

**Initial Study/Checklist
And Mitigated Negative Declaration**

Prepared for and by

**North Coast Regional
Water Quality Control Board**

**Chevron Environmental Management Company
Former Redwood Oil/Chevron Bulk Plant
258 Roseland Avenue
Santa Rosa, California
Sonoma County**

**Surfactant Flushing
Of
Contaminated Soil and
Groundwater**

August 11, 2008

**North Coast Regional Water Quality Control Board
5550 Skylane Boulevard, Suite A
Santa Rosa, California 95403**

Initial Study/Checklist and Mitigated Negative Declaration

This Initial Study/Checklist and Mitigated Negative Declaration has been prepared in accordance with Public Resources Code section 21080, and title 14, sections 15070 and 15071 of the California Code of Regulations. The Mitigated Negative Declaration is proposed for adoption at a meeting of the California Regional Water Quality Control Board, North Coast Region, on October 23, 2008

Project Title: Surfactant Flushing of Contaminated Soil and Groundwater

Project Location/Address: Former Redwood Oil/Chevron Bulk Plant, 258 Roseland Avenue, Santa Rosa, California, Sonoma County.

Lead Agency: California Regional Water Quality Control Board, North Coast Region, 5550 Skylane Boulevard, Suite A, Santa Rosa, CA 95403

Decision Making Body: California Regional Water Quality Control Board, North Coast Region

Project Applicant: Chevron Environmental Management Company, P.O. Box 6021, San Ramon, California, 94583

Project Description: Chevron Environmental Management Company is proposing to conduct surfactant flushing activities as an interim remedial action to remove light non-aqueous phase liquid (LNAPL) from the subsurface.

Liquid phase hydrocarbons that are less dense than water are referred to as light non-aqueous phase liquids (LNAPLS) and are characterized by having sufficient volume to saturate the subsurface such that the LNAPL accumulates on the water table. LNAPL is commonly referred to as separate phase hydrocarbons.

Surfactants are a group of chemicals containing alcohols, phosphates, and salts and are frequently used in detergents. By applying surfactant to the subsurface impacted with separate phase hydrocarbons, the surfactant will emulsify and mobilize the separate phase hydrocarbons, thereby allowing successful removal of separate phase hydrocarbons from the site by extraction.

Separate phase hydrocarbons have been reported at the project Site since the 1980's and continues to be reported today. Limited interim remedial actions have been conducted to recover separate phase hydrocarbons from the subsurface including bailing, pump and treat, and operation of a free product recovery system. Although the thickness of separate phase hydrocarbons has decreased over time, actions have not been successful in complete elimination of separate phase hydrocarbons, as separate phase hydrocarbons continue to be reported in multiple wells.

The project applicant proposes to inject surfactant at the site in areas identified with LNAPL. The proposal includes injecting a 2 to 4 percent solution of surfactant diluted with water into existing monitoring wells DHS-8 and MW-2. Approximately 200 gallons of solution will be applied to each well. The solution will equilibrate for approximately 24-48 hours, after which approximately

600 gallons of fluid will be extracted from each well or until background conditions (pre-injection levels of surfactant and surfactant by-products) are achieved.

Based on the results of the application of surfactant to DHS-8 and MW-2, modifications to additional applications of surfactant to other areas of the project site may be necessary in order to achieve optimal results. This document analyzes potential environmental impacts from surfactant flushing throughout the project site and for any minor modification, such as changes to the dilution of the solution or its equilibration time, to enhance the performance of the technology.

Groundwater and soil characteristics are the same or similar in the project area, and therefore impacts are expected to be the same for additional applications. More details of the proposed project are provided in the report of waste discharge (ROWD) dated August 6, 2007, October 1, 2007, and April 24, 2008. The ROWD also includes a contingency plan in the event that there is any unwanted migration or mobilization of surfactant or petroleum hydrocarbons.

Need for the Project: On June 20, 2007 The North Coast Regional Water Quality Control Board Executive Officer issued Cleanup and Abatement Order No. R1-2007-0051. Provision D of the Order required responsible parties to submit an interim remedial action plan to address removal of remaining sources of contamination. In response, Chevron Environmental Management submitted an interim remedial action plan proposing the use of surfactant flushing to remove remaining LNAPL from the subsurface. This interim remedial action is a necessary phase of the cleanup process in order to proceed with a corrective action plan.

