Master Response 4: Site Remediation Plans and Project Phasing

This master response addresses the issues comments raise with respect to the characterization of existing site contamination, the project's plans for remediating the site, and the phasing proposed for the remediation, wetlands restoration, and project construction. Comments also raise questions about alternative methods of remediating the site—e.g., whether capping the site would be involved—and for additional information on the various landowner responsibilities for the cleanup.

The Draft EIR addresses project phasing, site characterization, and remediation in Chapter III, Project Description; Chapter IV.D, Biology; Chapter IV.G, Hazards and Hazardous Materials; and Chapter IV.H, Hydrology and Water Quality, as well as the environmental setting, impacts analysis, and mitigation associated within each of those sections. The Draft EIR also references analyses and findings of the following appendices:

- Appendix G: Biological Assessment the Marina Center Project Balloon Track Property, Eureka, California
- Appendix J: Hazardous Material Assessment, Security National Properties, Proposed Marina Center Development, SHN Consulting Engineers & Geologists, Inc., September 2006
- New Appendix S: Environmental Resources Management, Supplemental Interim Remedial Action Plan, Former Eureka Railroad Yard and General Petroleum Site, Eureka, California, June 2009.

This master response addresses in whole or in part the following comments: 1-6, 3-3, 3-4, 3-8, 3-9, 3-15, 6-2, 6-3, 6-9, 7-1, 7-10, 8-7, 8-8, 9-6, 13-7, 16-6, 16-26, 16-39, 16-144, 16-161, 16-235, 16-238, 16-260, 16-261, 16-267, 16-270, 16-272, 16-273, 16-274, 16-278, 17-17, 17-23, 17-24, 17-26, 20-4, 22-1, 22-12, 22-13, 22-14, 22-15, 22-16, 22-17, 22-21, 23-2, 23-3, 23-6, 23-7, 23-9, 23-10, 23-11, 23-12, 23-13, 24-6, 24-7, 25-17, 25-18, 25-19, 25-22, 26-6, 29-3, 29-15, 31-2, 31-3, 31-7, 31-8, 32-5, 32-6, 32-7, 33-9, 33-10, 33-17, 36-2, 38-5, 39-1, 39-2, 40-1, 41-2, 42-3, 44-2, 48-1, 50-1, 50-2, 50-3, 52-30, 52-31, 52-32, 52-33, 52-34, 52-35, 58-1, 58-2, 58-3, 58-6, 58-8, 58-9, 58-10, 58-12, 58-13, 58-14, 58-15, 58-21, 58-22, 62-3, 66-3, 68-10, 68-13, 69-4, 69-18, 75-8, 75-10, 78-1, 84-5, 84-6, 85-6, 88-2, 88-11, 94-4, 95-1, 95-2, 95-3, 95-4, 95-7, 95-18, 101-4, 102-3, 104-1, 104-2, 107-1, 107-3, 107-4, 107-6, 109-1, 110-1, 110-4, 110-8, 110-9, 110-10, 112-2, 113-4, 116-2, 117-1, 117-3, 122-1, 122-4, 122-8, 122-9, 122-10, 122-16, 122-18, 126-7, 126-8, 127-16, 128-1, 130-3, 130-4, 133-2, 134-5, 136-1, 139-1, 143-2, 146-2, 147-1, 148-5, 148-6, 148-7, 148-8, 151-1, 151-2, 155-1, 155-7, 156-2, 160-1, 160-4, 162-1, 163-1, 166-1, 168-1, 173-4, 174-1, and 179-1.

The comments generally ask for more information or to be kept informed about the plans to remediate the site. Many of the comments express concern that the Draft EIR lacks sufficient detail regarding the proposed Remedial Action Plan, how it would be phased, and the

environmental effects of the clean up. Other comments address more specific issues. Comments include the following:

- The old rail yard is known to be contaminated and that the area may be capped, rather than having the contaminated materials removed. However, there are few details in the Draft EIR regarding the actual level contamination [sic] and the proposed remediation for the site, and therefore, it is difficult to determine the levels of remaining contaminants that may influence the surrounding wetlands. Specific details regarding the proposed remedial actions on the site need to be included in the Draft EIR.

- The project description is incomplete because it does not include any details of project phasing.

