-	
LDA-TOT	2.86E-09	9.68E-08	7.50E-08	1.85E-07	-	7.44E-09	3.48E-07	8.02E-09	
Dust	-	-	-	-	-	-	-	-	
	2.86E-09	9.68E-08	7.50E-08	1.85E-07	-	7.44E-09	3.48E-07	8.02E-09	
HHDT-DSL	-	-	-	-	-	-	-	-	
Dust	-	-	-	-	-	-	-	-	

HRA Appendix - Attachment A

Offroad									
Equipment	2-butanol	naphthalene	n-hexane	o-xylene	propene	p-xylene	styrene	toluene	acrolein (2-propenal)
Category	91203	110543	95476	115071	106423	100425	108883	107028	
Graders	-	-	-	-	-	-	-	-	-
Rollers	-	-	-	-	-	-	-	-	-
LDA-TOT	8.78E-09	2.98E-07	2.31E-07	5.70E-07	-	2.29E-08	1.07E-06	2.47E-08	-
Dust	-	-	-	-	-	-	-	-	-
	<u>8.78E-09</u>	<u>2.98E-07</u>	<u>2.31E-07</u>	<u>5.70E-07</u>	-	<u>2.29E-08</u>	<u>1.07E-06</u>	<u>2.47E-08</u>	-
Tractors/Loaders/Backhoes	-	-	-	-	-	-	-	-	-
Trenchers	-	-	-	-	-	-	-	-	-
LDT2-TOT	6.91E-09	2.34E-07	1.81E-07	4.49E-07	-	1.80E-08	8.43E-07	1.94E-08	-
Dust	-	-	-	-	-	-	-	-	-
LDA-TOT	1.17E-08	3.97E-07	3.07E-07	7.61E-07	-	3.05E-08	1.43E-06	3.29E-08	-
Dust	-	-	-	-	-	-	-	-	-
	<u>1.86E-08</u>	<u>6.31E-07</u>	<u>4.89E-07</u>	<u>1.21E-06</u>	-	<u>4.85E-08</u>	<u>2.27E-06</u>	<u>5.23E-08</u>	-
Crushing/Proc. Equipment	-	-	-	-	-	-	-	-	-
Rubber Tired Loaders	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-
LDT2-TOT	4.83E-09	1.64E-07	1.27E-07	3.14E-07	-	1.26E-08	5.90E-07	1.36E-08	-
Dust	-	-	-	-	-	-	-	-	-
LDA-TOT	1.02E-08	3.48E-07	2.69E-07	6.66E-07	-	2.67E-08	1.25E-06	2.88E-08	-
Dust	-	-	-	-	-	-	-	-	-
	<u>1.51E-08</u>	<u>5.11E-07</u>	<u>3.96E-07</u>	<u>9.79E-07</u>	-	<u>3.93E-08</u>	<u>1.84E-06</u>	<u>4.24E-08</u>	-
Graders	-	-	-	-	-	-	-	-	-
Rubber Tired Dozers	-	-	-	-	-	-	-	-	-
Rollers	-	-	-	-	-	-	-	-	-
LDA-TOT	2.93E-09	9.93E-08	7.69E-08	1.90E-07	-	7.63E-09	3.57E-07	8.22E-09	-
Dust	-	-	-	-	-	-	-	-	-
	<u>2.93E-09</u>	<u>9.93E-08</u>	<u>7.69E-08</u>	<u>1.90E-07</u>	-	<u>7.63E-09</u>	<u>3.57E-07</u>	<u>8.22E-09</u>	-
Tractors/Loaders/Backhoes	-	-	-	-	-	-	-	-	-
Pavers	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-
LDT2-TOT	1.73E-09	5.86E-08	4.53E-08	1.12E-07	-	4.50E-09	2.11E-07	4.85E-09	-
Dust	-	-	-	-	-	-	-	-	-
LDA-TOT	2.93E-09	9.93E-08	7.69E-08	1.90E-07	-	7.63E-09	3.57E-07	8.22E-09	-
Dust	-	-	-	-	-	-	-	-	-
	<u>4.66E-09</u>	<u>1.58E-07</u>	<u>4.89E-05</u>	<u>3.02E-07</u>	-	<u>1.21E-08</u>	<u>8.50E-05</u>	<u>1.31E-08</u>	-

