HYDRO ENVIRONMENTAL TECHNOLOGIES, INC.

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July 7, 1994 7-278

Ms. Juliet Shin
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

Subject: E-Z Serve Site No. 100877, 525 West A Street, Hayward

Dear Ms. Shin:

Following our meeting with you on June 21, E-Z Serve Management Company (E-Z Serve) and Hydro-Environmental Technologies, Inc. (HETI) met to discuss appropriate activities which would address your concerns and move this project to completion.

E-Z Serve agrees that plume delineation and ground water remediation are required in the area of the subject site and has proposed in the work plan submitted to you on June 21 to move that process forward. After our discussion, we wish to expand our work plan to include the following:

- Expand the extent of our investigation using ground water probes. The intent of using ground water probes in our work plan is based on our lack of information to indicate the extent of the dissolved hydrocarbon plume. Rather than guessing the possible extent and installing monitoring wells which may or may not define the edge of the plume, we would use probes to tentatively define the extent of the plume and install monitoring wells at those locations to confirm and monitor the extent.

  We had originally decided to limit our use of probes in each direction to what we thought would be the possible extent of the dissolved hydrocarbon plume. In reviewing the latest ground water sampling data, we have decided to use field immunoassay methods to determine if the extent of our investigation is sufficient.

We intend to drive the ground water probes to the ground water and collect a ground water sample as described in our work plan. Each discreet ground water sample would be laboratory analyzed for total petroleum hydrocarbons as gasoline (TPHg) and benzene, toluene, ethylbenzene and the xylenes (BTEX). These analytical results would be used to plot a graph of concentration as a function of distance. This graph would be used to estimate the extent of dissolved hydrocarbons and allow us to decide on appropriate monitoring well locations.

In addition to the above sampling, every third sample point would be screened in the field to determine if the hydrocarbon concentration exceeds a set value. Immunoassay methods (supplied by Millipore® and others) use rabbit polyclonal antibodies to detect petroleum hydrocarbons. The test kits are calibrated so that a technician can determine with a high degree of precision if the hydrocarbon concentration in a sample exceeds the calibration value. If the concentration exceeds the preselected value, we would continue to step outward in our investigation.

- In conjunction with driving probes to define the extent of dissolved hydrocarbons in ground water, the same or similar probes would be used to determine the concentration of benzene and toluene in the shallow vadose zone vapors. Samples of soil gas at depths of two to three feet would be collected to determine if there is an inhalation risk to surrounding residents.

- To mitigate further impact to the ground water, HETI proposes to implement air sparging as proposed in our *Remedial Investigation Report* of March 1, 1994. Permitting, procurement, installation and startup of this interim remediation system would occur simultaneously with the delineation of the dissolved hydrocarbon plume as shown on the attached schedule. This remediation approach would remediate hydrocarbons in the ground water on site and in the vadose zone.

  It was alleged in the June 21 meeting that hydrocarbons in the on-site soil have not been fully characterized. The proposed approach would remediate these petroleum hydrocarbons without requiring their full initial characterization. Volatile hydrocarbons would be removed to the vapor extraction system by stripping and higher molecular weight hydrocarbons would be metabolized by indigenous bacteria. The vapor phase hydrocarbons would be extracted and treated by a vapor extraction system. As discussed in your letter of March 25, 1994, soil confirmation borings would be drilled to verify that the soil had been remediated prior to closure.

- If acceptable to the property owner abutting the site to the west, two additional monitoring wells would be installed next to the property boundary. These wells, in conjunction with monitoring wells MW-1 and MW-2, would be used to monitor if dissolved hydrocarbons were being driven in a horizontal direction off site during air sparging and vapor extraction.

  We would install pressure transducers in the bottom of the wells to monitor the ground water gradient. These pressure transducers would be connected to a data logger which would record this data. The data would be downloaded to a spreadsheet program weekly for analysis. By measuring the submerged pressure rather than the ground water surface elevation, changes in density which may be significant due to two phase (air/water) mixtures in the ground water would be considered.

  If the ground water gradient monitoring indicates that hydrocarbons are being driven horizontally off site, air sparging would be suspended until a ground water extraction system for migration control is installed. Because we are not ready to absolutely rule out an off-site source of dissolved hydrocarbons, we do not want to extract ground water unless necessary.