- The Draft EIR description of the site remediation—an integral, critical component of the project—is so cursory as to prohibit meaningful analysis of potential significant adverse environmental impacts of the project.

- Capping should never be considered as an alternative to actual cleanup of contaminants.

- A project of this size would likely require phasing, and thus phasing of mitigation in relation to planned buildout. However, the Draft EIR is incomplete because it includes no details of any development agreement that would reflect phasing and mitigation requirements, which would be triggered by ministerial development milestones or discretionary review of later phases.

- The Draft EIR is unclear whether there would be one overarching development agreement or several agreements, one for each project phase.

Response

Numerous studies and interim remedial measures have been conducted over the years at the project site. Some of those prior studies, although not prepared specifically for the proposed project, have been referenced or reviewed in the process of preparing this EIR. Some of those studies have been superseded or supplemented by subsequent studies and ongoing remediation and monitoring activities. The Draft EIR contains the most up-to-date description of the setting and site characteristics at the time it was prepared. Monitoring is ongoing and would continue until after project approval or denial. This ongoing monitoring has not produced any additional information that is inconsistent with the Draft EIR's characterization of the project site.

The North Coast Regional Water Quality Control Board (RWQCB) has exercised continuing jurisdiction over the project site since 1988, and has supervised a wide variety of sampling and remedial actions at the site. In May 2001, the RWQCB issued a Cleanup and Abatement Order under Sections 13267(b) and 13304 of the California Water Code for the project site (CAO No. R1-2001-26), which ordered that the landowner (at that time Union Pacific Railroad) "shall cleanup and abate the discharges and threatened discharges and shall comply with the provisions of [the Order]." The Order provided a series of specified and unspecified remedial measures to cleanup the property. This Order remains in effect and provides in part:

Investigation results confirm impacts and potential impacts to Site soils and groundwater. Cleanup and abatement activities remain to be performed at the Site. These activities include: a) conducting a feasibility study assessing remedial alternatives, b) performing appropriate cleanup and abatement activities, and c) performing ongoing verification monitoring.

The California Water Code, and regulations and policies developed thereunder require cleanup and abatement of discharges and threatened discharges of waste to the extent feasible.

The issuance of this cleanup and abatement order is an enforcement action being taken for the protection of the environment, and, therefore, is exempt from the provisions of the California Environmental Quality Act (Public Resources Code, Section 21000 et. Seq.) in accordance with Section 15308 and 15321, Chapter 3, Title 14 of the California Code of Regulations.

The discharger shall conduct all work under the direction of a California registered engineer or geologist experienced in pollution investigation and cleanup in accordance with all local ordinances.

By September 15, 2001, the discharger shall submit for Executive Officer concurrence, an interim remedial action plan (IRAP). The IRAP, shall include, but not be limited to, proposals for the following elements:

- Remedial actions to address onsite soil impacted with concentrations of Site contaminants correlating to either STLC or TTLC concentrations at or above the California Code of Regulations, Title 22 criteria for hazardous waste.
- Mitigation measures to prevent potential migration of residual soil contamination to groundwater and/or surface water bodies and a contingency plan to address any future discharges identified during monitoring activities.
- A detailed soil contingency plan, which must be implemented to address any potential subsurface activities at the site prior to development and implementation of the final RAP.
- An operation and maintenance plan to prevent ongoing illegal dumping of wastes at the Site and prevent the Site from continuing to be an attractive nuisance; and
- An implementation schedule for each task contained in the IRAP.

To comply with the Order, Union Pacific prepared an IRAP and a Draft Feasibility Study and Proposed Remedial Action Plan in 2001. A number of interim remedial measures have been implemented since 1988 (e.g., removal of underground storage tanks, contaminated soils, and other debris).

After the RWQCB's Order and the landowner's implementation of the interim remedial measures, elevated levels of metals continued to be in stormwater. In response to these testing and monitoring results and to perform the appropriate cleanup and abatement activities under the RWQCB's Order, the new landowner (CUE VI) prepared a Supplemental Interim Remedial Action Plan (SIRAP), and submitted the SIRAP to the RWQCB for concurrence. The RWQCB

on June 18, 2009, concurred in the SIRAP and its identified remedial measures, and has obligated CUE VI to carry out those further cleanup activities described in the SIRAP pursuant to the RWQCB's authority under Sections 13267 and 13304 of the California Water Code. Section 13267 of the California Water Code authorizes the RWQCB to require a discharger to furnish technical or monitoring program reports concerning the quality of any waters of the state. Section 13304 of the California Water Code authorizes the RWQCB to issue "cleanup and abatement" orders requiring a discharger to cleanup and abate waste, "where the discharger has caused or permitted waste to be discharged or deposited where it is or probably will be discharged into waters of the State and creates or threatens to create a condition of pollution or nuisance."