Surrounding Land Uses and Settings: The project is located at 258 Roseland Avenue, in Santa Rosa, California. The project area is currently occupied by Cal West Transmission. Current land use surrounding the site includes mixed commercial, industrial, and residential. Previously, the Site was used as a petroleum bulk transfer facility from 1962 until the late 1980's. Bulk storage operations included the storage of gasoline, diesel, aviation fuel, heating oil fuel and Stoddard solvent in both aboveground and underground storage tanks.

Environmental Finding: The staff of the Regional Water Board has determined, on the basis of the attached Initial Study/Checklist and the documents and sources referenced therein, that the project described above will not have a significant impact on the environment, provided that the mitigation measures identified in the projects applicant's Report of Waste Discharge and the related Initial Study/Checklist are included in the project.

Initial Study/Checklist: The Initial Study/Checklist is attached. For more information call Colleen Hunt at (707) 576-2831.

Mitigation Measures: The mitigation measures are included in the attached Initial Study/Checklist and will become enforceable conditions of approval of waste discharge requirements for the project.

Permits Required:

Chevron Environmental Management must comply with regulatory and permitting requirements including California State Water Resources Control Board Resolutions 92-49 and 68-16; title 27, California Code of Regulations; and any local, state and federal permitting requirements.

A Waste Discharge Requirements Order will be required to proceed with the project. The draft Waste Discharge Requirements Order No. R1-2008-0099 will be considered for adoption at a Regional Water Board meeting to be held on October 23, 2008. In addition, a Monitoring and Reporting Program included as part of the Waste Discharge Requirements will also be required to proceed with the project. The Waste Discharge Requirements allow for future surfactant flushing activities as long as the initial activities proved successful in removing separate phase hydrocarbon from the subsurface and in limiting migration of the surfactant and contaminants, and a technically sound workplan is received, reviewed, and approved by the Executive Officer. The activities are required to be controlled on the Site in accordance with the Waste Discharge Requirements.

Initial Study/Checklist

The attached checklist is taken from Appendix G of the State CEQA Guidelines. For each item, one of four responses is given:

No Impact: The project will not have the impact described.

Less Than Significant Impact: The project will have the impact described, but the impact will not be significant. Mitigation is not required, although the project applicant may choose to include mitigation measures to reduce the impacts.

Potentially Significant Unless Impacted: The project will have the impact described and the impact will be significant. One or more mitigation measures have been identified that will reduce the impact to a less than significant level.

Potentially Significant Impact: The project may have the impact described, and the impact is significant. The impact cannot be reduced to a less than significant level by incorporating mitigation measures. An environmental impact report must be prepared for this project.

Each question on the checklist was answered by evaluating the project as proposed in the Report of Waste Discharge, that is, without considering the effect of any added mitigation measures. As proposed in the Report of Waste Discharge, and as reflected in the proposed Waste Discharge Requirements, the project includes various constraints and conditions which reduce all potentially significant impacts to a level that is less than significant. The checklist includes a discussion of the impacts and mitigation measures that have been identified. Sources used in this Initial Study/Checklist are numbered and listed beginning on page 27 of the Checklist. Chevron Environmental Management Company has agreed to obtain all necessary permits.

APPENDIX G

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- | | | |
|---|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture Resources | <input type="checkbox"/> Air Quality |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology /Soils |
| <input checked="" type="checkbox"/> Hazards & Hazardous Materials | <input checked="" type="checkbox"/> Hydrology / Water Quality | <input type="checkbox"/> Land Use / Planning |
| <input type="checkbox"/> Mineral Resources | <input checked="" type="checkbox"/> Noise | <input type="checkbox"/> Population / Housing |
| <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation/Traffic |
| <input type="checkbox"/> Utilities / Service Systems | <input type="checkbox"/> Mandatory Findings of Significance | |

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

- X I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

- 6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
- 7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
- 8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
- 9) The explanation of each issue should identify:
 - a) the significance criteria or threshold, if any, used to evaluate each question; and
 - b) the mitigation measure identified, if any, to reduce the impact to less than significance

Issues:

Initial Study Checklist

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
I. AESTHETICS -- Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The project will not have an adverse effect on scenic vista (1).				
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The project site is not within sight of a scenic highway (2)				
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The existing visual character of the project site and its surroundings will not be altered. (1)				
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The project site will not create a new source of light or glare. (1)				

	Less Than Significant			
Potentially Significant Impact	With Mitigation Incorporation	Less Than Significant Impact	No Impact	

II. AGRICULTURE RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The project does not involve converting land or changing zoning (1).