HRA Appendix - Attachment A

Offroad									
Equipment	2-butanol	naphthalene	n-hexane	p-xylene	propene	p-xylene	styrene	toluene	acrolein (2-propenal)
Category	91203	110543	95476	115071	106423	100425	108883	107028	
Trenchers	-	-	-	-	-	-	-	-	-
LDA-TOT	8.78E-09	2.98E-07	2.31E-07	5.70E-07	-	2.29E-08	1.07E-06	2.47E-08	
Dust	-	-	-	-	-	-	-	-	-
	<u>8.78E-09</u>	<u>2.98E-07</u>	<u>2.31E-07</u>	<u>5.70E-07</u>	<u>-</u>	<u>2.29E-08</u>	<u>1.07E-06</u>	<u>2.47E-08</u>	
HHDT-DSL	-	-	-	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
	<u>1.66E-07</u>	<u>5.61E-06</u>	<u>5.32E-05</u>	<u>1.07E-05</u>	<u>0.00E+00</u>	<u>4.31E-07</u>	<u>1.05E-04</u>	<u>4.65E-07</u>	
Cranes	-	-	-	-	-	-	-	-	-
Hoist/swing/winch	-	-	-	-	-	-	-	-	-
Concrete/Industrial Saws	-	-	-	-	-	-	-	-	-
Rubber Tired Loaders	-	-	-	-	-	-	-	-	-
LDA-TOT	7.32E-09	2.48E-07	1.92E-07	4.75E-07	-	1.91E-08	8.94E-07	2.06E-08	
Dust	-	-	-	-	-	-	-	-	-
	<u>7.32E-09</u>	<u>2.48E-07</u>	<u>1.92E-07</u>	<u>4.75E-07</u>	<u>-</u>	<u>1.91E-08</u>	<u>8.94E-07</u>	<u>2.06E-08</u>	
Hoist/swing/winch	-	-	-	-	-	-	-	-	-
Hoist/swing/winch	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-
Generator Sets	-	-	-	-	-	-	-	-	-
Hoist/swing/winch	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-
LDA-TOT	9.52E-09	3.23E-07	2.50E-07	6.18E-07	-	2.48E-08	1.16E-06	2.67E-08	
Dust	-	-	-	-	-	-	-	-	-
	<u>9.52E-09</u>	<u>3.23E-07</u>	<u>2.50E-07</u>	<u>6.18E-07</u>	<u>-</u>	<u>2.48E-08</u>	<u>1.16E-06</u>	<u>2.67E-08</u>	
Hoist/swing/winch	-	-	-	-	-	-	-	-	-
Hoist/swing/winch	-	-	-	-	-	-	-	-	-
Excavators	-	-	-	-	-	-	-	-	-
HHDT-DSL	-	-	-	-	-	-	-	-	-
Dust	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-
NA	-	-	-	-	-	-	-	-	-
LDA-TOT	9.52E-09	3.23E-07	2.50E-07	6.18E-07	-	2.48E-08	1.16E-06	2.67E-08	
Dust	-	-	-	-	-	-	-	-	-
	<u>9.52E-09</u>	<u>3.23E-07</u>	<u>2.50E-07</u>	<u>6.18E-07</u>	<u>-</u>	<u>2.48E-08</u>	<u>1.16E-06</u>	<u>2.67E-08</u>	
Hoist/swing/winch	-	-	-	-	-	-	-	-	-

