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TRANSMITTAL

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Department of Environmental Health
1131 Harbor Bay Parkway, Room 250
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DATE: December 20, 2000
PROJ.#: 345178.03
SUBJECT: Former Chevron #9-1723
9575 San Leandro Avenue
Oakland, California

FROM:
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COMMENTS:

We are sending this report at the request of Chevron. Please call us [redacted] have questions.

cc: Mr. Thomas Bauhs, Chevron Products Company, P.O. Box 6004, San Ramon, CA 94583
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Revised RMP sent + rec'd 1/18/01

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RISK MANAGEMENT PLAN

Former Chevron Service Station #9-1723
9757 San Leandro Avenue
Oakland, California

GR Report No. 345178.03-1
Delta Project No. DG91-723

Prepared for:

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December 20, 2000

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APPENDIXES

1.0 INTRODUCTION

A corrective action evaluation was done for the site of the Former Chevron Service Station #9-1723 located at 9757 San Leandro Street, Oakland, California. The evaluation was completed on behalf of Chevron Products Company by Chevron Research and Technology Company (CRTC), presented in a document titled *Risk-Based Corrective Action (RBCA) Summary Report, Tier 2 RBCA Evaluation,* and by Cambria Environmental Technology, Inc., presented in a document titled *Tier 2 RBCA Analysis and Closure Request.* Copies of theses documents are included in Appendix A.

This document provides the Risk Management Plan (RMP) for the site as well as an example health and safety plan. In Section 2, the compounds of concern (COCs), risk, and sources of risk are summarized. In Section 3, risk management measures are developed. The RBCA evaluation that serves as a basis for this work is given in Appendix A, and figures showing the site location and relevant site features are provided in Appendix B. Appendix C contains the example health and safety plan.

2.0 RISK SUMMARY

2.1 Data

Data considered in preparing this RMP were summarized by Delta Environmental Consultants, Inc./Network Associate Gettler-Ryan Inc. (GR) from CRTC's document titled *RBCA Summary Report, Tier 2 RBCA Site Evaluation* and Cambria Environmental Technology, Inc.'s *Tier 2 RBCA Analysis and Closure Request.* Figures showing the hydrocarbon-affected areas are provided in Appendix B. Observations regarding the data are listed below.

- The highest hydrocarbon concentrations detected in soil samples were 1,800 parts per million (ppm) of TPHg and 99 ppm of benzene. These samples were collected in the vicinity of the former underground storage tanks (USTs), which have been removed. The vertical and lateral extent of hydrocarbons in unsaturated soil has been well defined by the soil borings drilled around the former UST pit and across the site. Therefore, hydrocarbon impact to soil has been adequately delineated.

- Soil vapor samples were collected from six vapor borings in 1997. Benzene was detected in all soil vapor samples collected from borings SV-1 through SV-6. Borings SV-5 and SV-6 were advanced adjacent to borings SV-1 and SV-2. The highest benzene concentration reported was 100,000 parts per billion by volume (ppbv) in the soil vapor sample collected at five feet below ground surface (bgs) from boring SV-5. However, the benzene soil vapor concentration at 5 feet bgs from adjacent boring SV-1 was 410 ppbv, and the benzene concentrations in two samples collected at 3 feet bgs from boring SV-1 were 96 an94 ppbv. Therefore, the sample collected from boring SV-5 appears to be anomalous. Borings S-1, SV-2, SV-5 and SV-6 were advanced in the locations of the former USTs.

- Groundwater has been gauged and analyzed quarterly since November 1993. Total Petroleum Hydrocarbons as gasoline (TPHg) and benzene have been detected in site wells in steadily decreasing concentrations over this time, indicating a stable and decreasing plume.

- In May 1996, Fluor Daniel GTI conducted a survey of water wells immediately southwest of the site. Two wells, P2 and P3, were identified within 250 feet downgradient (west) of the site. Both were identified as being used for industrial purposes. With the exception of one suspect detection, no hydrocarbons have been detected in off-site monitoring wells MW-9 since its installation in November 1993. Well MW-9 is located about 200 feet downgradient of the source area (former USTs) in the vicinity of well P-2.

- Hydrocarbons have been detected in off-site monitoring well MW-2 and site perimeter monitoring well MW-6, which is also located downgradient of the site. However, TPHg and benzene concentrations have been less than 400 and 20 ppb, respectively. Based on these data and the deep screen interval of the industrial supply well, it is not likely that an off-site water supply well would have been impacted by the hydrocarbons beneath the site. While hydrocarbons have generally detected at low concentrations in wells MW-2, MW-5, MW-6, MW-8 and MW-9, the trend has been a decreasing one.

2.2 Risk Summary

Risks at the site were evaluated by Chevron using Groundwater Services, Inc.'s RBCA Spreadsheet (version 1.0), based on American Society for Testing and Materials (ASTM) Standard E1739 for Risk-Based Corrective Action at Petroleum Release Sites (Appendix C). Risks identified by this evaluation are summarized:

- The RBCA evaluation performed by CRTC indicate that BTEX compounds in groundwater beneath the site do not pose a significant risk to occupants of an on-site building.