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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This project does not conflict with an existing zoning for agricultural use or a Williamson Act contract (1)

c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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This project will not involve a conversion of Farmland (1).

III. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The location of the project site is in the boundaries of the Bay Area Air Management District. The project does not violate the BAAQMD 2000 Clean Air Plan (1, 4).

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The project will not result in a violation or create a potential violation of BAAQMD air quality standards (1,4)

	Less Than Significant			
Potentially Significant Impact	With Mitigation Incorporation	Less Than Significant Impact	No Impact	

The BAAQMD has an air quality standard for particulate matter (PM10) of 50 µg/m³ (24-hour average). Dust could be temporarily generated from vehicles and heavy equipment on-site, but for a minimal amount of time. The generation of dust will be insignificant and will not violate air quality standards for particulate matter (1,4).

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The proposed project will not result in a cumulatively considerable net increase of any criteria pollutant. There may be a temporary increase of particulate matter from project activities, but will be limited and cease upon project completion (1).

d) Expose sensitive receptors to substantial pollutant concentrations?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The project will not result in the release of substantial pollutants in air (1,5). There are no know or documented vapor intrusion or indoor air concerns associated with this technology (13, 14, 15, 22, 23)

e) Create objectionable odors affecting a substantial number of people?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Gold Crew Release is identified to have a light fragrance. The product will be used for a short duration, will be removed via extraction, and disposed of off-site. Additionally, the product will be highly diluted with water. Therefore the impact of odors will be minimal and insignificant (5). Additionally, petroleum odors may result during the extraction of fluid. The extraction of fluid will take place in a closed system and will be immediately placed in a tank for disposal. Extraction activities are limited and temporary and will therefore not results in a significant impact to air quality.

IV. BIOLOGICAL RESOURCES -- Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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	Less Than Significant			
Potentially Significant Impact	With Mitigation Incorporation	Less Than Significant Impact	No Impact	

There are no sensitive species identified at the project site (6).

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The project will not have an impact on riparian habitat (1)

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The project location is not on or in the area of identified federally protected wetlands (7).

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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This project will not interfere with the movement of any native resident or migratory fish or wildlife (1, 6)

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The project does not conflict with any local policies or ordinances protecting biological resources (7).

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The project does not conflict with provisions of any habitat conservation plan or natural community conservation plan (8, 9, 21)

V. CULTURAL RESOURCES -- Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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	Less Than Significant			
	Potentially Significant Impact	With Mitigation Incorporation	Less Than Significant Impact	No Impact

There are no identified historical resources at the project site (6, 7, 10)

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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There are no archaeological resources identified at this project location (6). Additionally, there is no digging associated with this project. The injection and extraction activities will take place in existing monitoring well locations. Additional monitoring wells may be drilled to monitor potential migration of petroleum. Even if such resources are present (but unknown), the potential for encountering is extremely small.

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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There are no paleontological resources or unique geologic features at this project location (6). See V(b) above.

d) Disturb any human remains, including those interred outside of formal cemeteries?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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No burial sites are known in the vicinity of the project site (8). In the unlikely event that any human remains are unearthed during the project, state law requires that the County Coroner be notified to investigate the nature and circumstances of the discovery. At the time of discovery, work in the immediate area would cease until the coroner permitted work to proceed. If the remains were determined to be prehistoric, the find would be treated as an archaeological site

VI. GEOLOGY AND SOILS -- Would the project:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The project is located within the area of Rogers Creek Fault, but is not identified within a "violent" shaking area. The project, however, will not have a direct impact or contribute any additional ramifications in the event of an