The SIRAP is added to the Marina Center EIR as Appendix S. The SIRAP addresses existing site contamination concerns of the Project Applicant and the California Regional Water Quality Control Board, and it is designed to be implemented with or without the build-out of the buildings and related improvements and infrastructure proposed in the project. The Project Applicant has proposed to implement the SIRAP in conjunction with onsite wetland restoration as Phase 1 of the proposed project and incorporate pertinent mitigation measures in the EIR, which are already described in the Chapters III and IV.G of the Draft EIR. Therefore, while this EIR addresses both this initial phase of the project as well as subsequent phases, the SIRAP has independent utility and can proceed on its own in advance of the City's approval of any entitlements necessary for the Marina Center development. Consequently, the Phase 1 approvals are limited to the following entitlements (including applicable mitigation measures and conditions of approval):

- City of Eureka Erosion Control and Grading Permits; and
- City of Eureka Coastal Development Permit.

Revisions to the Draft EIR are outlined below to address the refinement of the Phase 1 approvals and entitlements. Please see also Chapter 2, Errata, under Staff-Initiated Changes to the Draft EIR. The remaining entitlements for the Marina Center development—including construction of the various buildings, improvements, and infrastructure—will be considered by the City Council in connection with subsequent phases. All design elements of the project, as well as General Plan/Local Coastal Plan amendments, zoning, subdivision maps, and other related and applicable entitlements and conditions of approval, will be considered in subsequent phases. Nonetheless, to ensure that all phases and cumulative impacts of the project are addressed cohesively and that any environmental effects of Phase 1 (SIRAP and wetland restoration implementation) are adequately evaluated and mitigated under CEQA, the City will proceed to consider certification of the Marina Center EIR document, as well as approval of Phase 1, conditioned by incorporating all applicable mitigation measures (e.g., stormwater control, wetlands, air quality, etc.).

The information provided in the SIRAP refines and clarifies information already provided in the Draft EIR, and it does not represent new information resulting in new or substantially more severe environmental impacts, and does not require any additional mitigation. With implementation of the applicable mitigation measures for Phase 1, the environmental effects associated with Phase 1 of the proposed project would remain less than significant. In fact, further remediation and wetland restoration would improve the current environmental conditions of the project site.

This master response provides more detailed responses on the following topics: (1) Site Characterization/Level of Analysis; (2) proposed Project Phasing; (3) Interim Remediation; and (4) Alternative Remediation Approaches.

Site Characterization/Level of Analysis

Many comments request more information regarding the site's previous uses and level of contamination, or claim that the Draft EIR's site characterizations are inadequate. (See, e.g., Comment 8-7.) Contrary to those comments, however, the Draft EIR outlines in detail the previous uses of the site and the existing site conditions on pages IV.G-1 through G-4.

CEQA requires a lead agency to evaluate a project's effects on the "environment," which is defined by the "physical conditions that exist within the area which will be affected by a proposed project" (Pub. Res. Code, Section 21060.5). Consequently, the EIR evaluates existing conditions and need not evaluate prior historical conditions of the project site. Nonetheless, the Draft EIR and referenced environmental studies provide extensive information on the historical uses and characteristics of the project site. For example, past operations on the site consisted of a former railroad yard, including locomotive and railroad car maintenance and repair facilities and fuel storage and fueling facilities. Additionally, the site contained several former petroleum bulk fuel plants and a vehicle fueling station. None of those uses exist there today.

Current Conditions of the Project Site

Some of the comments suggest that the Draft EIR does not adequately characterize the current levels of contamination at the site, where that contamination may still be located, and whether there are any dioxins or furans onsite. (*See, e.g.*, Comments 22-12, 22-13, 22-14.)

