

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



91 SEP 30 09:12:05

September 26, 1991

Mr. Scott O. Seery  
Alameda County Health Care Services Agency  
Department of Environmental Health  
Hazardous Materials Program  
80 Swan Way, Room 200  
Oakland, California 94821

Re: ACHCS Letter of 9/4/91 regarding ARCO Station No. 2152 at 22141 Center Street, Castro Valley, California.

Dear Mr. Seery:

I have received your letter dated September 4, 1991 submitted in response to ARCO's Quarterly Ground-Water Monitoring Reports dated March 24, 1991 and May 20, 1991. Additionally your comments also pertained to ARCO's Supplemental Subsurface and Remedial Investigation Report dated July 2, 1991.

I appreciate the substantial time you have obviously spent reviewing the submittals described above and the resultant letter dated 9/4/91.

Work previously employed to evaluate remediation alternatives includes the performance of a vapor-extraction test (VET) conducted on February 15, 1991. This VET was performed in conjunction with an on-going environmental investigation and anticipated treatment of hydrocarbon-bearing soil beneath the subject site. The results of the VET suggest that the use of vapor extraction at this site is a practical and efficient choice as a soil remediation alternative. Your letter dated 9/4/91 accepted in "principle" the use of soil venting\vapor extraction as a means of in situ treatment of contaminated soils underlying the site.

September 26, 1991  
Scott Seery  
ARCO Facility No. 2152

I would like to address your request for additional technical information as outlined in your letter. This information follows:

- o Permit Requirements. An Authority to Construct and Permit to Operate will be required through the Bay Area Air Quality Management District (BAAQMD). Permits are typically required from the local Building, Planning and Safety, and Fire Departments. A follow-up inspection by a Building Department Inspector will be required for the electrical permit.
- o TTU. It is my understanding that the equipment that we propose to use at this site is not classified as a transportable treatment unit and so does not require authorization as such.
- o Engineering Details. The location of the site is shown on the Site Vicinity Map, Plate 1. The locations of pertinent site features are shown on the Generalized Site Plan, Plate 2. More detailed Engineering diagrams will be included in the former proposal for system installation. A cross section of a vapor-extraction system trench is shown on Plate 3. A typical vapor-extraction system wellhead-connection diagram is shown on Plate 4. A process flow diagram is shown on Plate 5.
- o Monitoring System. A remote monitoring system and a system safety shutdown will be incorporated with the remediation system design.
- o Specifications. A description of activated carbon and the performance curve for the vapor-extraction blower are attached. *missing*
- o Fans. Vapor-extraction blower specification is attached as described above. *missing*
- o Monitoring requirements. It is very likely that the BAAQMD will require a source test to verify that the vapor-extraction system is operating to their satisfaction. Approximately eight vapor samples are taken at that time. Typical requirements for monitoring through the BAAQMD are weekly sampling for the first month of system operation, and then monthly sampling thereafter. These samples are usually analyzed for benzene, toluene, total xylene isomers, and ethyl benzene (BTEX) by Environmental Protection Agency (EPA) Method 8020; and for TPHg, using EPA Method 8015.

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- o Schedule. A preliminary time schedule will be included in the formal proposal for system installation. This time schedule will be an estimation and may be altered if site conditions alter or if additional regulatory requirements are imposed.
- o Exposure pathway analysis. A health risk assessment is performed in conjunction with the dispersion modeling required of the BAAQMD permit process.

As stated previously, on the basis of the results of the VET and the soil characteristics at the subject site, vapor extraction was recommended as a practical and cost effective remediation alternative. Activated carbon is to be used as off-gas treatment, in conjunction with a Rotron DR-12 regenerative blower, and a remote monitoring system.