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
<p>earthquake. In the rare event that an earthquake strikes during the duration of the project, the project Health and Safety Plan will be utilized for further information (1,7).</p>				
<p>ii) Strong seismic ground shaking?</p> <p>The project will not cause strong seismic ground shaking (1)</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>iii) Seismic-related ground failure, including liquefaction?</p> <p>The project will not result in seismic related ground failure, including liquification (1)</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>iii) Landslides?</p> <p>The project will not result in landslides (1, 7, 11)</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>b) Result in substantial soil erosion or the loss of topsoil?</p> <p>The project will not result in erosion or the loss of topsoil (1)</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?</p> <p>The project is not located on unstable soil, nor would the become unstable as a result of the project (1, 6).</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?</p> <p>Table 18-1-B of the Uniform Building Code (1994) is an index of relative expansive properties of soil as determined through laboratory testing. Soils at the project site have not been tested, as this project does not include the construction of any buildings (1).</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?</p> <p>Soil suitability testing for waste water disposal systems has not been conducted and does not need to be conducted as part of this project (1)</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Less Than Significant		
Potentially Significant Impact	With Mitigation Incorporation	Less Than Significant Impact	No Impact

VII. HAZARDS AND HAZARDOUS MATERIALS –

Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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The purpose of the project is to eliminate separate phase hydrocarbons from the groundwater table, an initial step at improving the overall water quality at the project location. The project includes injection and extraction of surfactant in areas of the project site identified to have floating product. The surfactant and surfactant breakdown products are not identified as hazardous materials (5, 13, 14, 15). Extracted fluid will be impacted with petroleum hydrocarbons.

Mitigation Measure #1

Extracted fluid will be properly handled, stored, transported, and will be disposed of at Chem Waste Management, in Kettleman Hills, California or other permitted facility. Proper handling, storage, transportation and disposal will be protective of public health and the environment and will not create a significant hazard to the public or the environment. (1, 14)

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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The project includes the injection of surfactant. As identified above, surfactant and surfactant by-products are not identified as hazardous materials (5, 13, 14, 15).

The addition of surfactant into the subsurface is intended to emulsify separate phase hydrocarbons adsorbed to soil in the source area. Extraction of emulsified hydrocarbons allows successful removal and elimination of floating petroleum product. During this process, emulsified hydrocarbons have the potential for subsurface vertical and/or horizontal migration (22).

	Less Than Significant		
Potentially Significant Impact	With Mitigation Incorporation	Less Than Significant Impact	No Impact

Horizontal Migration-Mitigation Measure #2

Horizontal migration of floating product is unlikely due to the short term conditions of the project and the relatively flat groundwater gradient. Sampling will be conducted to monitor for unwanted horizontal migration of surfactant and separate phase hydrocarbons. In the event unwanted migration of surfactant, separate phase hydrocarbon, or increased emulsified hydrocarbons is observed, mitigation measures will include implementation of the contingency plan. The plan includes the extraction of fluid in the area impacted by unwanted migration of surfactant, separate phase hydrocarbons, or emulsified hydrocarbons. Extraction activities will continue until baseline conditions are achieved, as determined by monitoring during extraction and for a period of time following cessation of activities (13, 14, 15).

Vertical Migration-Mitigation Measure #3

Vertical migration is not anticipated based on the site lithology. However, to avoid any risk of vertical migration, a temporary inflatable packer will be installed in each injection well. This will block screened sections exposed below LNAPL smear zone and therefore prevent unwanted migration (13, 14, 15)

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The project is located within one-quarter mile of Roseland Elementary School. The school property has not been impacted related to the current groundwater conditions at the project location. Additionally, because the school is located up gradient of the project, the school is not at risk to be impacted by this project. The project will be conducted to protect human health and the environment and will not result in an impact to the community, including Roseland Elementary School. The school although recognized as a sensitive environmental area, will not be impacted as a result of the project (1).

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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	Less Than Significant			
Potentially Significant Impact	With Mitigation Incorporation	Less Than Significant Impact	No Impact	

This project is being conducted on a hazardous materials site listed pursuant to Government Code Section 65962.5 (16). However, the project is anticipated to remediate identified hazardous materials and therefore will have a positive impact on the site, public and the environment.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The project is not located within an airport land use plan (12).

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The project is not located within the vicinity of a private airstrip (17).