Contrary to the suggestions made by the comments, the current characterization of the project site is outlined in detail in the Draft EIR on pages IV.G-4 through G-11 and in Appendix J (Hazardous Material Assessment prepared by SHN Consulting Engineers & Geologists, Inc., September 2006), and is further clarified by the SIRAP attached as Appendix S. A further summary is provided in this response for clarification purposes.

The SIRAP, it should be noted, summarizes past environmental investigations of the site, reviews the results of those investigations and past remedial measures, and includes informative tables of the data contained in the previous reports reviewed for the Draft EIR. This is not new information.

Several structures and some materials remain onsite, including two metal-framed warehouses and a smaller wood-frame office on the Former Fuel Cardlock Facility, one vacant wood-framed building, a metal-framed repair shop, and a large metal-framed building that is currently occupied. Of the former railroad yard facilities, only a dilapidated turn table and the foundations of some former structures are still present. Railroad tracks are still present on the current North Coast Railroad Authority (NCRA) line that passes along the northern boundary of the property. Railcars and locomotives continue to occupy the existing NCRA tracks. Gravel and dirt roads are present in places across the site. Vegetative cover is present throughout the former operational area and most of the site.

Numerous site investigation activities have been conducted to assess the nature and extent of contamination present at the project site. Extensive field programs have been conducted which have included soil sampling, groundwater sampling, stormwater sampling, soil borings, trenching, field testing, site inspections, and laboratory analysis. The nature and extent of contamination identified at the project site briefly are summarized and broken down into three discussions below: Soil Contamination; Groundwater Contamination; and Stormwater Sampling.

Soil Contamination. Site investigations completed to date have identified long-chain petroleum hydrocarbons, lead, copper, and arsenic as the primary constituents of concern at the site. Past site operations resulted in the release of petroleum hydrocarbons in the area near the former roundhouse (oil disposal pits) and near the former car repair shed and former Bunker C above-ground storage tank (AST). Although long-chain petroleum hydrocarbons are found in soil at shallow depths throughout the site, only isolated areas have high concentrations. Site investigation results at the former General Petroleum area of the site indicated the presence of total petroleum hydrocarbons as gasoline (TPHG) in a limited area of the site. Elevated lead and copper concentrations were found in the former rail yard areas where the former oil disposal pits were located (south of former roundhouse). Elevated arsenic concentrations were found, particularly at one location—in the northeastern portion of the project site. Please see Figure 4 of Appendix S.

Concentrations of dioxin (and related compounds) were found in some ditches and Clark Slough. Dioxin is found at elevated levels in many places in Eureka, and is often associated with wood treatment using pentachlorophenol (penta). The site was not used for penta treatment, however, a nearby property was. Consequently, the dioxin levels on the property and in Clark Slough appear to be attributable to offsite sources. PNAs, volatile organic compounds (VOCs), penta, and other compounds, were not detected at levels or at a frequency to warrant further analysis.

Migration of contamination from soils to groundwater can be a concern at former industrial sites. Here, however, analytical results of soil samples collected across the site indicate that the long-chain petroleum hydrocarbons present in site soils and groundwater are not migrating. Analytical results of samples collected from the site indicate, just as with the petroleum hydrocarbons, the metals present in subsurface soils do not appear to be mobilizing. Dioxins are considered insoluble, and their mobility is limited to the movement of sediment.

Groundwater Contamination. The geology of the site is characterized by two distinct groundwater-bearing units. These two units include three stratigraphic layers: a perched zone aquifer (which is a unit of soils or rock with sufficient permeability to conduct water), an aquitard (which is a confining bed of soils or rock that prevents or retards the flow of water to another water bearing unit), and a tidally influenced lower aquifer. The uppermost groundwater layer, identified as the “A” zone, is found in the approximately 5-10 feet of fill material that was placed on the original mudflats, and is not tidally influenced. During the wet season, rain falls on the site, sinks into the ground, and replenishes the groundwater in the “A” zone. During the dry season, water levels in the “A” zone fall, and in places the aquifer becomes dry. The second layer is densely compacted, fine-

grained, estuarine clay bay mud material. The third layer is coarse-grained material that contains the "B" zone aquifer. The "B" zone aquifer is tidally influenced by Humboldt Bay.

