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# TRANSMITTAL

**TO:** Mr. Eddy So  
RWQCB, San Francisco Bay Region  
2101 Webster Street, Suite 500  
Oakland, California 94612

**DATE:** December 17, 1992  
**PROJECT NUMBER:** 61078.02  
**SUBJECT:** Remediation Schedules for  
ARCO Sites in Alameda County, CA

**FROM:** Joel Coffman  
**TITLE:** Project Geologist

**WE ARE SENDING YOU:**

COPIES	DATED	NO.	DESCRIPTION
1	12/17/92	61078.02	Remediation Schedules.

**THESE ARE TRANSMITTED** as checked below:

- For review and comment     Approved as submitted     Resubmit \_\_\_ copies for approval  
 As requested     Approved as noted     Submit \_\_\_ copies for distribution  
 For approval     Return for corrections     Return \_\_\_ corrected prints  
 For your files

**REMARKS:** cc: Ms. Susan Hugo, Alameda County Health Care Services Agency  
Mr. Hugh Murphy, City of Hayward Fire Department  
Mr. Michael Whelan, ARCO  
Mr. John Meck, ARCO Legal  
Mr. Chris Winsor, ARCO

**Copies:** 1 to RESNA project file no. 61078.02

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December 17, 1992  
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Mr. Eddy So  
Regional Water Quality Control Board  
San Francisco Bay Region  
2101 Webster Street, Suite 500  
Oakland, California 94612

**Subject: Remediation Schedules for ARCO Sites in Alameda County, California.**

Dear Mr. So:

On behalf of ARCO Products Company (ARCO), and as you requested in the meeting held on November 19, 1992 at the Alameda County Health Care Services Agency (ACHCSA), RESNA has prepared these estimated schedules for remediation of sites under your regulatory oversight. These include ARCO Stations 362 and 1319 in Hayward, California, and ARCO Stations 771 and 6113 in Livermore, California.

The darkened lines on the schedules represent deadlines which were agreed upon during the November 19, 1992 meeting. The hatched lines represent our best guess estimates of times which may be required to complete tasks should unforeseen delays occur. These unforeseen delays include permitting issues, offsite access issues, and estimated times of operation of the respective remediation systems.

If you have any questions or comments, please contact us at (408) 264-7723 or Mr. Michael Whelan of ARCO at (415) 571-2449.

Sincerely,  
RESNA Industries Inc.

  
Joel Coffman  
Project Manager

cc: Ms. Susan Hugo, ACHCSA

ACTIVITIES	1993												1994												1995												1996											
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
1) Onsite Subsurface Investigation	COMPLETE																																															
1a) Aquifer Testing	██████████																																															
2) Offsite Groundwater Investigation	██████████																																															
3) Additional On and Offsite Investigation	██████████																																															
4) Remedial Action Plan	██████████																																															
5) Preliminary and Detailed Engineering Design	██████████																																															
6) Soil and Groundwater Remediation Permitting	██████████												██████████																																			
7) Equipment Selection and Procurement (including Bld Package Preparation and Selection)													██████████																																			
8) System Construction and Startup: Soil and Groundwater													██████████																																			
9) Soil Remediation System Operation and Maintenance (1 year)													██████████												██████████																							
9a) Groundwater Remediation System: Operation and Maintenance (3 to 6 years)													██████████												██████████												██████████ to 1998-1999											
10) Performance Evaluation													██████████																																			
11) System Shut Down: Soil Remediation																									██████████																							
12) System Shut Down: Groundwater Remediation (Begin One Year Verification Monitoring)																																					System shut down predicted for 1998-1999											
13) Site Closure: Soil and Groundwater (1 year)																																					Site closure predicted for 2000-2001											
<b>EXPLANATION:</b>	██████████ Probable schedule based on current deadlines and reasonable time necessary to complete the task. Assumes no delays.												██████████												Estimated schedule based on consultant's experience, on receiving regulatory and other approval on time, and based on other related work being completed.																							