- Based on the expected results of the dissolved hydrocarbon plume definition, off-site ground water remediation is likely. We envision two potential scenarios:

  1) Off-site ground water extraction with on-site treatment and discharge of the treated ground water to the storm drain under a National Pollution Discharge Elimination System (NPDES) permit. We have included this option in our proposed schedule to account for the time it may require to obtain the NPDES permit.

  2) Off-site air sparging and vapor extraction using on-site equipment and vapor treatment. This method would likely result in a more aggressive remediation schedule, but would expand the boundary for the use of this technology.

  Either scenario would require an additional or revised air discharge permit, as we envision using air stripping as a component of ground water treatment because of the relatively large flow rate expected. The choice of scenarios would be made based on subsurface conditions and the presence or absence of additional hydrocarbon plumes.

The attached schedule shows all anticipated activities anticipated during remediation including ground water treatment system operation until January 1997. Although not shown on the schedule due to space limitations, this would be followed by a year of ground water monitoring prior to case closure. This schedule is considered very aggressive and is predicated upon prompt review and response to

permit application and other regulatory documentation as well as delivery and installation of remedial systems in keeping with our recent most timely experience. In other words, the approach shown is about as fast as can be reasonably anticipated but is included to show the steps required to reach closure. It should be understood that changes may occur as the result of findings during the currently proposed work. If the need for such changes arises, HETI and E-Z serve promptly will notify the Alameda County Department of Environmental Health of the circumstances and the impact on the overall program.

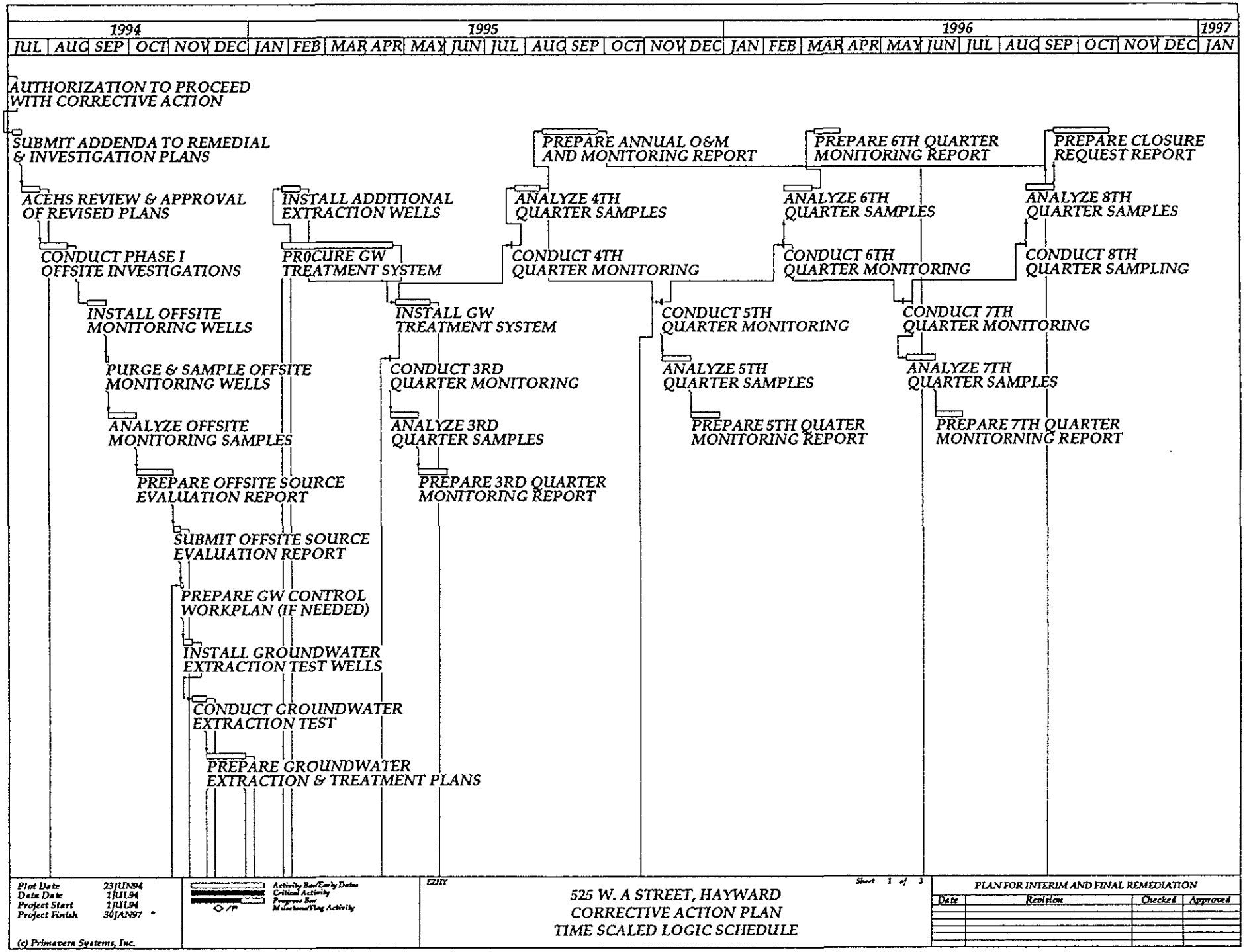
HETI and E-Z Serve hope you find the proposed program outlined here helpful. If you have any questions, please call me at (510) 521-2684.