Groundwater monitoring at the site has occurred since 1992. Groundwater monitoring is currently being conducted in accordance with RWQCB Monitoring and Reporting Program (MRP) No. R1-2002-0082, and consists of monitoring 15 wells throughout the site and 4 wells located at the former General Petroleum site. Groundwater monitoring is conducted semi-annually as outlined in MRP R1-2002-0082 from 11 "A" Zone monitoring wells, 7 "B" Zone monitoring wells, and one "A" zone piezometer.

There are six ground water monitoring wells at the former ARCO site that are not included in MRP R1-2002-0082, and therefore are not monitored as part of the site monitoring program. Ground water monitoring at the ARCO site is currently being conducted in accordance with RWQCB MRP No. R1-2007-0075. The wells are currently monitored on a quarterly basis.

"A" Zone Wells. Long-chain petroleum hydrocarbons—TPHG, total petroleum hydrocarbons as diesel (TPHD), total petroleum hydrocarbons as motor oil (TPHMO), and total petroleum hydrocarbons as Bunker C (TPHBC)—have been detected in groundwater collected from the "A" zone through some site wells. The area impacted by petroleum hydrocarbons appears to be limited in extent, not migrating, and decreasing through natural processes. Petroleum hydrocarbon concentrations found in other site wells have been low or below the method detection limit.

Very few other organic compounds have been found in the groundwater. Acenaphthene was detected at low concentrations (up to 2.1 ug/L) during the January and March 2002 monitoring events. While detected in 1999, phenol has not been detected during any subsequent groundwater-monitoring events. Isolated VOCs were detected at low concentrations during the 1992 sampling event in two wells MW-2A and MW-7A. No other VOCs have been detected in "A" Zone groundwater samples. None of these compounds have been found consistently, and none should be considered to be existing conditions.

Zinc, arsenic, lead, barium, and copper have been the only metals detected in "A" Zone monitoring wells. Zinc and lead concentrations detected in groundwater samples are below their respective Maximum Contaminant Levels (MCLs), which are the levels allowed for drinking water. Arsenic has been detected in groundwater collected from "A" Zone wells at concentrations that are generally below the MCL of 10 ug/L. Barium and copper are also below their respective MCLs.

"B" Zone Wells. Contaminant levels detected in "B" Zone groundwater have been minimal, and generally at concentrations below each contaminant's respective maximum contaminant levels, action levels, or detection limits.

Conclusions on Groundwater. Petroleum hydrocarbons are found in "A" Zone wells, but the area affected is limited, not migrating, and decreasing from natural processes. The impact to groundwater by metals is minimal given the low concentrations and the tendency of metals to bind to soil. Likewise, impacts to groundwater in the "B" Zone are minimal, indicating that the

layer of densely compacted bay mud that separates the “A” Zone from the “B” Zone serves as an effective aquitard.

Stormwater Monitoring. Much of the rain that falls on the site sinks into the ground and becomes part of the “A” Zone groundwater. Some of the rainwater flows into the ditches, which fill up and act like ponds. Some of the rainwater also ponds in depressions on the site.

Stormwater runoff sampling has been ongoing at the project site since December 2001. Current surface water sampling is conducted at six locations on the eastern and western portions of the project site. Surface water samples are analyzed for TPHD, turbidity, and dissolved and total arsenic, copper, and zinc. Samples have identified the presence of those metals. The concentrations detected are equivalent to metals concentrations found in stormwater and surface waters throughout Eureka. No petroleum hydrocarbons have been detected since 2005.

General Conclusions about Level of Site Characterization

Contamination at the site has been investigated for nearly 20 years. Consultants have reviewed the historical uses of the property, identified those areas most likely to have been contaminated by these uses, sampled at dozens of locations including those where the highest levels of contamination were likely to be found, and obtained laboratory analyses of the substances likely to result from the historical uses. These consultants installed groundwater-monitoring wells throughout the site, sampled these wells regularly for more than fifteen years, and obtained laboratory analyses of the substances of concern. They have sampled and analyzed stormwater for most of this decade. The site has been adequately characterized for all substances related to the historical railroad operations on the property.