- 1) Onsite Subsurface Investigation:**  
 \* Two initial phases onsite investigation completed prior to 1992.
- 1a) Aquifer Testing:**  
 \* Work Plan including proposed aquifer testing to be submitted to ACHCSA and RWQCB by January 1, 1993.  
 \* Report, including results of aquifer testing, additional onsite and initial offsite investigations due to ACHCSA and RWQCB by April 15, 1993.
- 2) Offsite Groundwater Investigation:**  
 \* Work Plan including initial offsite investigation to be submitted to ACHCSA and RWQCB by January 1, 1993.  
 \* Assumes no delays in gaining offsite access or encroachment permits. Such delays are common and schedule may change.
- 3) Additional Onsite Investigation:**  
 \* Report of additional onsite investigation including vapor extraction test results to be submitted by Christmas 1992.  
 \* Work plan for additional work at the site to be submitted to the ACHCSA and RWQCB by January 1, 1993.
- 4) Remedial Action Plan:**  
 \* Completion of offsite investigation will not affect remediation schedule.  
 \* RAP due to ACHCSA by May 15, 1993.
- 5) Preliminary and Detailed Engineering Design:**  
 \* Assumes no RAP revisions are necessary.  
 \* Assumes no changes to design after regulatory comments.  
 \* Design to be completed by July 15, 1993.

- 6) Groundwater Remediation Permitting:**  
 \* Assumes no design changes will make additional permitting necessary, including modification of treatment system.  
 \* Permitting completed by November 1, 1993.  
 \* Also assumes no special regulatory agency, city committee, or other entity places special permitting requirements on this project.  
 \* Assumptions concerning groundwater remediation are being made prior to performance of aquifer test at the site. Therefore, schedule pertaining to groundwater remediation may not reflect actual conditions and circumstances.
- 7) Equipment Selection and Procurement:**  
 \* Assumes all equipment is available from stock and can be obtained within 4 to 6 weeks.  
 \* Assumes selected equipment will be approved by ACHCSA and other regulatory agencies in a timely manner.  
 \* Bids will be evaluated and contract will be awarded by August 30, 1993.  
 \* Equipment will be received by November 1, 1993.
- 8) System Construction and Startup:**  
 \* Assumes no delays due to weather.  
 \* Assumes no delays due to negotiation with property owners.  
 \* Assumes no delays due to other contractors performing work onsite.  
 \* Assumes no delays due to utility installation.  
 \* Assumes no delays due to special permitting requirements.  
 \* Construction to begin by November 1, 1993.  
 \* System startup to begin by February 1, 1994.
- 9 and 9a) Remediation Systems Operation and Maintenance:**  
 \* It is anticipated that soil remediation can be completed in 1 year.  
 \* It is anticipated that groundwater remediation can be completed in 3 to 6 years.

- \* Assumes that it is technically feasible to achieve cleanup levels.  
 \* Assumes no offsite remediation will be necessary.  
 \* Assumes no significant equipment breakdowns.
- 10) Performance Evaluation:**  
 \* Evaluation shows that system will effectively remove hydrocarbons from soil and groundwater impacted areas and will reduce concentrations significantly over time.  
 \* Evaluation shows that additional vapor and groundwater extraction wells are not required to effectively remediate impacted areas once the treatment system is operational.  
 \* Performance evaluation to be completed by August to October 1994.
- 11) System Shut Down: Soil Remediation System:**  
 \* Cleanup will be completed in approximately 1 year.  
 \* Soil remediation system expected to be shut down by May to July 1995.
- 12) System Shut Down: Groundwater Remediation System:**  
 \* Cleanup will be completed approximately 3 to 6 years after startup.  
 \* Only one year of verification groundwater monitoring will be required before site closure can be initiated.  
 \* Groundwater remediation system expected to be shut down sometime in 1998 or 1999.
- 13) Site Closure: Soil and Groundwater:**  
 \* Requirements for soil closure involve only drilling of confirmation borings and performance evaluation at time of system shut down.  
 \* Requirements for groundwater closure involve only groundwater monitoring and performance evaluation at system shutoff.  
 \* Closure dependent on agency concurrence within 1 year following completion of verification monitoring.  
 \* Assumes no risk assessment will be necessary.



**ESTIMATED SOIL AND GROUNDWATER REMEDIATION IMPLEMENTATION SCHEDULE**  
**ARCO Station 6113**  
**785 East Stanley Boulevard**  
**Livermore, California**

**PLATE**  
**A**