We estimated that we will use an extraction rate of approximately 100 cubic feet per minute and 100 inches of water column vacuum from each vapor-extraction well. The vapor-extraction system will be installed onsite and operated for a minimum of four months or until the combined off-gas airstream hydrocarbon concentration is below 30 parts per million by volume, a typical detection limit for vapor samples. Each wellhead will be equipped with vacuum gages, sample ports, and shut-off valves so that the flow out of each well can be adjusted to maximize the total pounds of petroleum hydrocarbons being removed from the soil. The vapor-extraction system will continue to run if this threshold value is not reached in four months, or it may be shut down sooner if the threshold value is reached and the vapor-extraction system is not required for ground-water treatment. The introduction of additional subsurface oxygen from the operation of a vapor-extraction system as described may also enhance the biodegradation process of the longer-chained hydrocarbon compounds that are less easily volatilized and removed through vapor extraction.

As requested, this letter addresses your questions as detailed in your 9/4/91 letter. A formal Work Plan detailing the proposed vapor extraction system will be issued to your agency for review by October 20, 1991. I hope the information above will assist your review of our remediation plan at this site.

September 26, 1991  
Scott Seery  
ARCO Facility No. 2152

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

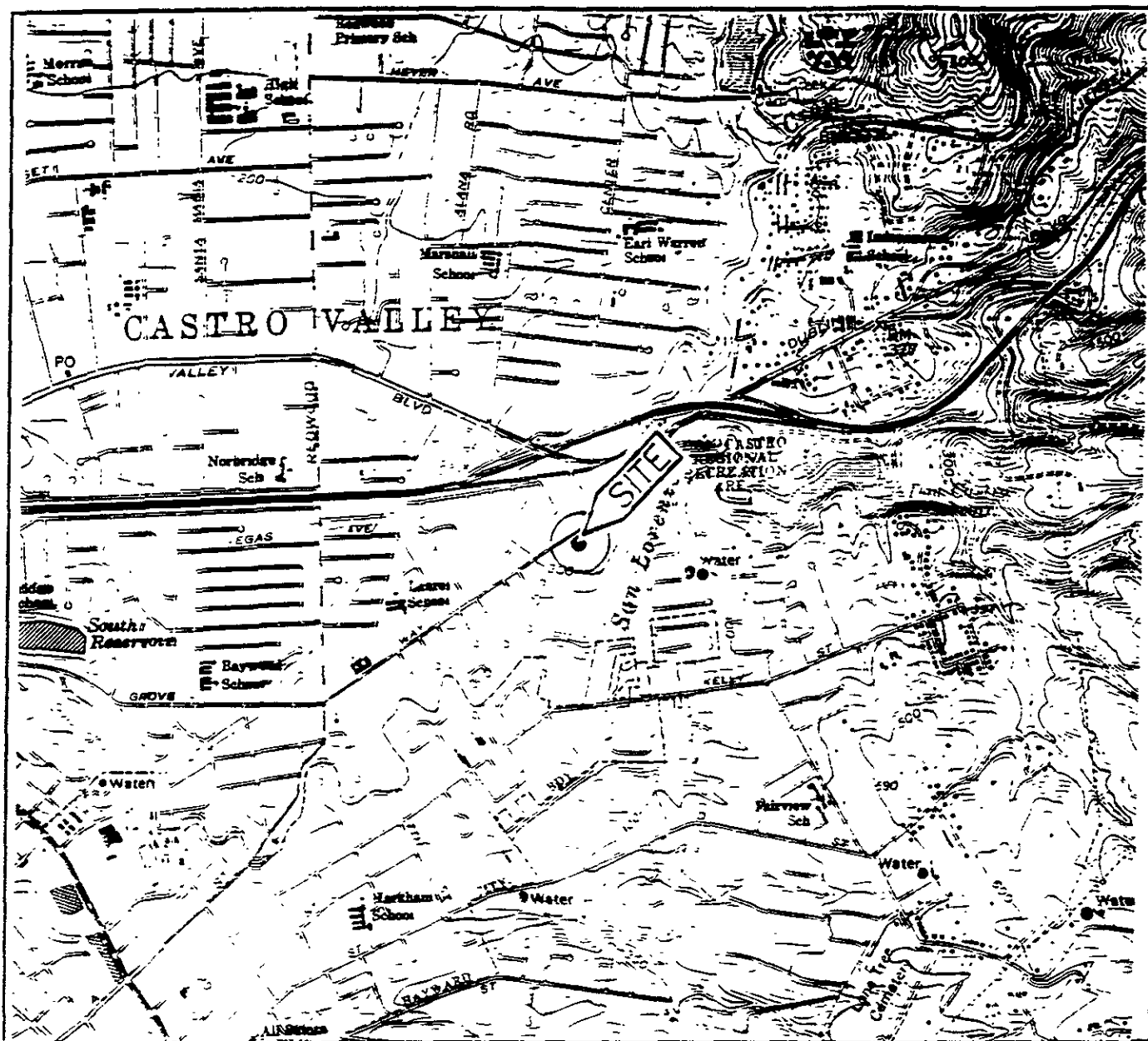
Sincerely,  
ARCO Products Company



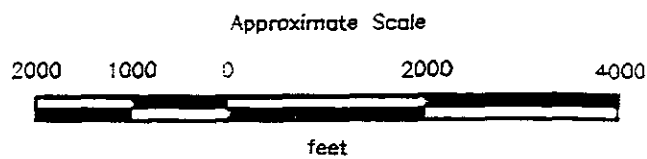
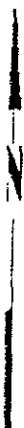
Chuck Carmel  
Environmental Engineer

Attachment:      Site Vicinity Map, Plate 1  
                      Generalized Site Plan, Plate 2  
                      Vapor-Extraction System Trench, Plate 3  
                      Wellhead-Connection Diagram, Plate 4  
                      Process Flow Diagram, Plate 5

cc:                Chris Winsor, ARCO  
                      Lester Feldman, SFRWQCB  
                      J P Meck, ARCO Legal  
                      Mark Thompson, Alameda County District Attorneys Office  
                      Joel Coffman, RESNA/Applied GeoSystems



