



PACIFIC
ENVIRONMENTAL
GROUP, INC.

May 24, 1995
Project 330-006.3B

Ms. Amy Leech
Department of Environmental Health
Environmental Protection Division
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Re: Follow-up to May 9, 1995 Meeting
ARCO Service Station 0608
17601 Hesperian Boulevard
San Lorenzo, California

ENVIRONMENTAL
PROTECTION
DIVISION
MAY 25 PM 2:22

Dear Ms. Leech:

This letter is a follow-up to the meeting conducted on May 9, 1995, between Alameda County Health Care Services Agency (ACHCSA), Regional Water Quality Control Board, (RWQCB), ARCO Products Company (ARCO), and Pacific Environmental Group, Inc. (PACIFIC). PACIFIC has prepared this letter on behalf of ARCO, to (1) transmit the minutes of the subject meeting, and (2) to inform you of upcoming activities at the site.

MINUTES

The minutes of the May 9, 1995 meeting are attached; please review them to be sure that we have accurately identified and reported the discussion items and agreements from the meeting.

UPCOMING SITE ACTIVITIES

As discussed at the meeting, all parties are eager to move ahead with an enhanced bioremediation approach in the area of Wells MW-8 and MW-10. In order to proceed quickly, this letter presents a brief description of work proposed for the next few weeks.

PACIFIC proposes to conduct the second quarter 1995 groundwater monitoring during the week of May 30 to June 2, 1995. This accelerated schedule will allow collection of data pertinent to consideration of various methods of enhancing biodegradation of hydrocarbons in the groundwater.

For this sampling event, in addition to the routine analyses for TPH-g and BTEX compounds, we propose to conduct field analysis for dissolved oxygen, bisulfide, oxygen-reduction potential, ferrous iron, pH, conductivity, temperature, and turbidity at all wells to be sampled. These analyses will be conducted using Hach Chemical Company field kits, and a flow-through cell equipped with probes. The dissolved oxygen is determined by conducting a modified Winkler titration, other analyses are conducted by colorimetric methods, and still others are performed by direct-reading instruments.

The purpose of performing these additional analyses is to obtain baseline data on these parameters, which are indicative of biodegradation activities. Once this data is collected, we will be able to better determine whether oxygen levels or perhaps some other nutrients are present in quantities sufficient to promote biodegradation of hydrocarbons. Based on this information, we can proceed to recommend one or more methods of enhancing the bioremediation of hydrocarbons in the area of Wells MW-8 and MW-10.

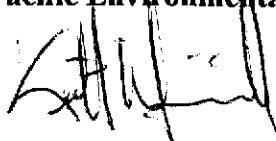
PACIFIC also proposes to submit a workplan for enhancing the bioremediation of dissolved hydrocarbons. The workplan will present the results of the baseline biodegradation study conducted between May 30 and June 2, 1995, and will propose a biodegradation monitoring program and evaluation criteria to measure the effectiveness of enhancing biodegradation.

As described in the attached minutes, PACIFIC will also submit revisions to the Remedial Investigation/Feasibility Study (RI/FS) and additional risk assessment information with the workplan, for your approval. PACIFIC anticipates that this workplan and RI/FS supplemental information could be submitted to ACHCSA by June 28, 1995. Following ACHCSA approval of the supplemental information, PACIFIC would issue the revised and approved RI/FS in its entirety.

Please call us if you need additional information prior to our sampling event. We hope to gain your approval to conduct these additional analyses before beginning to sample. Thank you for your assistance on this project.

Sincerely,

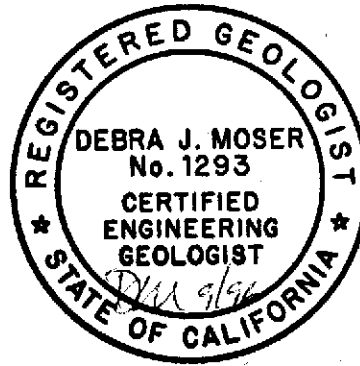
Pacific Environmental Group, Inc.