HRA Appendix - Attachment A

Offroad									
Equipment	naphthalene	n-hexane	o-xylene	propene	p-xylene	styrene	toluene	acrolein (2-propenal)	
Category	91203	110543	95476	115071	106423	100425	108883	107028	
Hoist/swing/winch	-	-	-	-	-	-	-	-	
NA	-	-	-	-	-	-	-	-	
NA	-	-	-	-	-	-	-	-	
LDA-TOT	9.52E-09	3.23E-07	2.50E-07	6.18E-07	-	2.48E-08	1.16E-06	2.67E-08	
Dust	-	-	-	-	-	-	-	-	
	<u>9.52E-09</u>	<u>3.23E-07</u>	<u>2.50E-07</u>	<u>6.18E-07</u>	-	<u>2.48E-08</u>	<u>1.16E-06</u>	<u>2.67E-08</u>	
Hoist/swing/winch	-	-	-	-	-	-	-	-	
Hoist/swing/winch	-	-	-	-	-	-	-	-	
Generator Sets	-	-	-	-	-	-	-	-	
LDA-TOT	1.46E-08	4.96E-07	3.84E-07	9.51E-07	-	3.81E-08	1.79E-06	4.11E-08	
Dust	-	-	-	-	-	-	-	-	
	<u>1.46E-08</u>	<u>4.96E-07</u>	<u>3.84E-07</u>	<u>9.51E-07</u>	-	<u>3.81E-08</u>	<u>1.79E-06</u>	<u>4.11E-08</u>	
Excavators	-	-	-	-	-	-	-	-	
Rubber Tired Loaders	-	-	-	-	-	-	-	-	
HHDT-DSL	-	-	-	-	-	-	-	-	
Dust	-	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	-	
LDA-TOT	1.76E-08	5.96E-07	4.61E-07	1.14E-06	-	4.58E-08	2.14E-06	4.93E-08	
Dust	-	-	-	-	-	-	-	-	
	<u>1.76E-08</u>	<u>5.96E-07</u>	<u>4.61E-07</u>	<u>1.14E-06</u>	-	<u>4.58E-08</u>	<u>2.14E-06</u>	<u>4.93E-08</u>	
HHDT-DSL	-	-	-	-	-	-	-	-	
Dust	-	-	-	-	-	-	-	-	
Graders	-	-	-	-	-	-	-	-	
Rollers	-	-	-	-	-	-	-	-	
LDA-TOT	8.78E-09	2.98E-07	2.31E-07	5.70E-07	-	2.29E-08	1.07E-06	2.47E-08	
Dust	-	-	-	-	-	-	-	-	
	<u>8.78E-09</u>	<u>2.98E-07</u>	<u>2.31E-07</u>	<u>5.70E-07</u>	-	<u>2.29E-08</u>	<u>1.07E-06</u>	<u>2.47E-08</u>	
Tractors/Loaders/Backhoes	-	-	-	-	-	-	-	-	
Trenchers	-	-	-	-	-	-	-	-	
LDT2-TOT	1.24E-08	4.21E-07	3.26E-07	8.07E-07	-	3.23E-08	1.52E-06	3.49E-08	
Dust	-	-	-	-	-	-	-	-	
LDA-TOT	5.86E-09	1.99E-07	1.54E-07	3.80E-07	-	1.53E-08	7.15E-07	1.64E-08	
Dust	-	-	-	-	-	-	-	-	
	<u>1.83E-08</u>	<u>6.20E-07</u>	<u>4.80E-07</u>	<u>1.19E-06</u>	-	<u>4.76E-08</u>	<u>2.23E-06</u>	<u>5.13E-08</u>	
Concrete/Industrial Saws	-	-	-	-	-	-	-	-	
Rubber Tired Loaders	-	-	-	-	-	-	-	-	
HHDT-DSL	-	-	-	-	-	-	-	-	
Dust	-	-	-	-	-	-	-	-	
HHDT-DSL	-	-	-	-	-	-	-	-	
Dust	-	-	-	-	-	-	-	-	
LDT2-TOT	1.73E-09	5.86E-08	4.53E-08	1.12E-07	-	4.50E-09	2.11E-07	4.85E-09	