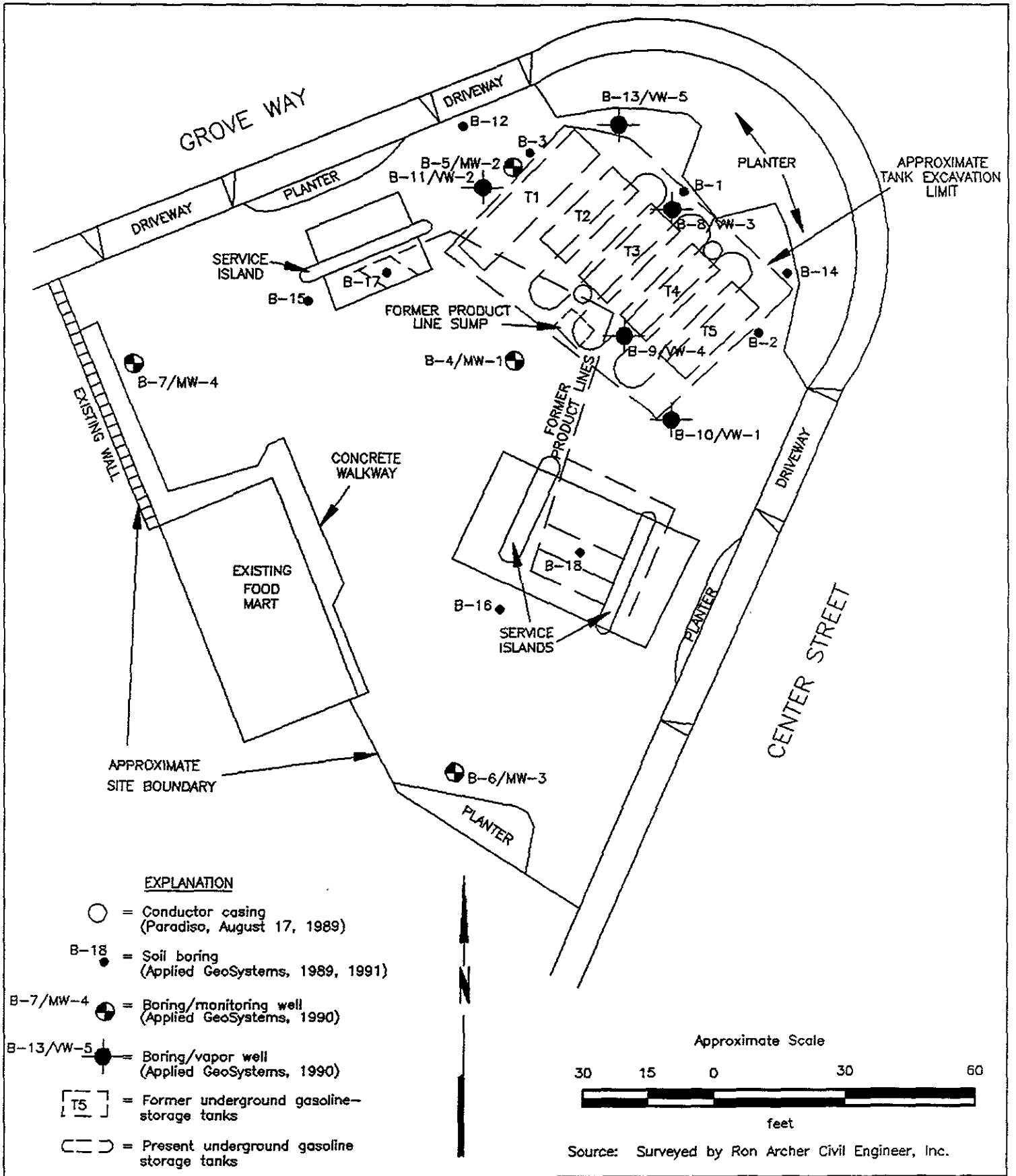
Source: U.S. Geological Survey  
 7.5-Minute Quadrangle  
 Hayward, California  
 Photorevised 1980



**SITE VICINITY MAP**  
**ARCO Station 2152**  
**22141 Center Street**  
**Castro Valley, California**

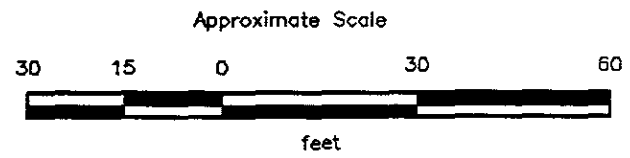
**PLATE**  
**1**

**PROJECT 69013-6**



**EXPLANATION**

- = Conductor casing (Paradiso, August 17, 1989)
- B-18 ● = Soil boring (Applied GeoSystems, 1989, 1991)
- B-7/MW-4 ⊕ = Boring/monitoring well (Applied GeoSystems, 1990)
- B-13/VW-5 ⊕ = Boring/vapor well (Applied GeoSystems, 1990)
- [ T5 ] = Former underground gasoline-storage tanks
- ⊔ ⊔ = Present underground gasoline storage tanks



