ARCO Products Compa
2000 Alameda de las Pulgas –
Mailing Address: Box 5811
San Mateo, California 94402
Telephone 415 571 ~~2400~~

Check Cornel → 2434

Pac Env. Group (408)
Don Lendry – (408) 984-6577 (ext 134)
Lance Gesselbracht – ext 136
Geselbracht 91 SEP 10 AM 11:37
Applied Geosystems
implement on site vapor extraction
~~Mark~~ Joel Coffman
Mike Hodges (408) 264-7723

September 6, 1991

Mr. Paul Smith
Alameda County Health Care Services
Department of Environmental Health
Hazardous Material Program
80 Swan Way, Rm 200
Oakland, California 94621

Re: ACHCS Letter of 8/7/91 regarding ARCO Station #276 at 10600 MacArthur Blvd., Oakland, CA

Dear Mr. Smith:

I have received your letter dated August 7, 1991 submitted in response to ARCO's Work Plan for Subsurface Investigation and Remediation and Addendum One to the Work Plan both dated June 27, 1991. Additionally your comments also pertained to ARCO's Quarterly Groundwater Monitoring Report dated July 11, 1991.

I appreciate the substantial time you have obviously spent reviewing the submittals described above and the resultant comprehensive letter dated 8/7/91.

Work previously employed to prevent migration of contaminants includes bailing and removal of floating product from monitoring well MW-2 on a monthly basis and the installation and operation of an off site soil vapor extraction system by Pacific Environmental Group.

I would like to comment on two items regarding your review of ARCO's latest quarterly ground water report for the subject site. Item 2 states that no additional sampling has been conducted on MW-2 since 7/31/91. Table 1 of the report illustrates that MW-2 has contained floating product since 8/1/90, indicating that the solubility of gasoline to the water has been exceeded; thus sampling of this well is not appropriate and that floating product is to be removed as referenced in the LUFT manual (May 1988). Item 3 states

that MW-3 has not been sampled since 10/30/90. This well was not sampled during two quarters because equipment necessary to modify the vapor extraction system was placed over the well due to space limitations. Well MW-3 was sampled in late July or early August of this year.

Described below are my comments to each of the 6 requirements presented in your letter:

1. All proposed activities are to be tasked out with a committed time line for the initiation and completion of each task.

As I'm sure you are aware the schedule for completion of assessment and remediation activities are often controlled by factors beyond the guidence of both ARCO and the lead agency. How much time to allot for certain phases of the job can be beyond the control of ARCO and our consultant. For example, some of these factors are private and public access, regulatory review process, and unpredictable engineering and geological aspects which can significantly effect our time schedule. To include a "committed time line for the initiation and completion of each task" will most likely prove to be a wasted effort. However, as requested we will include an estimated best guess schedule for completion of the tasks which attempts to estimate permitting and work plan approval time requirements.

2. Required to continue/initiate interim free product (FP) removal and to monitor each well quarterly.

The work plan dated 6/27/91 that you have received includes the installation of a vapor extraction system (VES). This system is proposed in an effort to remove the FP which is present in the occasionally dry, upper water-bearing zone. Periodic bailing methods employed to date have proven to be only moderately effective, in fact to date only 20 gallons of FP have been recovered from monitoring well MW-2 over 24 months. As such, reinstitution of FP bailing will not be an effective interim recovery method, rather your expeditious review and approval of our work plan will meet the interim recovery program goals. ARCO is currently performing quarterly monitoring and as requested each groundwater

well will continue to be monitored quarterly with the understanding that if some of the data is duplicative or unnecessary a request can be made to the ACHCS to amend this monitoring plan in the future.

3. Required to specify boring locations and contaminants sought.

In Applied GeoSystem's Addendum One to Work Plan dated 6/27/91, Plate 2 shows the locations of eight borings which will be used for construction of eight soil vapor extraction wells (VW-1 through VW-8). In the Addendum One, page 2, step 3, specific laboratory analyses of soil samples from the borings is discussed.

4. Provide treatment system design, a plan to show how this system will adapt to existing system and any vapor influence data.

On site soil remediation will be performed through vapor extraction by utilizing eight soil vapor extraction wells. Currently, an off site vapor extraction system is operating at an extraction rate of approximately 50 cubic feet per minute (cfm). The vapor phase hydrocarbons are destroyed by catalytic oxidation (cat-ox). The vapor cat-ox system can handle flow rates up to 250 cfm. Each off site vapor extraction well has an average flow rate of two cfm. This abatement system can adequately handle the proposed on site vapor extraction wells.