Sincerely,
HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

John H. Turney, P.E.
Senior Engineer

Thomas E. Lindemuth, P.E.
Western Regional Manager

cc. Mr. Brian Cobb, E-Z Serve
Mr. John Reaves, Esq.
Mr. Gene Cain, Esq.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AUTHORIZATION TO PROCEED WITH CORRECTIVE ACTION
SUBMIT ADDENDA TO REMEDIAL & INVESTIGATION PLANS
ACEHS REVIEW & APPROVAL OF REVISED PLANS
CONDUCT PHASE I OFFSITE INVESTIGATIONS
INSTALL OFFSITE MONITORING WELLS
PURGE & SAMPLE OFFSITE MONITORING WELLS
ANALYZE OFFSITE MONITORING SAMPLES
PREPARE OFFSITE SOURCE EVALUATION REPORT
SUBMIT OFFSITE SOURCE EVALUATION REPORT
PREPARE GW CONTROL WORKPLAN (IF NEEDED)
INSTALL GROUNDWATER EXTRACTION TEST WELLS
CONDUCT GROUNDWATER EXTRACTION TEST
PREPARE GROUNDWATER EXTRACTION & TREATMENT PLANS
INSTALL ADDITIONAL EXTRACTION WELLS
PROCURE GW TREATMENT SYSTEM
INSTALL GW TREATMENT SYSTEM
CONDUCT 3RD QUARTER MONITORING
ANALYZE 3RD QUARTER SAMPLES
PREPARE 3RD QUARTER MONITORING REPORT
PREPARE ANNUAL O&M AND MONITORING REPORT