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The project will not interfere with the adopted emergency response plan (1, 18).

h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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VIII. HYDROLOGY AND WATER QUALITY -- Would the project:

a) Violate any water quality standards or waste discharge requirements?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Draft Waste Discharge Requirements will be considered for adoption for this project. The draft Waste Discharge Requirements will be considered for adoption at the October 23, 2008 Regional Water Board meeting. No violations of water quality standards or the draft Waste Discharge Requirements are anticipated to result from the project (1, 19).

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project includes the injection of surfactant and subsequent extraction of fluid, including impacted groundwater. Injection activities may temporarily result in an increase to the project areas groundwater elevation, and extraction activities may result in a decrease of groundwater elevation. Monitoring will include measurements of depth to groundwater. Any change in groundwater elevation will be temporary and insignificant. (1)

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The project will not alter the exiting drainage pattern (1)

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The project will not alter the existing drainage pattern (1)

e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The project will not create or contribute runoff. (1)

f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Water quality at the site exceeds Water Quality Objectives. The project is designed to eliminate separate phase hydrocarbons and improve water quality conditions. Additionally, the project is being conducted under Waste Discharge Requirements, which prohibit the Discharger from creating any form of pollution or nuisance as a result of the project. There is the potential for unwanted migration of surfactant or petroleum

	Less Than Significant			
Potentially Significant Impact	With Mitigation Incorporation	Less Than Significant Impact	No Impact	

hydrocarbons in groundwater. Unwanted migration will be address with Mitigation Measures #1 and #2 (seeVII. B).

There are no domestic wells at the project location. There are domestic wells in the area of the project. Domestic wells are not known to have been impacted by groundwater contamination at the project site. Monitoring requirements, including monitoring of observation wells, and mitigation measures, such as implementation of the migration contingency plan if surfactant or a significant increase in petroleum hydrocarbon is observed, are protective of water quality of groundwater outside the project area and nearby domestic wells.

g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

The project does not included residential development (1).
The project is not located with in a 100-year flood hazard area (20)

h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?

The project does not include the construction of any structures (1).
The project is not located within a 100-year flood hazard (20).

i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

People on the project site will not be exposed to flooding or the failure of a levee or dam (1).

j) Inundation by seiche, tsunami, or mudflow?

The project site is not subject to seiche, tsunami, or mudflow (1)

IX. LAND USE AND PLANNING - Would the project:

a) Physically divide an established community?

The project will not divide a community (1).

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project

	Less Than Significant			
Potentially Significant Impact	With Mitigation Incorporation	Less Than Significant Impact	No Impact	

(including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

The project will not conflict with any applicable land use plan, policy, or regulation (1, 7).

c) Conflict with any applicable habitat conservation plan or natural community conservation plan?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The project will not conflict with any applicable habitat conservation plan or natural community conservation plan (8, 9).

X. MINERAL RESOURCES -- Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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There are no know mineral resources of value at the project site (6).

b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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There are no known mineral resources of value at the project site (6)

XI. NOISE –

Would the project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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The project will not result in exposure of persons to or generation of noise levels in excess of standards. The noise from the project is limited to equipment used to inject/extract fluid, used during normal business hours for a limited number of days (1).

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The project will not generate excessive groundborne vibrations (1)

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project will not create a permanent increase in ambient noise levels. The project is proposed to be conducted over the course of a few days, once a year, for two years. (1)

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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The project will generate temporary noise above the normal level for the current property use and surrounding land use. Increase with ambient noise will be temporary and for a limited amount of time, no more than two days per event. Neighboring residents and businesses may be affected by increased noise. However, the project will be conducted in accordance with the City of Santa Rosa's noise requirements and any increase in noise levels will be temporary and limited due to the length of the project. (1, 9)

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The project is not located within an airport land use plan (12).

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The project is not located within the vicinity of a private airstrip.

XII. POPULATION AND HOUSING -- Would the project:

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The project will not have a direct or indirect effect on population (1).

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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	Less Than Significant			
	Potentially Significant Impact	With Mitigation Incorporation	Less Than Significant Impact	No Impact

No housing will be displaced by the project (1)

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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No people will be displaced by the project (1)

XIII. PUBLIC SERVICES

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Fire protection?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Police protection?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Schools?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Parks?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Other public facilities?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The project does not involve the increase in infrastructure and therefore will not have an impact to the increased need for public services (1).