The elevated levels of dioxins recently identified on the site have not been attributed to historical railroad operations. In the Eureka area, dioxins are primarily associated with facilities that used pentachlorophenol (penta) to treat wood. Dioxins are also associated with combustion, which releases dioxins into the air and allows them to settle onto properties throughout a large area. In Eureka, large amounts of wood wastes were once burned, and large areas are believed to have elevated dioxin levels. Dioxins found in Clark Slough are believed to have originated offsite at the former penta facility or other offsite sources. Dioxins found in the onsite ditches are believed to have come from offsite sources, either through air deposition or from stormwater flowing onto the site. Dioxins from either source are likely to have been carried into the ditches, where they settled along with other organic material to the sediments at the bottom. The onsite samples analyzed for dioxin were taken from the sediments at the bottom of the ditches where onsite dioxins would likely be at their highest levels.

The levels of dioxin identified onsite are modestly elevated, but within the range of levels recommended as cleanup standards by the California Department of Toxic Substances Control (DTSC) (i.e., 200 to 1000 parts per trillion). DTSC is the primary agency in California with responsibility for cleaning up contaminated soils. Soils that come within cleanup levels need no further action. Nevertheless, the Project Applicant is proposing to remove dioxin-contaminated soils within Clark Slough and the ditches in Phase 1 as part of the SIRAP. Additional sampling

would be performed during the excavation process, and soils with elevated levels would be removed. Post-Phase 1 levels of dioxin would therefore be lower than pre-Phase 1 levels.

No additional data are needed on soils within the Marina Center because contaminated soils have already been identified, and those soils with elevated levels of contaminants would be removed. Furthermore, the project would protect people and the environment by creating barriers – clean cover materials, parking lots, and buildings – that would block exposure to contamination that may remain in the soils that are left in place.

No additional data are needed on existing stormwater because stormwater discharges have been well characterized with monthly sampling during the rainy season and because the existing stormwater discharges would be eliminated as part of the SIRAP. In addition, no additional data are needed on groundwater because years of testing have demonstrated that groundwater contains only low or undetectable levels of substances associated with historical railroad activities, and that there is no "plume" of contamination moving offsite. Dioxins are considered insoluble, and therefore are not likely to move through groundwater.

Phase 1 of the proposed project would therefore improve the environment by taking contamination that is now present on the surface and remove it or cover it with clean material and impervious surfaces that would cut off any contact with people or wildlife. Further sampling would also be conducted to confirm that the remedial measures in the SIRAP have been effective. Therefore, no additional site characterization or other data are needed in order to evaluate the physical environmental effects associated with implementation of Phase 1 of the Marina Center project.

Project Phasing – Interim Remediation and Wetlands Restoration

A number of comments ask about project phasing generally, and specifically how it would be carried out with the remediation. As stated on Draft EIR pages III-14 and III-15, the project is expected to be constructed in phases:

> "The project is expected to be constructed in phases which would also result in implementation of mitigation measures in phases. Because the Project Applicant has not identified the actual construction phasing for the project the impact analysis and recommended mitigation measures listed in Chapter IV of this EIR are for full project build-out. When the Project Applicant has completed a project phasing plan, the specific mitigation measures required for each phase will be determined and a Development Agreement will be entered into to assure full compliance with the recommended mitigation measures. Before the City approves the phasing plan and associated discretionary entitlement (e.g., the Development Agreement), the phasing and mitigation plan will be evaluated to ensure that there are no changes to the project, changes to surrounding circumstances, or other new information that triggers the need for supplemental or subsequent environmental review under Section 21166 of the Public Resources Code."

The Draft EIR also explains on page III-15 that "Phase 1 . . . would span 12 months and would include the wetland restoration and site remediation."

Consistent with the foregoing description in the Draft EIR, Phase 1 is proposed to include implementing the SIRAP and carrying out wetland restoration, as outlined in more detail, below. The Project Applicant has not yet proposed a phasing plan for subsequent phases of construction of the proposed project, and those phases remain subject to market and economic considerations as well as the City Council's consideration of future approvals and entitlements.

Supplemental Interim Remediation Action Plan and Wetland Restoration

Comments ask for more detail on the Project Applicant's plans for remediating the project site, suggest that remediation measures should be spelled out in a plan brought before the City Council and not deferred to a future date and that a RWQCB-approved work plan for final remediation of the site should be incorporated into the EIR as part of the description of the site remediation aspect of the project. (See, e.g., Comments 3-3, 8-7, 23-1, 25-22.) As outlined in the Draft EIR page III-14:

> "The project includes the remediation of the existing brownfield site to meet federal and state environmental cleanup and water quality standards. This would include preparing a remedial action plan to be approved by the North Coast Region California Regional Water Quality Control Board. The remedial action plan could require the removal of surface vegetation, the removal of contaminated fill materials, and the placement of clean soils on the property."