Please find enclosed the Request For Bid for the installation of the proposed vapor extraction system. This document describes the installation from the on site vapor wells to the existing cat-ox treatment system. The permits for the vapor wells have been obtained and ACHCSA approval must still be obtained for the proposed Addendum One to the Work Plan dated 6/27/91. When this approval has been obtained, the proposed Addendum One will be initiated.

5. Required to sample soil and groundwater for pesticides and PCB's and to determine the extent of these constituents.

Request number 5 of your letter, dated 8/7/91, states that "An earlier Kaldveer and Associates report (dated 10/3/88) identified the presence of pesticides and polychlorinated bi-phenyls (PCBs) in

soil and groundwater". Page 5 and 6 of the Kaldveer 10/7/88 report states that " values reported by laboratory personnel for the pesticides and PCB's may be erroneously identified due to the high concentration of gasoline in the sample.....The laboratory reported the sample was "too dirty" to obtain accurate results due to high gasoline content" and "Although pesticides and PCB's were detected, laboratory personnel are not confident that these data are valid and in our opinion, should not be considered....".

Additionally, the location of Kaldveer's boring EB-1 is erroneously located on Figure 2 of their 10/7/88 report; the boring is approximately located as shown on the attached surveyed map and is located near boring B-4 which was drilled by Applied Geosystems on 8/4/89. A soil sample from boring B-4 obtained at a depth of 26.5 feet was analyzed for pesticides and PCBs on 8/18/89 by Anametrix, Inc. The soil sample did not contain pesticides or PCBs although gasoline constituents were detected (see attached analysis data sheet).

ARCO requests that the ACHCS withdraw requirement number 5 because of the uncertainty in the analytical existence of pesticides and PCBs as documented in the Kaldveer report and that a subsequent nearby sample did not detect pesticides and PCBs in the soils at a depth similar to that sampled by Kaldveer. Additionally, pesticides and PCBs are not constituents of gasoline and their existence, if any, would not be associated with a subsurface gasoline release. Finally, the location of the sample obtained by Kaldveer was obtained approximately 60 feet from the ARCO property line on land which housed a plant that manufactured tractors, trucks, and motor buses from 1914 to 1960; suggesting that the pesticide and PCB contamination, if any, could be the responsibility of other parties.

6. Required to submit a design for a groundwater treatment system that will address petroleum hydrocarbons and chlorinated solvents and any other contaminants identified on site.

An Addendum Two to the Work Plan for Subsurface Investigation and Remediation will be prepared and delivered to ACHCS by September 27, 1991. Work to be included in this Addendum Two to the Work Plan will include installation of a groundwater recovery well to be

placed on site in the area of highest groundwater and solvent concentrations reported in groundwater from the deeper water-bearing zone, methodology for a pump test to evaluate aquifer characteristics of the deeper water-bearing zone in order to facilitate groundwater treatment system design, and the initiation of the permitting process (NPDES) for disposal of treated groundwater. These items are all required to obtain information sufficient to design a groundwater treatment system.

The seasonally present upper water bearing zone will be treated by vapor extraction to volatilize the hydrocarbons present in this zone. The installation of the vapor extraction system wells will assist in delineating the extent of this water-bearing zone.

Your 8/7/91 letter requests a report that describes the remediation measures that have been taken to date that have prevented the migration of all identified contaminants. To date ARCO has performed the following: 1) begin operating a vapor extraction system (VES) in August 1990 to remediate gasoline impacted soils on a neighboring property, 2) Free product bailing was commenced in October, 1990 and has removed approximately 20 gallons of gasoline. In October, 1990, the VES was vandalized and the system was modified and made safer; the VES was returned to service in June, 1991.

Groundwater in the deeper zone flows in a generally northward direction at the site. This groundwater zone since October 1989 has consistently had individual BETX concentrations to be less than 2 ppb. TPH as gasoline concentrations have never exceeded 760 ppb in the groundwater from this zone since October, 1989. Tetrachloroethene (PCE) has consistently been identified in groundwater from well MW-4, located adjacent to the location of the former waste oil tank. However, PCE was not identified in four soil samples analyzed for this compound during the waste oil tank removal. ARCO is sampling the four deeper water bearing zone wells in early September to document the presence of PCE in this water zone. These results will assist in the determination of whether or not the PCE has an upgradient source other than ARCO.