HRA Appendix - Attachment A

Offroad									
Equipment	naphthalene	n-hexane	o-xylene	propene	p-xylene	styrene	toluene	acrolein (2-propenal)	
Category	91203	110543	95476	115071	106423	100425	108883	107028	
Dust	-	-	-	-	-	-	-	-	
LDA-TOT	3.66E-09	1.24E-07	9.61E-08	2.38E-07	-	9.53E-09	4.47E-07	1.03E-08	
Dust	-	-	-	-	-	-	-	-	
	<u>5.39E-09</u>	<u>1.83E-07</u>	<u>1.41E-07</u>	<u>3.50E-07</u>	-	<u>1.40E-08</u>	<u>6.58E-07</u>	<u>1.51E-08</u>	
Graders	-	-	-	-	-	-	-	-	
Rubber Tired Dozers	-	-	-	-	-	-	-	-	
Rollers	-	-	-	-	-	-	-	-	
LDA-TOT	2.93E-09	9.93E-08	7.69E-08	1.90E-07	-	7.63E-09	3.57E-07	8.22E-09	
Dust	-	-	-	-	-	-	-	-	
	<u>2.93E-09</u>	<u>9.93E-08</u>	<u>7.69E-08</u>	<u>1.90E-07</u>	-	<u>7.63E-09</u>	<u>3.57E-07</u>	<u>8.22E-09</u>	
Tractors/Loaders/Backhoes	-	-	-	-	-	-	-	-	
Pavers	-	-	-	-	-	-	-	-	
HHDT-DSL	-	-	-	-	-	-	-	-	
Dust	-	-	-	-	-	-	-	-	
LDT2-TOT	1.73E-09	5.86E-08	4.53E-08	1.12E-07	-	4.50E-09	2.11E-07	4.85E-09	
Dust	-	-	-	-	-	-	-	-	
LDA-TOT	2.93E-09	9.93E-08	7.69E-08	1.90E-07	-	7.63E-09	3.57E-07	8.22E-09	
Dust	-	-	-	-	-	-	-	-	
	<u>4.66E-09</u>	<u>1.58E-07</u>	<u>4.89E-05</u>	<u>3.02E-07</u>	-	<u>1.21E-08</u>	<u>8.50E-05</u>	<u>1.31E-08</u>	
Trenchers	-	-	-	-	-	-	-	-	
LDA-TOT	8.78E-09	2.98E-07	2.31E-07	5.70E-07	-	2.29E-08	1.07E-06	2.47E-08	
Dust	-	-	-	-	-	-	-	-	
	<u>8.78E-09</u>	<u>2.98E-07</u>	<u>2.31E-07</u>	<u>5.70E-07</u>	-	<u>2.29E-08</u>	<u>1.07E-06</u>	<u>2.47E-08</u>	
HHDT-DSL	-	-	-	-	-	-	-	-	
Dust	-	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	-	
	<u>1.17E-07</u>	<u>3.96E-06</u>	<u>5.19E-05</u>	<u>7.59E-06</u>	<u>0.00E+00</u>	<u>3.04E-07</u>	<u>9.87E-05</u>	<u>3.28E-07</u>	
Excavators	-	-	-	-	-	-	-	-	
Rubber Tired Loaders	-	-	-	-	-	-	-	-	
HHDT-DSL	-	-	-	-	-	-	-	-	
Dust	-	-	-	-	-	-	-	-	
LDA-TOT	2.20E-08	7.45E-07	5.77E-07	1.43E-06	-	5.72E-08	2.68E-06	6.17E-08	
Dust	-	-	-	-	-	-	-	-	
	<u>2.20E-08</u>	<u>7.45E-07</u>	<u>5.77E-07</u>	<u>1.43E-06</u>	-	<u>5.72E-08</u>	<u>2.68E-06</u>	<u>6.17E-08</u>	