- Historical BTEX concentrations in soil exceeded the SSTL calculated by CRTC's analysis. However, soil vapor data collected at the site in October 1997 by Cambria indicated that benzene volatilization from groundwater to indoor air, intrusion of benzene to soil vapor to outdoor air, and intrusion of benzene in soil vapor to indoor air indicated that site-specific source concentrations are less than the SSTL.

- Based on information available in March 1997, CRTC's analysis indicated no complete human or ecological exposure pathways.

Possible scenarios associated with public health and safety concerns include:

- Construction workers engaged in subsurface piping at the site could be exposed to hydrocarbon-impacted groundwater if excavations intersect the water table;

what about exposure to HC-impacted soil at 5'bgs - 8 to 3.7ppm benz

- Construction dewatering could take place at or near the site. Untreated groundwater could be inadvertently discharged to the street;

- A groundwater extraction well could be installed for the purpose of providing an irrigation supply. Residents at the site could be exposed to untreated groundwater, or the irrigation well could act as a conduit to a deeper groundwater supplies;

- Saturated soil excavated from the site as a result of construction activities could be used as fill for landscaping. Workers and residents could be exposed to the soil and/or vapor from soil containing impacted groundwater;

- If construction excavations are deep enough to intersect the water table, atmospheric conditions, such as pressure and temperature, could create a situation where vapor phase hydrocarbons accumulate at the bottom of a trench or excavation. Workers might then be exposed to vapor phase hydrocarbons, or the mixture of air and vapor phase hydrocarbons could reach the lower explosive limit, and an ignition source could cause a fire or explosion.

Several factors suggest that the scenarios listed above have a low probability of taking place; nevertheless, the least probable event must be considered in the effort to protect public health and safety.

3.0 RISK MANAGEMENT

In the previous section, data were reviewed, risks were summarized, and possible public health and safety scenarios were identified. Risk management concerns controlling the identified risks, to the extent that all possible risks were identified. Although petroleum hydrocarbon impact at the site is characterized according to specific source areas, there is a chance that records identifying the locations of source areas may be lost or misplaced. As such, risk management measures should apply to the entire site. Below, risk management measures are recommended along with justification for each measure.

1. The ACEHS shall be notified before any general construction takes place at the site where soil and/or groundwater might be handled. This measure will assure that aspects of any construction project for the site are reviewed in light of the fact that residual hydrocarbons have been left in-place at the site.

2. The ACEHS shall be consulted for approval regarding uses or disposal of soils from the site. This measure is meant to place controls on the use or disposal of soils from the site that may contain petroleum hydrocarbons.

3. The ACEHS shall be consulted for approval regarding construction dewatering at the site. The purpose of this measure is to assure extracted groundwater is handled properly given the potential that it may be impacted with petroleum hydrocarbons.

4. Groundwater from beneath the site shall not be used for any purpose unless approved by the ~~ACHES~~ ACEHS. This measure will assure that any proposed uses are reviewed by the appropriate regulating authority.

5. Wells shall not be installed at the site unless approved by the ~~ACHES~~ ACEHS. The purpose of this measure is to mitigate the possibility that vertical conduits to deeper groundwater sources are introduced at the site.

6. If the site is redeveloped, ~~ACHES~~ ACEHS will be notified if contamination is encountered. If redevelopment includes construction of residential property, the future owners or residents will be notified of the contamination encountered.

7. If necessary, dust control measure shall be used during grading or excavation activities at the site. A contingency plan for such measures shall be included in site development plans reviewed by the ~~ACHES~~. ACEHS

8. The atmosphere in trenches and/or excavations at the site deeper than 2 feet below grade surface shall be monitored using a flame ionization or photo-ionization detector before manual work in the trenches and/or excavation begins. This activity shall happen each day work is to take place in trenches and/or excavations. Monitoring shall occur once in the morning and once in the afternoon, and records shall be kept. Conditions under which work shall stop and mitigation measure take place shall be considered in the site health and safety plan (see Appendix C for example). This measure is meant to protect workers from inhalation risk.

9. The atmosphere in trenches and/or excavations at the site deeper than 2 feet below grade surface shall be monitored for an explosive atmosphere each day work is to take place in trenches and/or excavations. Monitoring shall occur in the morning prior to beginning work and at other times when conditions might be conducive to the formation of explosive atmospheres (e.g. hot afternoons on sunny days). Monitoring records shall be kept. Mitigation measures shall take place (e.g.; ventilate trenches and/or excavation) if it is noted that an explosive atmosphere exists. A contingency plan for such measures shall be included in site development plans reviewed by the ~~ACHES~~. The purpose of this measure is to mitigate the potential for fire/explosion. ACEHS

10. Records for the site, including investigative reports and the attached RBCA analyses, shall be kept on file with the ~~ACHES~~. Proper documentation can help all parties control potential risks associated with the site. ACEHS | at Oakland OES and w/ Oakland Permit Tracking System

4.0 LIMITATIONS

Evaluations of the geological conditions at the site that serve as a basis for this RMP are inherently limited due to the limited number of observation points. There may be variations in subsurface conditions in areas away from the sample points. There are no representations, warranties, or guarantees that the points selected for sampling are representative of the entire site. The recommendations provided herein reflect the sample conditions at specific locations at a specific point in time. No other interpretations, representations, warranties, guarantees, express or implied, are included or intended in this RMP. Additional work, including further subsurface investigation, might reduce the inherent uncertainties associated with this RMP.