September 6, 1991
Paul Smith
ARCO Facility #276

As requested, this letter addresses your concerns as detailed in your 8/7/91 letter. I hope the work plan review and approval process can be expedited as the original work plan was submitted to your offices on 6/27/91 and the information submitted in this letter is not substantive but principally clarifying in nature. In the future it would make sense to approve the work plan with the understanding that only portions of the work plan are approved pending submittal of clarifying information.

As usual please don't hesitate to call me at (415) 571-2469 if you have any questions.

Sincerely,

Chuck Carmel
Environmental Engineer

attachments

cc: K A Christie, ARCO
Lester Feldman, SFRWQCB
J P Meck, ARCO Legal
Mark Thomson, Alameda County District Attorneys Office
Joel Coffman, Applied Geosystems

July 26, 1991
0726MCON
AGS 60026.05

Mr. Contractor
P.O. Box xxx
Anytown, California XXXXX

Subject: Request for proposal for work at ARCO Station No. 276, 10600 MacArthur Boulevard, Oakland, California.

Mr. Contractor:

Please find enclosed a request for proposal containing general specifications, drawings, and information pertaining to the below-grade portion of a vapor-extraction system that is to be installed at the above referenced site. This portion of work will consist of installing and connecting vapor-extraction piping to an existing catalytic oxidizer used for hydrocarbon-bearing off-site contamination.

Please submit bids for these items: (1) trench excavation; (2) subsurface piping installation; and (3) materials as described in the attached request. Please call Michael Hodges, Project Engineer in our Sacramento Office, at (916) 852-6670 if you have any questions regarding this site.

Sincerely,
RESNA/Applied GeoSystems

Dora Chew
Project Geologist

Enclosure: Request for Bid

REQUEST FOR BID

Dear Sirs:

The site is presently an operating gasoline service station. The site location is shown on the Site Vicinity Map, Plate 1. A Generalized Site Plan is shown on Plate 2. We propose to use eight vapor-extraction wells and one existing ground-water monitoring well as an additional vapor-extraction well to remove hydrocarbon-bearing soil from beneath the subject site. The vapor-extraction wells are constructed of 4-inch inner-diameter polyvinyl chloride (PVC) casing placed within an approximately 10-inch borehole.

The scope of work at this site is outlined below.

Scope of Work:

A The subcontractor shall excavate approximately 185 linear feet of trenching, (see Plate 3), 18-inches below grade and 18-inches wide, set 4-inch inner-diameter Schedule 40 PVC piping for both vapor-extraction and ground-water extraction in the excavated trench, place 18-gauge copper wire along the pipe lengths for detection purposes, and backfill as shown on the attached Cross-Section of a Vapor-Extraction Trench, Plate 4.

Backfill will be composed of pea gravel. If Applied GeoSystems field personnel detect volatile organic hydrocarbons concentrations, the subcontractor will not be responsible for the disposal of this material but will be required to bring clean soil to the site for use in backfilling the trenches. We request that the subcontractor estimate a separate cost per cubic yard of clean material ($/cubic yard) to be imported to the site. Applied GeoSystems will recommend clean material be used as backfill if needed at the site.

B The subcontractor shall compact the backfill to appropriate compaction specifications for the local regulatory authorities, and perform surface completion with concrete with a minimum thickness of four inches.

C The subcontractor shall install metal wellhead covers, fiberglass sumps, wellhead connections, and concrete work as shown on the Typical Vapor-Extraction System Wellhead Connection Diagram, Plate 5 (36-inch-square wellhead covers and 30-inch-round by 36-inch deep plastic sumps).

D Subcontractor shall provide all piping, copper wiring, wellhead covers, wellhead connections, pea gravel, sample ports, and concrete as required. All piping and fittings below and above grade are made of PVC.

E Subcontractor shall perform all work according to national and local codes and regulations.

F Subcontractor shall obtain construction permits and schedule inspections with local permitting authorities as required.

Applied GeoSystems requests that you submit your bid within two weeks of the date of this letter. Awards will be made shortly thereafter. The anticipated start-up date for construction is August 9, 1991. If awarded, this contract will be subject to the terms and conditions of our Environmental Services Agreement.