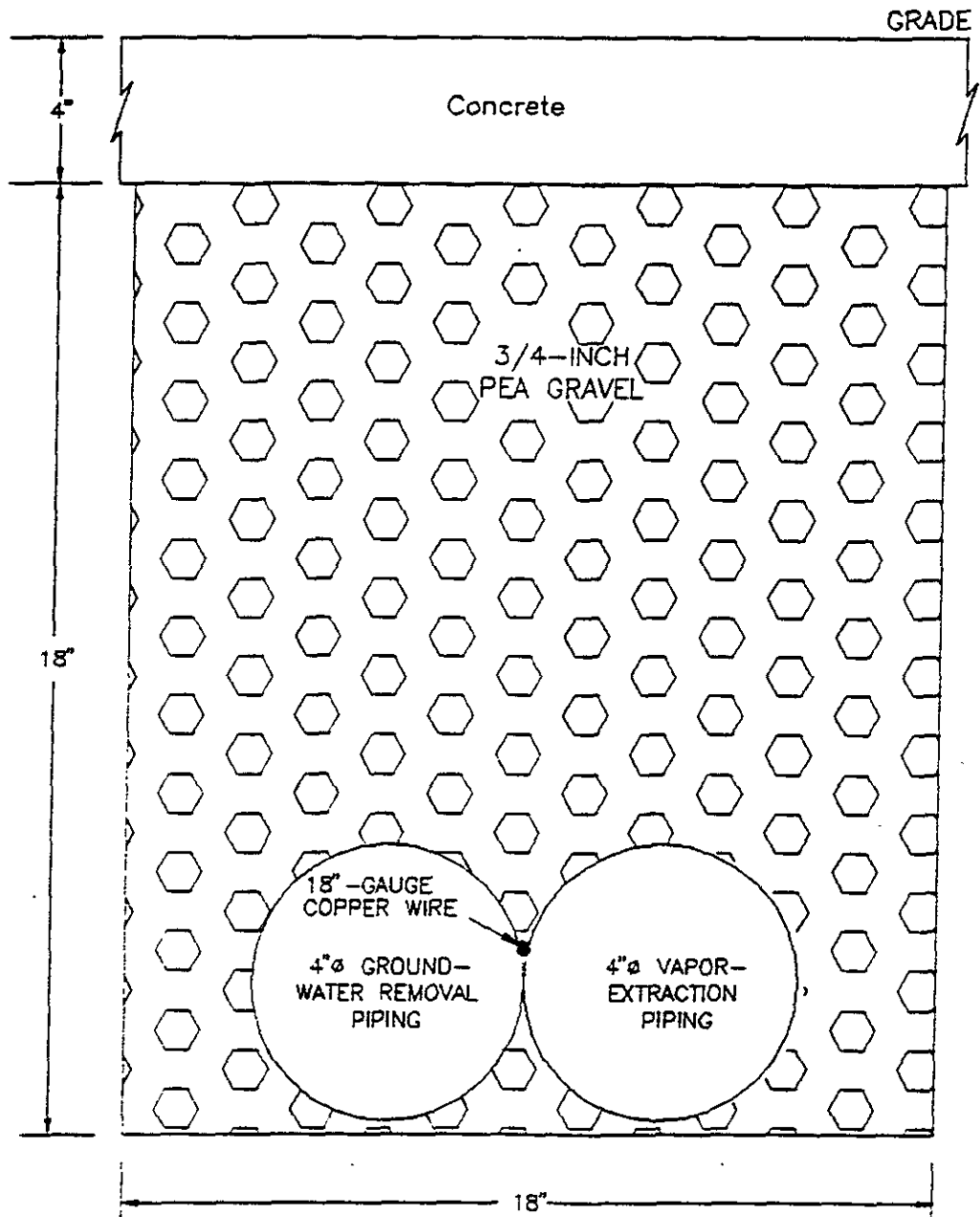
Source: Surveyed by Ron Archer Civil Engineer, Inc.