XIV. RECREATION –

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The project will not increase the use of existing neighborhood, regional parks, or any other recreational facilities (1).

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The project does not include recreational facilities or require the construction or expansion of such facilities (1)

	Less Than Significant			
Potentially Significant Impact	With Mitigation Incorporation	Less Than Significant Impact	No Impact	

XV. TRANSPORTATION/TRAFFIC -- Would the project:

a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)
The project will not cause a substantial increase in traffic (1).

b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The project will not exceed a level of service standard for designated roads or highways.

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The project will not cause a change in air traffic patterns, including either an increase in traffic levels or a change in the location that results in substantial safety risks (1).

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The project will not include hazardous design features or incompatible uses (1)

e) Result in inadequate emergency access?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The project will not result in inadequate emergency access (1)

f) Result in inadequate parking capacity?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The project will not result in inadequate parking (1)

g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The project will not conflict with adopted policies, plans or programs supporting alternative transportation (1)

	Less Than Significant			
Potentially Significant Impact	With Mitigation Incorporation	Less Than Significant Impact	No Impact	

XVI. UTILITIES AND SERVICE SYSTEMS –

Would the project:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

This project will not involve the use of a waste water treatment facility (1).

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

The project will not result in the construction of new water or wastewater treatment facilities or expansion of such facilities (1).

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

The project will not require the construction of new storm water drainage facilities or expansion of such facilities (1)

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

The project does not include the need for new or expanded water supply (1)

e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

The project will not need to be served by the local wastewater treatment facility (1)

f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

The amount of waste generated during the project will be less than 5,000 gallons, per extraction event. The project location has ample room to store the amount of waste generated during the project. All waste generated during

	Less Than Significant			
Potentially Significant Impact	With Mitigation Incorporation	Less Than Significant Impact	No Impact	

the project will be disposed of at Chem Waste Management in Kettleman Hills, California, or other permitted facility (14).

g) Comply with federal, state, and local statutes and regulations related to solid waste?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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All proposed disposal methods are in compliance with all regulations related to solid waste (14).

XVII. MANDATORY FINDINGS OF SIGNIFICANCE –

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The use of surfactant to remove separate phase hydrocarbons, when viewed along with the other site activities, including other past soil and groundwater cleanup activities, and probable future cleanup activities, generates no significant cumulative impacts.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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1. Regional Water Board staff evaluation based on review of the project and project description.
2. California Scenic Highway Mapping System.
3. Regional Water Board staff evaluation of impact based on past experience.
4. Bay Area Air Quality Management Districts, 2000 Clean Air Plan.
5. Material Safety Data Sheet, Gold Crew Release, January 1, 2006
6. Regional Water Board files, Redwood Oil/Chevron Bulk Plant, site record file, Volumes 1 through 8 and Correspondence Records 1 through 7.
7. City of Santa Rosa, General Plan
8. Santa Rosa Plain Conservation Strategy Team, Santa Rosa Plain Conservation Strategy-December 1, 2005.
9. Sonoma County Water Agency, Water Conservation Plan
10. City of Santa Rosa Historic Preservation Program
11. Soil Survey for Sonoma County
12. Sonoma County Airport-Master Plan
13. Consetoga-Rovers, Interim Remedial Action Plan, August 6, 2007
14. Consetoga-Rovers, Interim Remedial Action Plan Addendum, October 1, 2007
15. Consetoga-Rovers, Additional Information for Report of Waste Discharge, April 24, 2008
16. California Environmental Protection Agency, Cortese List Data Resource
17. City of Santa Rosa GIS Maps On-line.
18. City of Santa Rosa, Emergency Operations Plan
19. Draft Waste Discharge Requirements Order No. R1-2008-0099
20. FEMA maps
21. Sonoma County Zoning Code, Article 67, VOH Valley Oak Habitat Combining District
22. Strbak, Lauryn, In Situ Flushing with Surfactants and Cosolvents, Washington D.C., July 2000.
23. ITRC (Interstate Technology & Regulatory Council). 2003 Technical and Regulatory Guidance for Surfactant/Cosolvent Flushing of DNAPL Source Zones. DNAPLs-3. Washington D.C.:ITRC, DNAPLs Team.