HRA Appendix - Attachment A

Offroad									
Equipment	2-butanol	naphthalene	n-hexane	p-xylene	propene	p-xylene	styrene	toluene	acrolein (2-propenal)
Category	91203	110543	95476	115071	106423	100425	108883	107028	
HHDT-DSL	-	-	-	-	-	-	-	-	
Dust	-	-	-	-	-	-	-	-	
Graders	-	-	-	-	-	-	-	-	
Rollers	-	-	-	-	-	-	-	-	
LDA-TOT	5.86E-09	1.99E-07	1.54E-07	3.80E-07	-	1.53E-08	7.15E-07	1.64E-08	
Dust	-	-	-	-	-	-	-	-	
	<u>5.86E-09</u>	<u>1.99E-07</u>	<u>1.54E-07</u>	<u>3.80E-07</u>	-	<u>1.53E-08</u>	<u>7.15E-07</u>	<u>1.64E-08</u>	
Tractors/Loaders/Backhoes	-	-	-	-	-	-	-	-	
Trenchers	-	-	-	-	-	-	-	-	
LDT2-TOT	3.45E-09	1.17E-07	9.07E-08	2.24E-07	-	8.99E-09	4.22E-07	9.70E-09	
Dust	-	-	-	-	-	-	-	-	
LDA-TOT	5.86E-09	1.99E-07	1.54E-07	3.80E-07	-	1.53E-08	7.15E-07	1.64E-08	
Dust	-	-	-	-	-	-	-	-	
	<u>9.31E-09</u>	<u>3.16E-07</u>	<u>2.44E-07</u>	<u>6.05E-07</u>	-	<u>2.42E-08</u>	<u>1.14E-06</u>	<u>2.61E-08</u>	
Concrete/Industrial Saws	-	-	-	-	-	-	-	-	
Rubber Tired Loaders	-	-	-	-	-	-	-	-	
HHDT-DSL	-	-	-	-	-	-	-	-	
Dust	-	-	-	-	-	-	-	-	
HHDT-DSL	-	-	-	-	-	-	-	-	
Dust	-	-	-	-	-	-	-	-	
LDT2-TOT	1.73E-09	5.86E-08	4.53E-08	1.12E-07	-	4.50E-09	2.11E-07	4.85E-09	
Dust	-	-	-	-	-	-	-	-	
LDA-TOT	3.66E-09	1.24E-07	9.61E-08	2.38E-07	-	9.53E-09	4.47E-07	1.03E-08	
Dust	-	-	-	-	-	-	-	-	
	<u>5.39E-09</u>	<u>1.83E-07</u>	<u>1.41E-07</u>	<u>3.50E-07</u>	-	<u>1.40E-08</u>	<u>6.58E-07</u>	<u>1.51E-08</u>	
Graders	-	-	-	-	-	-	-	-	
Rubber Tired Dozers	-	-	-	-	-	-	-	-	
Rollers	-	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	-	
LDA-TOT	2.93E-09	9.93E-08	7.69E-08	1.90E-07	-	7.63E-09	3.57E-07	8.22E-09	
Dust	-	-	-	-	-	-	-	-	
	<u>2.93E-09</u>	<u>9.93E-08</u>	<u>7.69E-08</u>	<u>1.90E-07</u>	-	<u>7.63E-09</u>	<u>3.57E-07</u>	<u>8.22E-09</u>	
Tractors/Loaders/Backhoes	-	-	-	-	-	-	-	-	
Pavers	-	-	-	-	-	-	-	-	
HHDT-DSL	-	-	-	-	-	-	-	-	
Dust	-	-	-	-	-	-	-	-	
LDT2-TOT	1.73E-09	5.86E-08	4.53E-08	1.12E-07	-	4.50E-09	2.11E-07	4.85E-09	
Dust	-	-	-	-	-	-	-	-	
	-	-	4.88E-05	-	-	-	8.44E-05	-	
LDA-TOT	2.93E-09	9.93E-08	7.69E-08	1.90E-07	-	7.63E-09	3.57E-07	8.22E-09	
Dust	-	-	-	-	-	-	-	-	

HRA Appendix - Attachment A

Offroad									
Equipment	isobutane	naphthalene	n-hexane	o-xylene	propene	p-xylene	styrene	toluene	acrolein (2-propenal)
Category	91203	110543	95476	115071	106423	100425	108883	107028	
	<u>4.66E-09</u>	<u>1.58E-07</u>	<u>4.89E-05</u>	<u>3.02E-07</u>	-	<u>1.21E-08</u>	<u>8.50E-05</u>	<u>1.31E-08</u>	
Trenchers	-	-	-	-	-	-	-	-	
LDA-TOT	5.49E-09	1.86E-07	1.44E-07	3.57E-07	-	1.43E-08	6.70E-07	1.54E-08	
Dust	-	-	-	-	-	-	-	-	
	<u>5.49E-09</u>	<u>1.86E-07</u>	<u>1.44E-07</u>	<u>3.57E-07</u>	-	<u>1.43E-08</u>	<u>6.70E-07</u>	<u>1.54E-08</u>	
Trenchers	-	-	-	-	-	-	-	-	
LDA-TOT	1.83E-09	6.21E-08	4.80E-08	1.19E-07	-	4.77E-09	2.23E-07	5.14E-09	
Dust	-	-	-	-	-	-	-	-	
	<u>1.83E-09</u>	<u>6.21E-08</u>	<u>4.80E-08</u>	<u>1.19E-07</u>	-	<u>4.77E-09</u>	<u>2.23E-07</u>	<u>5.14E-09</u>	
Air Compressors	-	-	-	-	-	-	-	-	
HHDT-DSL	-	-	-	-	-	-	-	-	
Dust	-	-	-	-	-	-	-	-	
HHDT-DSL	-	-	-	-	-	-	-	-	
Dust	-	-	-	-	-	-	-	-	
Off-Highway Trucks	-	-	-	-	-	-	-	-	
Tractors/Loaders/Backhoes	-	-	-	-	-	-	-	-	
Cranes	-	-	-	-	-	-	-	-	
Forklifts	-	-	-	-	-	-	-	-	
LDA-TOT	1.98E-07	6.70E-06	5.19E-06	1.28E-05	-	5.15E-07	2.41E-05	5.55E-07	
Dust	-	-	-	-	-	-	-	-	
	<u>1.98E-07</u>	<u>6.70E-06</u>	<u>5.19E-06</u>	<u>1.28E-05</u>	-	<u>5.15E-07</u>	<u>2.41E-05</u>	<u>5.55E-07</u>	
HHDT-DSL	-	-	-	-	-	-	-	-	
Dust	-	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	-	
	<u>2.55E-07</u>	<u>8.65E-06</u>	<u>5.55E-05</u>	<u>1.66E-05</u>	<u>0.00E+00</u>	<u>6.64E-07</u>	<u>1.16E-04</u>	<u>7.16E-07</u>	