**GENERALIZED SITE PLAN**  
**ARCO Station 2152**  
**22141 Center Street**  
**Castro Valley, California**

**PLATE**  
**2**

**PROJECT 69013-5**



NOT TO SCALE

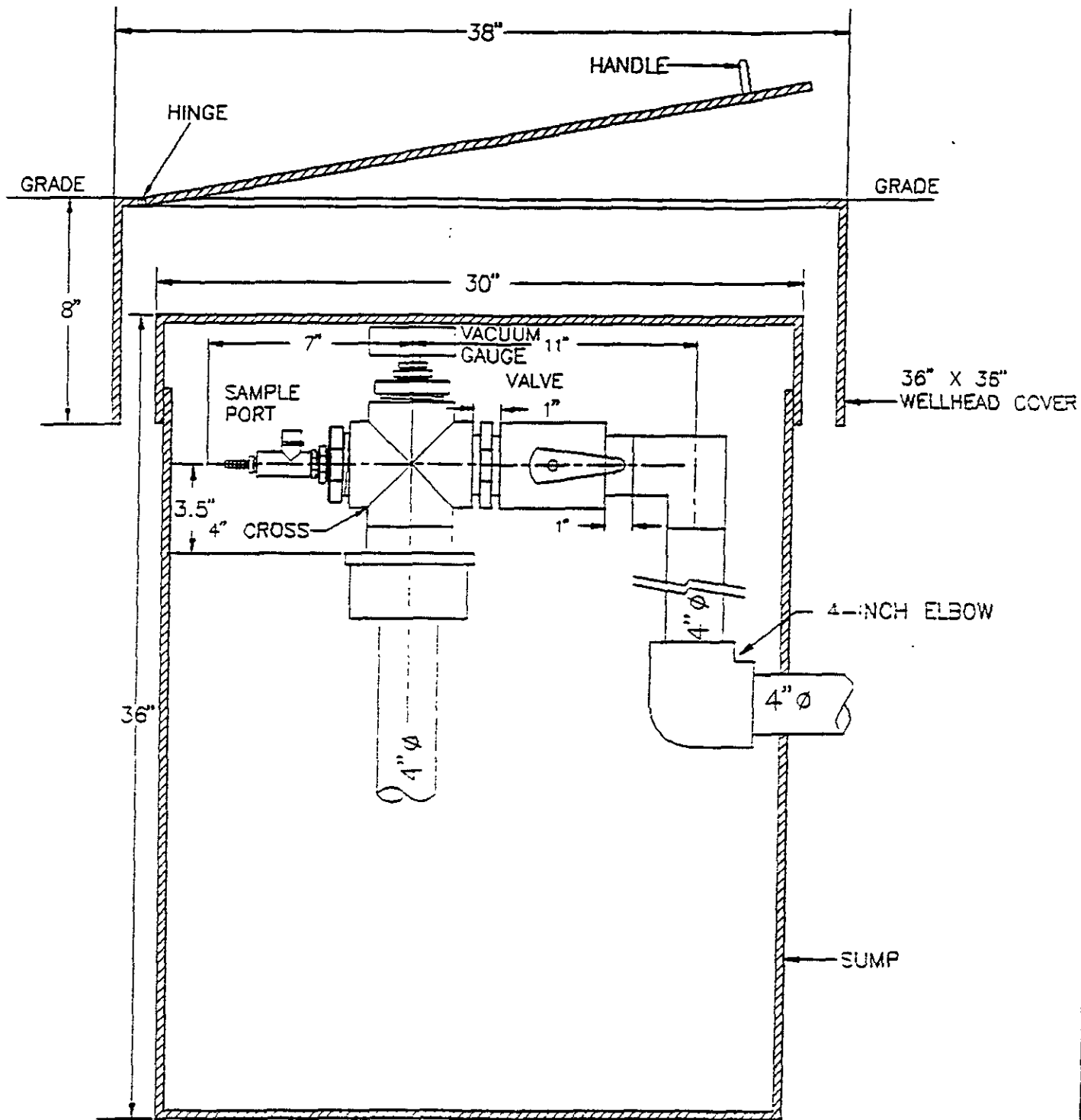


CROSS-SECTION OF A VAPOR-  
EXTRACTION SYSTEM TRENCH