Sincerely,
RESNA/Applied GeoSystems

Dora Chew
Project Geologist

Attachments:
Plate 1, Site Vicinity Map
Plate 2, Generalized Site Plan
Plate 3, Vapor-Extraction System Layout
Plate 4, Cross-section Of A Vapor Extraction Trench
Plate 5, Typical Vapor-Extraction System Wellhead-Connection Diagram

Source: U.S. Geological Survey
7.5-minute Quadrangles
Oakland East, San Leandro
Topographic
Photorevised 1980

Approximate Scale

2000 1000 0 2000 4000

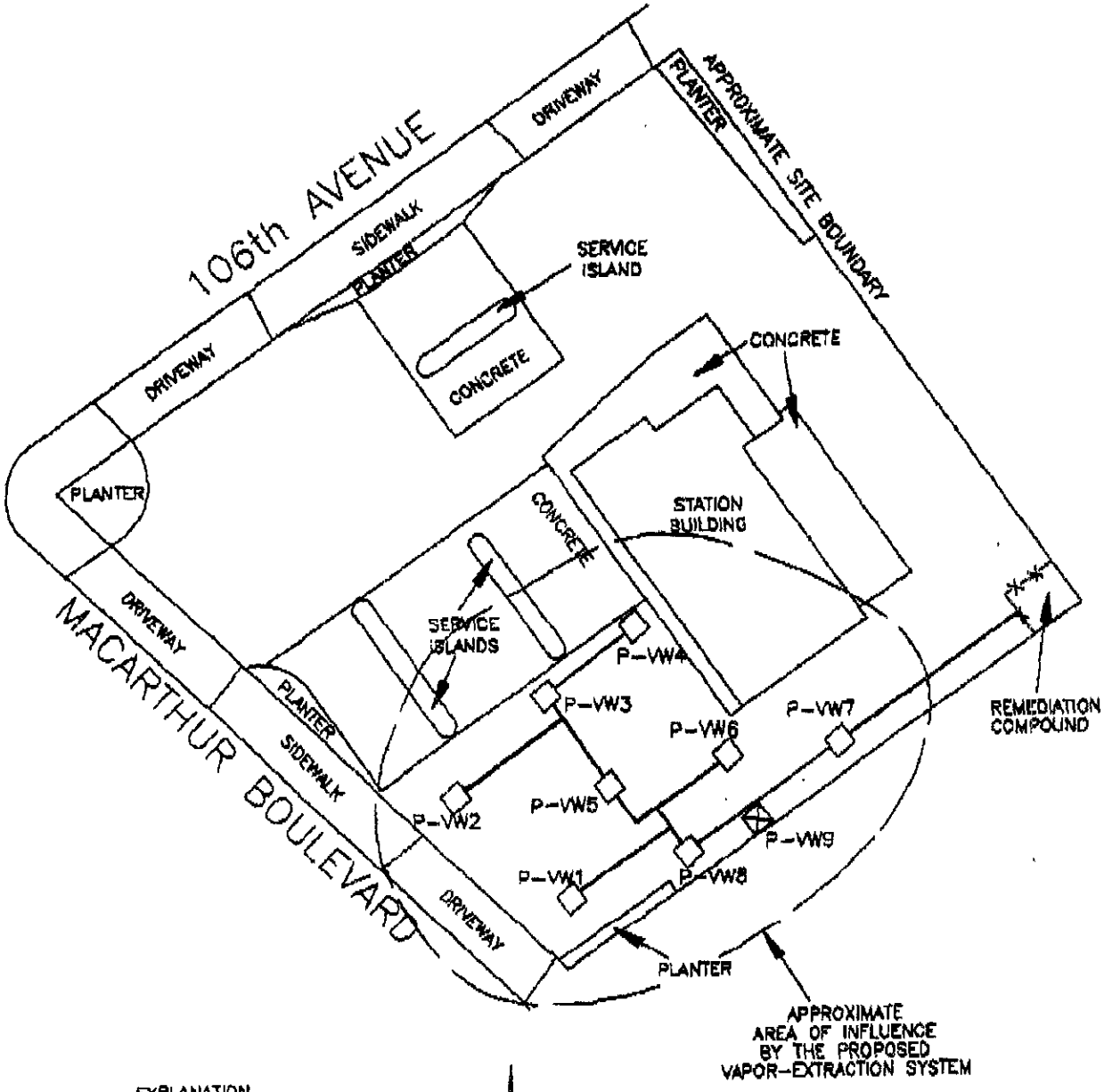
Feet