Keith Winemiller
Project Engineer



Debra J. Moser
Project Manager
CEG 1293



Attachments: May 9, 1995 Meeting Minutes

cc: Mr. Michael Whelan, ARCO
Mr. Chris Winsor, ARCO
Ms. Juliet Shin, ACHCSA
Ms. Susan Hugo, ACHCSA
Mr. Kevin Graves, Regional Water Quality Control Board (RWQCB)
Dr. Ravi Arulanantham, RWQCB

ATTACHMENT

MAY 9, 1995 MEETING MINUTES



PACIFIC
ENVIRONMENTAL
GROUP, INC.

May 24, 1995
Project 330-006.3B

MEMORANDUM

To: Mr. Michael Whelan, ARCO Products Company (ARCO)

cc: Ms. Amy Leech, Alameda County Health Care Services Agency (ACHCSA)
Ms. Juliet Shin, ACHCSA
Ms. Susan Hugo, ACHCSA
Mr. Kevin Graves, Regional Water Quality Control Board (RWQCB)
Dr. Ravi Arulanantham, RWQCB
Mr. Chris Winsor, ARCO

From: Debra Moser, Pacific Environmental Group, Inc. (PACIFIC)

Subject: Meeting Minutes, May 9, 1995
ARCO Service Station 0608
17601 Hesperian Boulevard
San Lorenzo, California

This memorandum summarizes the main topics of the meeting conducted between ACHCSA, RWQCB, ARCO, and PACIFIC on May 9, 1995. The purpose of the meeting was (1) to resolve issues and questions regarding the Remedial Investigation/Feasibility Study (RI/FS) submitted for the subject site in November 1994, and (2) to gain approval, if possible, for the RI/FS. The attendees included Ms. Amy Leech, Ms. Juliet Shin, and Ms. Susan Hugo of ACHCSA, Mr. Kevin Graves and Dr. Ravi Arulanantham of RWQCB, Mr. Michael Whelan of ARCO, and Mr. Keith Winemiller, Dr. Cleve Solomon, and Ms. Debra Moser of PACIFIC. The main topics discussed and subsequent action items (*in italics*) are summarized below. A copy of the meeting agenda is attached.

BIODEGRADATION

The representatives of ACHCSA and RWQCB expressed some concern that biodegradation was proceeding slowly in the portion of the hydrocarbon plume encompassing monitoring wells MW-8 and MW-10. Hydrocarbon concentrations would have been expected to decline more than has been observed, based on the fate and transport model prepared as part of the RI/FS. In view of site logistics and the difficulty of implementing aggressive remedial efforts in this area, Mr. Graves suggested a "non-intrusive, active, enhanced bioremediation" approach. All parties agreed that oxygen-releasing compounds (ORC's) or other nutrient enhancements may accelerate biodegradation, and may be applicable to the area of concern.

PACIFIC will prepare a workplan that will address use of ORC's or other nutrient enhancements in the vicinity of Wells MW-8 and MW-10. The workplan will include collection of baseline data, specification of what nutrient enhancement is recommended, and a monitoring plan to determine the efficacy of the nutrient enhancement in reducing hydrocarbon concentrations in groundwater. The workplan can be brief, as the main interest of the parties is to move ahead with enhanced biodegradation as quickly as possible.

If implementation of this approach is successful at reducing hydrocarbon concentrations, PACIFIC and ARCO may request that ACHCSA and RWQCB consider approval to terminate groundwater extraction.