ANALYZE 4TH QUARTER SAMPLES
CONDUCT 4TH QUARTER MONITORING
CONDUCT 5TH QUARTER MONITORING
ANALYZE 5TH QUARTER SAMPLES
PREPARE 5TH QUATER MONITORING REPORT
PREPARE 6TH QUARTER MONITORING REPORT
ANALYZE 6TH QUARTER SAMPLES
CONDUCT 6TH QUARTER MONITORING
CONDUCT 7TH QUARTER MONITORING
ANALYZE 7TH QUARTER SAMPLES
PREPARE 7TH QUARTER MONITORNING REPORT
PREPARE CLOSURE REQUEST REPORT
ANALYZE 8TH QUARTER SAMPLES
CONDUCT 8TH QUARTER SAMPLING
Plot Date 23JUN94
Data Date 1JUL94
Project Start 1JUL94
Project Finish 30JAN97
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Activity Bar/Early Dates
Critical Activity
Progress Bar
Milestone/Flag Activity
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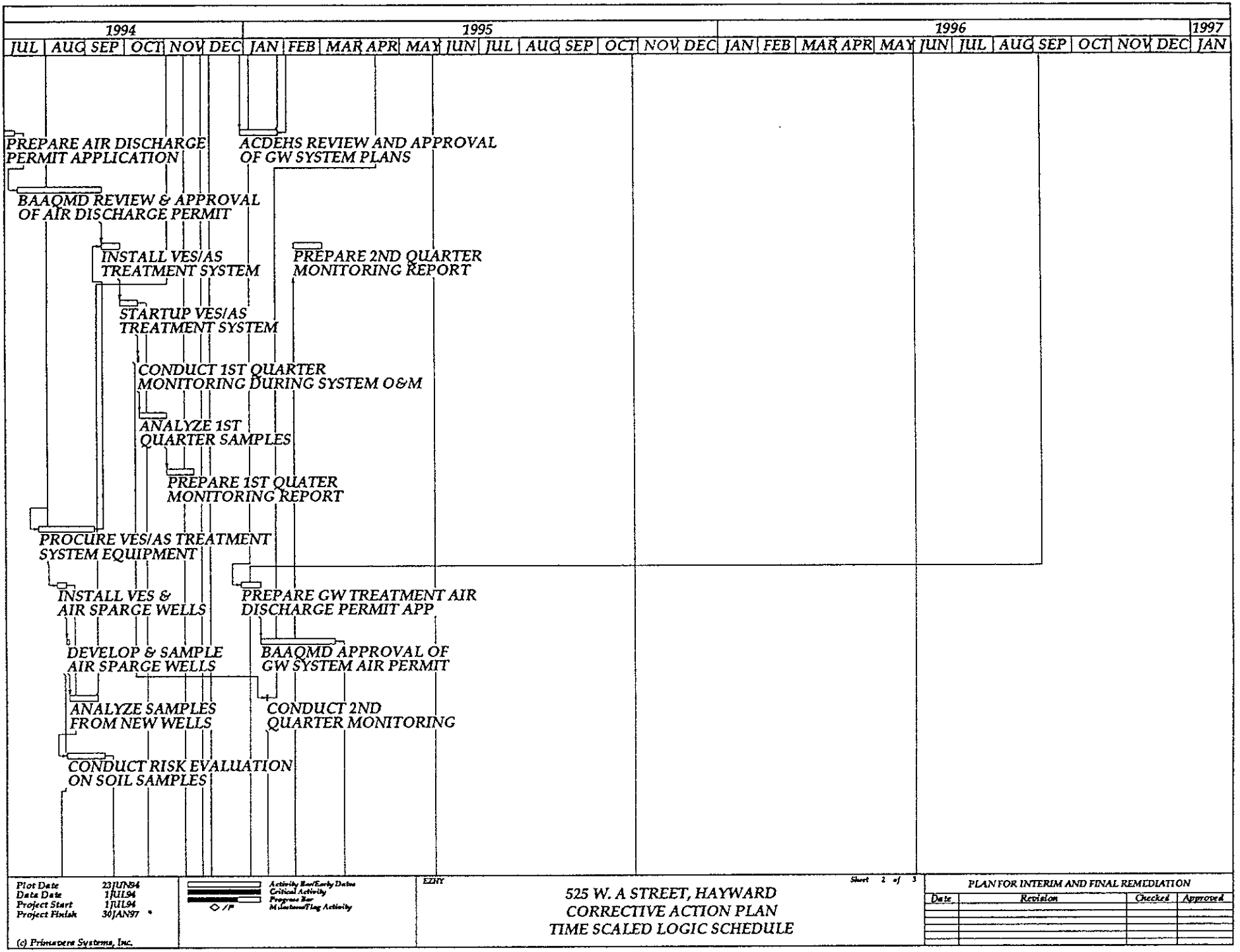
Sheet 1 of 3
525 W. A STREET, HAYWARD
CORRECTIVE ACTION PLAN
TIME SCALED LOGIC SCHEDULE
PLAN FOR INTERIM AND FINAL REMEDIATION
Date
Revision
Checked
Approved



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Activity Bar/Early Dates
Critical Activity
Progress Bar
Milestone/Flag Activity