Boatyard Analysis – A Review of Boatyard Market Demand Data

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BOATYARD ANALYSIS

A Review of Boatyard Market Demand Data

January 2012



Prepared by the Business Development Bureau

BOATYARD ANALYSIS REPORT

January 2012

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1 EXECUTIVE SUMMARY

The Port of Los Angeles (Port) currently has sufficient capacity to accommodate most of the commercial vessel services within the Port. There is limited capacity to accommodate demand from recreational vessels berthed at the Port, but these vessels do have access to boatyard facilities elsewhere in the region. For those commercial vessels that cannot be accommodated by boatyards within the Port, there are no comparable facilities within the local region. As future demand for commercial boatyard service increases, the existing capacity at the Port will become increasingly strained, and so the Port should identify sites for potential boatyard expansion. This capacity can also be used to accommodate market demand from local recreational vessels.

2 BACKGROUND

As part of the Terminal Island planning process, this report provides a general overview of the potential demand for additional boatyard capacity. The Los Angeles Harbor Department (LAHD) has been directed by the Los Angeles City Council to identify potential boatyard sites on Terminal Island; in addition, the Port Community Advisory Committee (PCAC) has asked the LAHD to examine existing boatyard capacity. In response, LAHD staff have reviewed data from the Marine Exchange and the U.S. Coast Guard and interviewed shipyard and boatyard operators both locally and throughout the West Coast.

3 COMPETITIVE ENVIRONMENT

The Port currently supports one large ship repair facility with the ability to haul out vessels up to 250 feet and service vessels in-water up to 450 feet, Al Larson Boat Shop. There are two smaller repair facilities that service ships under 100 feet: Colonial Yacht Anchorage and Wilmington Boat Repair. In addition, Gambol Industries has a facility in the Port of Long Beach with the ability to haul vessels up to 150 feet and service vessels in-water up to 350 feet. There are also smaller ship repair firms that provide in-water service, including Oceanwide Ship Repair in Long Beach and Dockside Machine and Ship Repair in Wilmington. Al Larson submitted an application to the LAHD in June 2008 to expand and upgrade their existing facilities, which would increase the capacity for ship repairs in the San Pedro Bay, provide jobs and potentially reduce costs for larger ships seeking repairs outside of their normal schedules. Consistent with the LAHD's Leasing Policy, LAHD is working with Al Larson Boat Shop, an existing long-term tenant, on their proposal.

In addition, the U.S. West Coast is home to 2 major shipbuilding yards and 12 major repair yards. San Diego is a major ship repair location; the shipbuilding and ship repair industries support 10,000 jobs in the San Diego region. Approximately 70% of the shipbuilding and ship repair work is performed for the U.S. Navy. As the U.S. Navy's demand for ship services has declined since the 1990s, San Diego's facilities have moved into civilian shipbuilding and ship repair. General Dynamics/NASSCO in San Diego is currently building 9 double-hulled PC1 Product/Chemical Tankers.