SITE VICINITY MAP
ARCO Station 276
10600 MacArthur Boulevard
Oakland, California

PLATE
1

Applied GeoSystems

PROJECT 60026-5



EXPLANATION

P-VW8 = Proposed vapor extraction well with 36"x36" wellhead cover

P-VW9 = Existing monitoring well to be used as an extraction well

= Trenching for vapor-extraction piping

Approximate Scale

30 15 0 30 60

feet

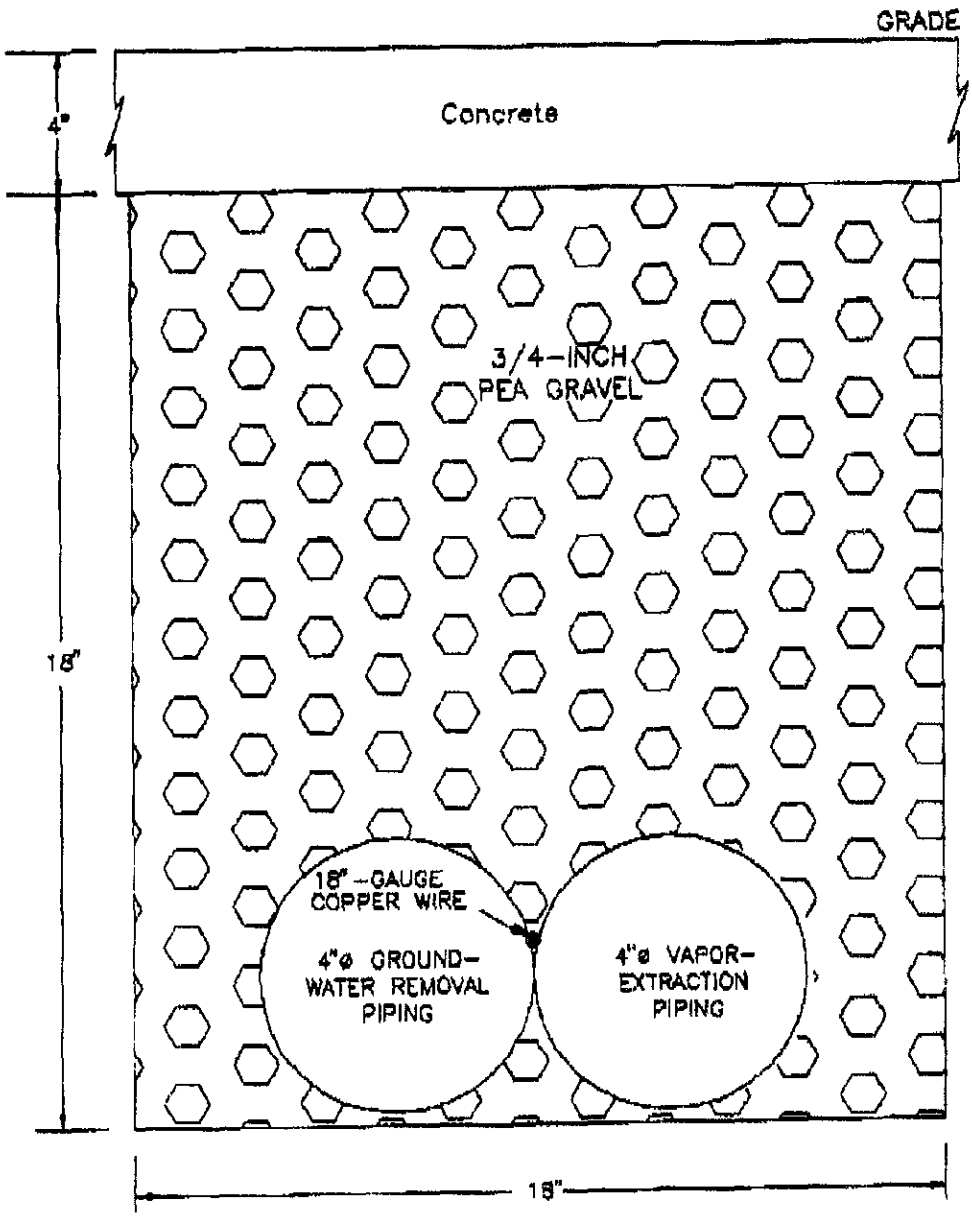
Source: Modified from plan supplied by ARCO and surveyed by Ron Archer, Civil Engineer, Inc.