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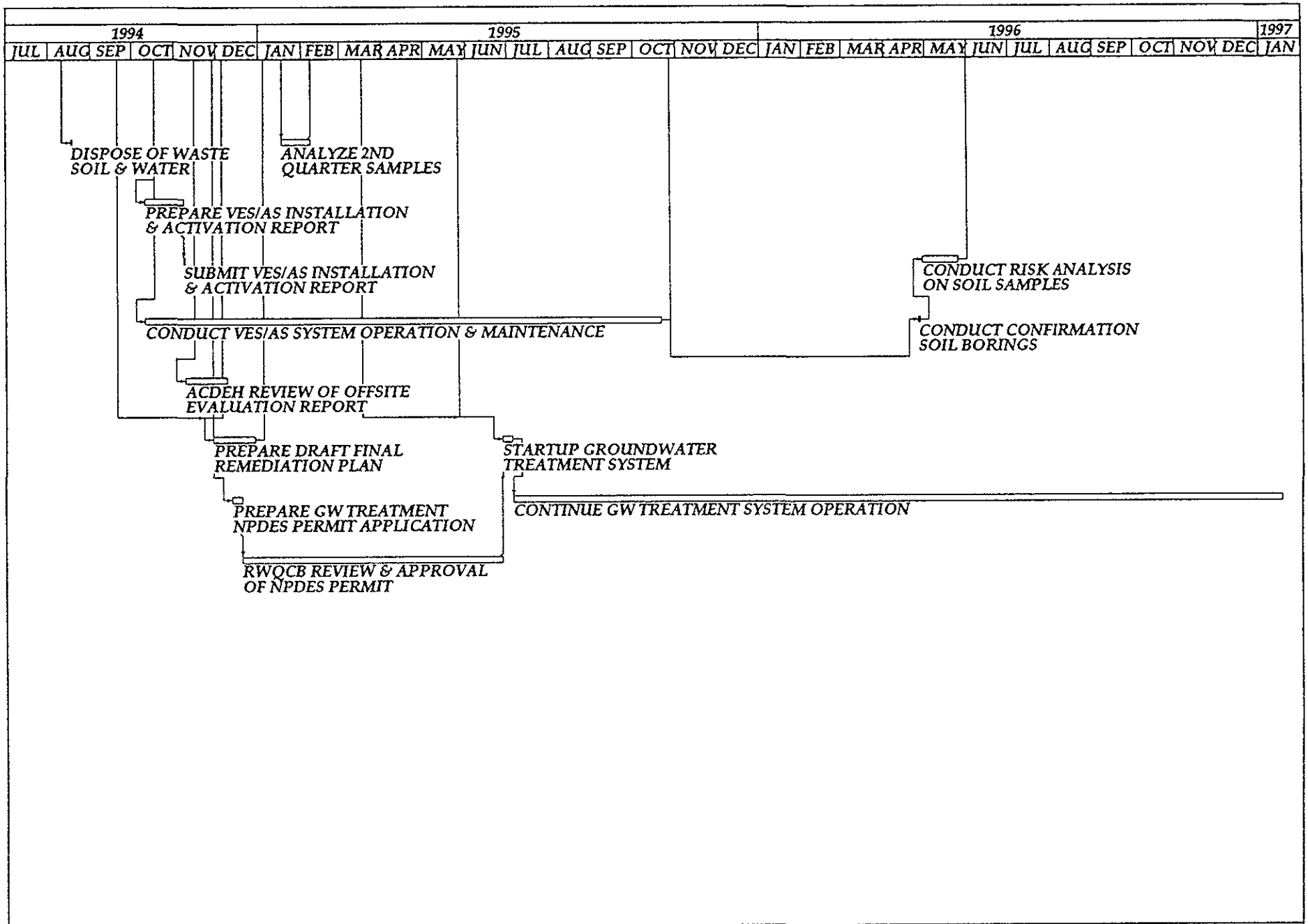
Sheet 2 of 3

525 W. A STREET, HAYWARD
CORRECTIVE ACTION PLAN
TIME SCALED LOGIC SCHEDULE

PLAN FOR INTERIM AND FINAL REMEDIATION

Date	Revision	Checked	Approved



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Activity Bar/Early Date
Critical Activity
Progress Bar
Milestone/Flag Activity

EDIT

Sheet 3 of 3

525 W. A STREET, HAYWARD
CORRECTIVE ACTION PLAN
TIME SCALED LOGIC SCHEDULE

PLAN FOR INTERIM AND FINAL REMEDIATION

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