The SIRAP provides further information on how the remediation would proceed. This remediation would resolve two types of concerns related to contamination at the site. First, there has been concern that stormwater is carrying contaminated soils or sediments from the site to Clark Slough. The interim remediation would resolve that issue by eliminating the flow of stormwater that currently flows off the site via ditches and pipes on the south end. This result would be accomplished by increasing the capacity of the property to absorb rainfall. Existing conditions allow rain to soak into the ground, but the capacity is limited. By placing additional porous fill material and re-grading the site, the interim remediation would allow more rain to soak (or infiltrate) into the ground with Phase 1. The interim remedial measures would also eliminate the ditches and pipes that carry stormwater offsite.

Second, there have been concerns that people and wildlife may be exposed to elevated levels of contaminants in surface soils and sediments, particularly in the wetlands. The interim remediation would resolve this concern by excavating hotspots in which there are elevated levels of contaminants, and properly disposing of this material offsite. To be sure that people and wildlife are not exposed to contaminants that are not excavated, most of the site would be covered with clean material excavated from the expanded wetlands area or imported from offsite. The clean cover material would form a protective barrier that prevents people and wildlife from coming into contact with any remaining contaminants underneath.

Following are the steps to be implemented in Phase 1:

- General site clearing and removal of debris consisting of concrete foundations, wooden rail road ties, remnants of rail yard maintenance equipment and fuel storage tanks, and other

abandoned industrial materials which shall be dismantled, tested, recycled, and disposed of, as appropriate;

- Focused soil remediation through limited excavation, field testing, and offsite disposal of soil and sediments in seven specific areas including the former General Petroleum site, areas near existing well MW-10, areas within the eastern and western drainage ditches, and areas within Clark Slough;

- Excavation of areas around Clark Slough to the northeast and southwest, and placement of excavated material on other areas of the site; and

- Importing, placing, and grading clean cover material over most of the site (please see to Figure 9 in Appendix S).

In conjunction with the above remediation activities, and as outlined in the Draft EIR as part of Phase 1, the project would also include the restoration of an 11.89-acre wetland reserve surrounding Clark Slough. This is proposed to be accomplished by excavating and re-contouring a portion of the area surrounding Clark Slough in order to create new seasonal and muted tidal wetlands. Some of the wetland creation work may be conducted in an area where petroleum-impacted soils remain. In the event that petroleum-impacted soils are encountered, the soil would be segregated and tested to evaluate the proper use or disposal method for that soil consistent with Mitigation Measure G-1d.

Mitigation that would apply to Phase 1 would include, for example, Mitigation Measures H-3a, H-3b, and H-4a (water quality and stormwater management during and post-construction), Mitigation Measures D-1a, D-1b, D-3a through D-3d, D-7a, and D-8a (wetlands and biological resources), Mitigation Measures G-1a through -1e (hazards from transport, use, or disposal of materials), and Mitigation Measure O-1a (construction-related traffic measures). With implementation of these measures, the project's impacts arising from Phase 1 would remain less than significant.

Final site remediation will be addressed in future phases when the Marina Center development is approved and the site design is configured. In general, final site remediation is expected to include construction of parking lots and buildings on the site, which would improve the barrier preventing exposure to contaminants remaining below the barrier; testing and confirmation that contamination below the barrier would not move offsite; procedures for protecting workers who may be exposed to soil below the barrier; and restrictions on excavations that might produce exposures to contaminants below the barrier. Because the site plan and footprint of development may change once reviewed and approved by the City Council, it is impractical to develop more specific remedial activities at this time.

Alternative Methods of Remediation

Several comments ask about alternative methods for site remediation. Some voiced concern and opposition to the placement of clean cover material over the project site as a method of cleaning up the site. (See, e.g., Comments 8-7, 16-162, and 31-3.)