PLATE

3

ELEVATION VIEW  
DETAIL



4" - DEAD-END CONNECTIONS

NOT TO SCALE

TYPICAL VAPOR-EXTRACTION SYSTEM  
WELLHEAD-CONNECTION DIAGRAM

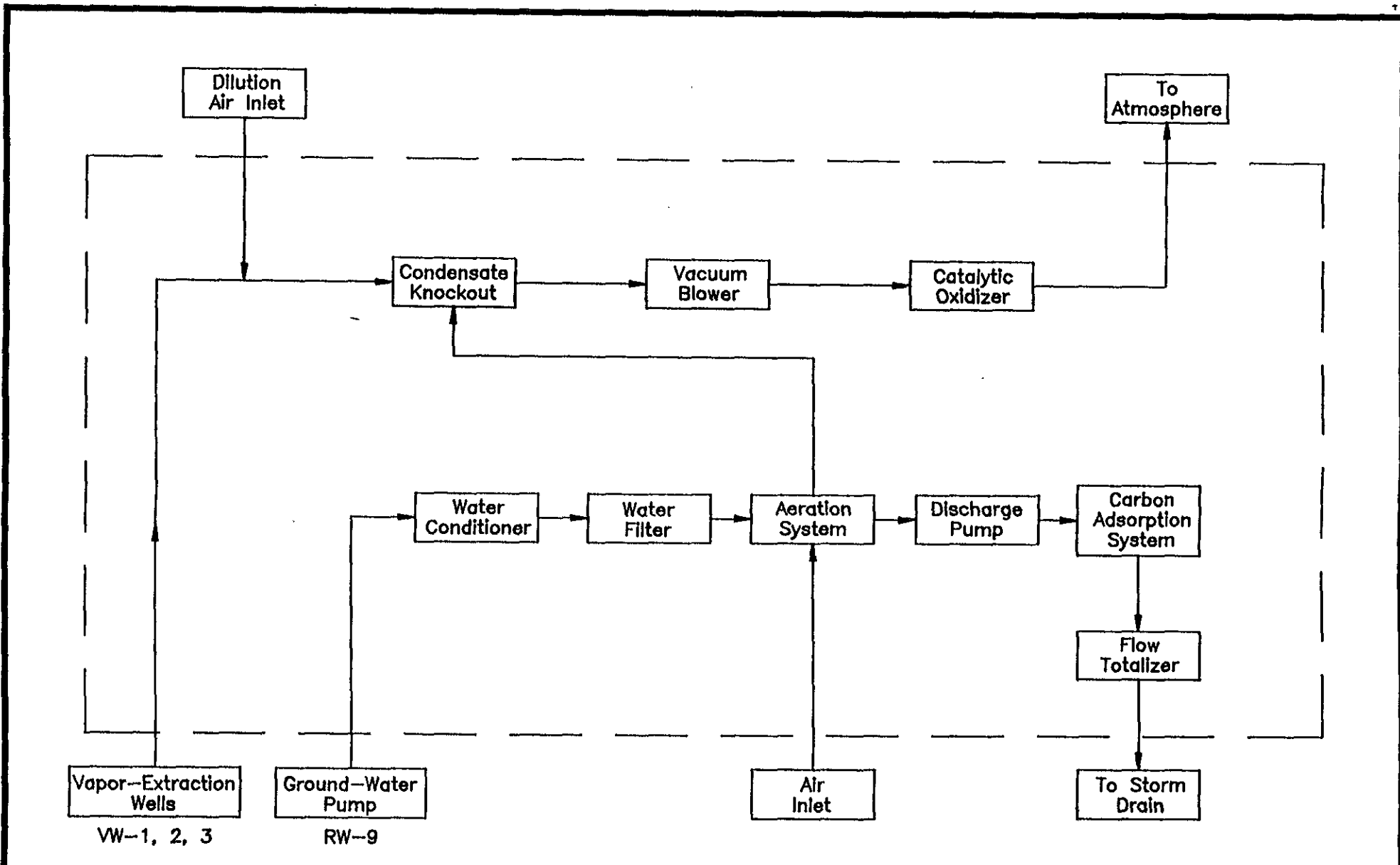
PLATE

4



PROJECT





**FLOW DIAGRAM FOR REMEDIATION SYSTEM**

**PLATE**