4 MARKET HISTORY

The shipbuilding and ship repair industries in the San Pedro Bay have been closely tied to the presence of the U.S. Navy. Without the presence of the U.S. Navy, the amount of work available was not sufficient to sustain the ship service industry at San Pedro Bay's historical levels. In 1983 the Port reported 6,018 workers employed at shipyards and boatworks. By 1986, that number had fallen to 4,034 workers. In 1991, the Port of Los Angeles' employment survey showed 1,164 full- and part-time workers in the shipbuilding and repair industries. By 1993 this number had fallen to 300 workers. In 1995, Southwest Marine exited the shipbuilding and repair market. Since that time, full- and part-time employment in the remaining boat repair industries has remained steady at about 400 full- and part-time workers.

5 MARKET DEMAND

The Marine Exchange records data for all ocean-going vessels calling at the Port, including their flag registry, size, previous port, previous foreign port, and destination. A review of one year's data showed 811 commercial vessel calls between 200 and 650 feet in length. Of these calls, 592 were performed by vessels that either came from or were going to another port not located on the North American West Coast. These ships presumably have easy access to lower cost foreign ship repair facilities. Only 219 calls, or 27% of the total number of calls, were performed by ships that were engaged in the coastal trade, (i.e., ships coming from and then going to another North American West Coast port). For most of these, their routes take them past the major shipyards of Portland or San Diego.

In addition to vessels engaged in the coastal trade, the market for commercial vessel boatyard services includes tugs and barges that are homeported in the San Pedro Bay. Ten barges larger than 270 feet currently travel to San Diego or Portland for servicing; however, 90% of the barges in San Pedro Bay are below this size and are currently served by existing ship repair facilities in San Pedro Bay, including Al Larson Boat Shop.

Interviews with West Coast shipbuilders and ship repair yards (in Seattle, San Diego, and Portland) indicated that U.S. shipbuilders face strong competition from foreign shipbuilders, and are operating on very tight profit margins. U.S. Navy requires that vessels be serviced in their homeports limits growth in areas with little to no naval presence, and foreign commercial ships are serviced in lower-cost foreign facilities. The only market for growth in boatyard services for commercial vessels appears to be barges and tugs. Such sized vessels could be serviced in-water or at the Al Larson facility assuming the company's expansion proposal is approved.

Besides commercial vessels, the Port is home to over 3,500 recreational vessels berthed at its 18 marinas. While some repair and maintenance work can be performed in-water, recreational boats also need the services of a dedicated boatyard facility. Existing boatyard facilities have limited slots available to

perform haul-out work, and scheduling conflicts can arise. Unlike commercial vessels, which can only find comparable boatyard facilities in San Diego, Northern California, or the Pacific Northwest, recreational vessels have access to regional boatyard facilities.

Existing boatyard facilities currently have capacity to accommodate the majority of the commercial vessels operating within the Port, and this capacity can be increased through existing proposed expansion projects. For long-term planning purposes, though, an estimate of capacity and demand needs to incorporate future growth projections. Cargo volumes through the Port may triple over the next 30 years. Because the average vessel size is also expected to increase over this time period, it is not the case that the need for barges and tugs at the Port will also triple over the same time period. However, the number of barges and tugs operating within the Port is certain to grow over the next 30 years, and boatyard capacity will need to expand to meet the resulting demand in boatyard services. Barge and tug services, and the repair facilities that sustain them, are essentially a support system for the movement of cargo through the Port, and long-term development plans should provide for the growth of the support system alongside the growth of the cargo terminals to avoid any future impacts to the Port's ability to provide competitive and efficient goods movement.

While the development of recreational boatyards is less central to the Port's strategic goal of remaining the nation's predominant ocean cargo gateway, and therefore has a lesser claim on the Port's limited land resources, the large number of recreational vessels at the Port provides an additional local market that could support an expansion of future boatyard capacity.

6 CONCLUSION

To accommodate marine support services in the future, as well as potentially improve the boatyard service levels available to the recreational boating community at the Port, the proposed Terminal Island Plan should designate additional land area for boatyard expansion. This land area should be considered to be an "opportunity site"; when market demand grows great enough to support boatyard capacity expansion, this additional land area will be available for this use.