Applied GeoSystems

PROJECT 60026-5

VAPOR-EXTRACTION SYSTEM LAYOUT
ARCO Station 276
10800 MacArthur Boulevard
Oakland, California

PLATE 3



NOT TO SCALE

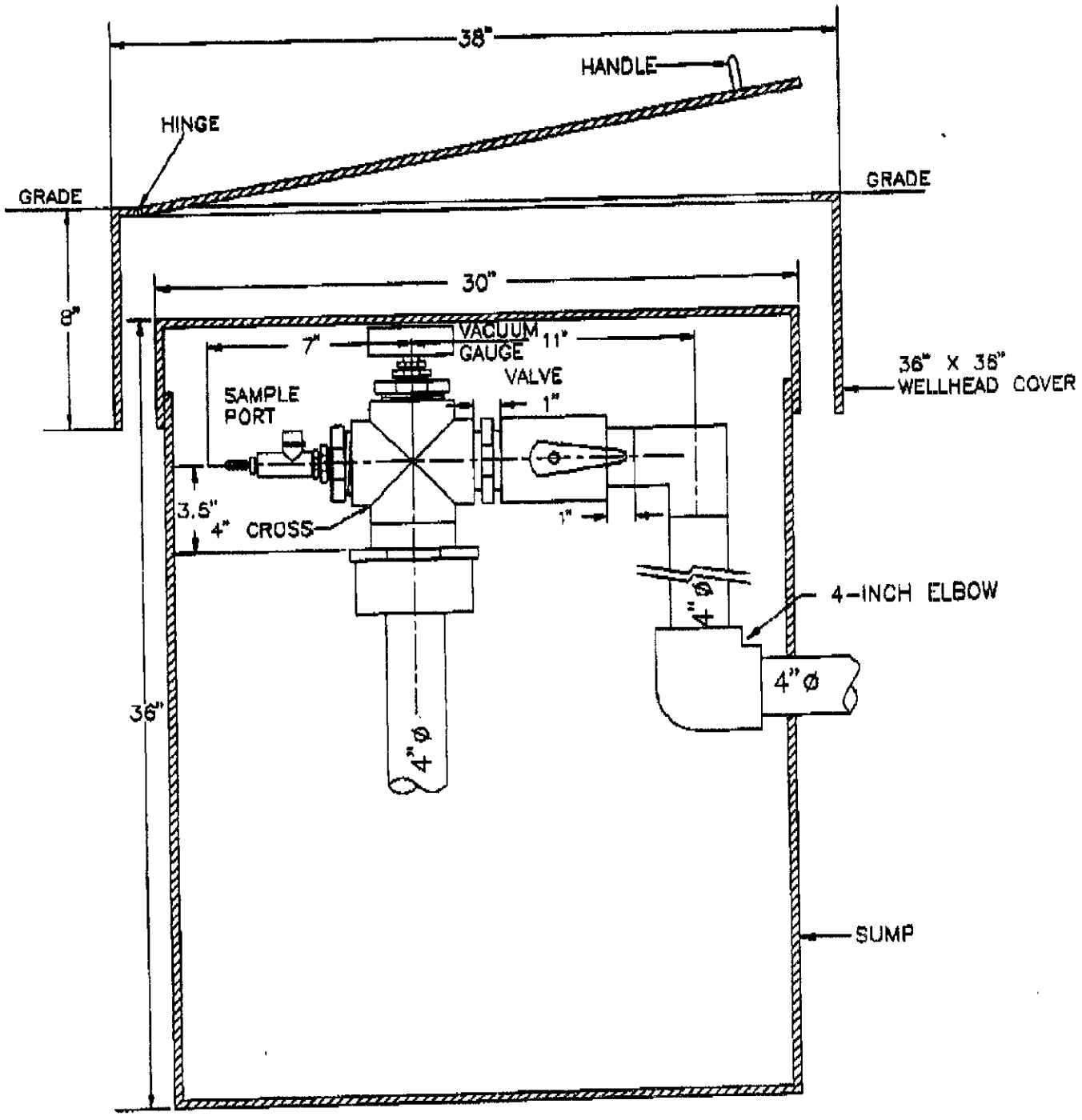
Applied GeoSystems

PROJECT 80026-5

CROSS-SECTION OF A VAPOR-EXTRACTION SYSTEM TRENCH
ARCO Station 276
10600 MacArthur Boulevard
Oakland, California

PLATE
4

ELEVATION VIEW
DETAIL



4"-DEAD-END CONNECTIONS

NOT TO SCALE

Applied Ecosystems PROJECT 60028-5	TYPICAL VAPOR-EXTRACTION SYSTEM WELLHEAD-CONNECTION DIAGRAM ARCO Station 276 10800 MacArthur Boulevard Oakland, California	PLATE 5