Mr. Whelan explained that the site area could be considered as three subareas, each with a different remedial approach. The first subarea is on the service station site itself, where source reduction has been accomplished and migration control via groundwater extraction is underway. The second subarea is that of Wells MW-8 and MW-10, where a non-intrusive, active, enhanced biodegradation approach may be utilized to address remaining hydrocarbons in the groundwater. The third subarea is the downgradient area which includes the domestic irrigation wells. While hydrocarbon concentrations in this third area have declined significantly, the area should be monitored for risk, and carefully evaluated prior to determining that those private wells can be pumped again. This view of the site area was generally accepted by the attendees.

ADDITIONAL RISK ASSESSMENT

Mr. Winemiller presented the results of the additional risk assessment, which considered the potential additional exposure to benzene vapors via vapor migration into residences. The total health risk including this additional exposure pathway was calculated at less than 1×10^{-6} , using March 1993 hydrocarbon concentrations. Dr. Arulanantham mentioned that RWQCB is now using an acceptable risk guideline of 10^{-5} . Dr. Arulanantham indicated his approval of the additional risk assessment.

PACIFIC will submit the additional risk assessment calculations as an addendum to the RI/FS.

Later in the meeting, Mr. Winemiller introduced the topic of whether to use rolling averages or a similar approach to future risk calculations. The approach will be proposed in the Groundwater Management Plan. (See discussion below.)

Mr. Winemiller and Dr. Arulanantham will discuss use of rolling averages in future telephone discussions. They will agree on an approach prior to preparation of the Groundwater Management Plan.

GROUNDWATER MANAGEMENT PLAN

The attendees agreed that the Groundwater Management Plan would not be required prior to RI/FS approval, but that the RI/FS approval would be contingent upon ACHCSA acceptance of a Groundwater Management Plan. ACHCSA will require preparation of a Groundwater Management Plan.

As currently envisioned, the Groundwater Management Plan will specify monitoring in all wells for a period of time, after which certain wells could be removed from the monitoring program if they showed non-detectable concentrations of hydrocarbons for a period of time. The Plan also will address future pumping of domestic irrigation wells. If and when the domestic irrigation wells could be pumped, they would also be monitored for health protection and to determine potential effects of pumping on the hydrocarbon plume. If hydrocarbon concentrations increased to levels which indicate potentially unacceptable health risk, pumping could be suspended or other measures, such as wellhead treatment, could be implemented. Further, if pumping were found to accelerate the spread of hydrocarbons, it would be suspended again. PACIFIC and ARCO expressed confidence that the well owners who currently cooperate with our investigation would likely continue to cooperate under a Groundwater Management Plan.

PACIFIC and ARCO will prepare and submit Groundwater Management Plan after approval of RI/FS is granted.

DOMESTIC IRRIGATION WELLS

Ms. Moser explained that most of the well owners have agreed to not pump their domestic irrigation wells through 1995, and identified those who have refused to stop pumping. This arrangement for 1995 allows more time to complete the actions necessary to gain RI/FS approval.

If and when the domestic irrigation wells can be allowed to pump, they will be subject to monitoring under the Groundwater Management Plan, as described above.

PACIFIC will revise Alternative #2 in the RI/FS, to reflect additional consideration of allowing domestic irrigation wells to be operated, and to preview the recommended monitoring.

Various approaches to community notification were discussed. In general, it was agreed that notification could be accomplished via mass mailing, possibly followed by door-to-door canvassing. A community meeting would be held if requested by the community.

ARCO and PACIFIC will review which community residents should be included in the notification process. The fact sheet and associated materials to be mailed will be reviewed by ACHCSA and RWQCB prior to mailing.

SUMMARY

The parties agreed that the subjects discussed in this meeting should be reflected in the RI/FS.

ARCO and PACIFIC will prepare and submit a workplan addressing the following:

- *Alternative #2 revisions to address non-intrusive, enhanced bioremediation in the area of MW-8 and MW-10,*
- *Presentation of the additional risk assessment data approved at this meeting,*
- *Criteria for reactivating domestic irrigation wells, and*
- *Community notification.*

After these items are approved by ACHCSA, they will be incorporated into a revision to the RI/FS.