The word “cap” is often broadly used to refer to any type of cover material at a site. It is sometimes used more specifically to refer to a relatively impermeable cover material that restricts the flow of water, such as rainwater, from the surface to the substances below the cap (sometimes referred to as an “impermeable cap”). Placement of clean cover material over project sites is a common and effective remediation technique, and is widely used at remediation sites. Even when placement of clean cover material over the project site is not used, it may be part of the cleanup. When, for example, contaminated soils are excavated and disposed of offsite, they are taken to a landfill that would eventually be capped to isolate the contaminated soils and other materials from the environment.

Placement of clean cover material over project sites can achieve at least two goals. It isolates the contaminated soils below from receptors above. For a toxic substance to have a toxic effect on a receptor, such as people or wildlife, the receptor must be exposed to the toxic substance. If there is no exposure, there is no toxic effect. A barrier is an effective protective technique if it prevents the toxic substance from completing a pathway to the receptor.

An impermeable cap provides the additional feature of limiting the water that comes into contact with the contaminated soil. If the contaminants in soil are soluble, they may dissolve into rainwater percolating through the ground and be carried down into an aquifer. This localized contamination of the aquifer can spread as the groundwater moves downgradient. If it moves far enough, it may reach a well, from which it may be pumped. People and wildlife may come into contact with pumped well water. In this way, placement of clean cover material over project sites can cut off another pathway.

At this site, the clean, permeable cover being proposed as part of the interim remediation would provide an effective barrier between contaminants below the cover and people and wildlife above. Years of groundwater monitoring at the site have established that substances in the soil are not dissolving into the groundwater, and therefore an impermeable cap is not necessary. Groundwater concentrations are decreasing as a result of natural remediation processes (primarily bacterial degradation of petroleum materials). If they were increasing, it would suggest that additional substances were being dissolved from soil into groundwater. Downgradient wells at the site have remained clean over many years, thereby establishing that any dissolved contamination from the property is not being transported offsite. Natural attenuation is a common and accepted practice to remediate dissolved petroleum compounds in groundwater.

Construction of the Marina Center development would ultimately cover much of the site with buildings and paved surfaces (e.g., parking lots). These materials would increase the barrier effect and tend to prevent rainwater from seeping into the soils below. If rainwater is prevented from sinking into the soil, the “A” Zone aquifer would receive less stormwater, thereby providing the added benefit of further isolating contamination in the soil from water.

It should be emphasized, however, that the proposed project does not treat placement of clean cover material over this project site as a substitute or as an alternative to cleanup of the site. Indeed, the interim remediation proposes excavation and proper offsite disposal of those soils

exhibiting more highly elevated concentrations. (See Appendix S; *also see* Draft EIR, Mitigation Measures G-1a and G-1b.)

Testing and characterizations of the site indicate that the above remediation measures and clean cover material would be effective at removing any significant risk to human health or the environment. As noted, long-term groundwater monitoring at the site has shown that (i) metals are not dissolving into groundwater to any significant degree; and (ii) TPH concentrations have naturally attenuated to low or non-detectable levels with limited exceptions. Furthermore, dioxins are insoluble, which means they are not anticipated to be present in groundwater. Because groundwater quality is generally good on the project site, and because there are not significant concerns about additional materials dissolving into groundwater, it is believed that no impermeable cap is needed to protect groundwater quality. Anything that could have entered the groundwater would have entered the groundwater in the many decades since the project site was last "operational," and certainly in the last 20 years. But in any event, implementation of the project would only help to improve the environment setting, and mitigation measures are in place to ensure that workers and the environment are not exposed during construction and during future use of the site. (See, e.g., Draft EIR, pages IV.G-19 through IV.G-21.) With these measures in place, the project's potential impacts associated with the first phase of remediation would be less than significant.

Finally, it should be noted that lead agencies have wide discretion in choosing among various mitigation measures and need not analyze every imaginable alternative or mitigation measure, particularly when the adopted project alternative or measure avoids or lessens the project's effect to a less-than-significant level. (See, e.g., *Gilroy Citizens for Responsible Planning v. City of Gilroy* (2006) 140 Cal.App.4th 911, 935; Pub. Res. Code, Section 21002.) Placement of clean cover material over the project site is commonly accepted as a feasible and effective method for remediating contaminated properties for any number of future land uses. The ultimate methods for site closure, however, would also be subject to approval by the Regional Water Quality Control Board and in accordance with federal and state laws governing contaminated properties and clean water.