CAMBRIA

ENVIRONMENTAL PROTECTION

97 AUG 22 PM 2:47

August 20, 1997

Mr. Rob Weston
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, California 94502

Re: **Tank Backfill Well Abandonment Report**
Shell Service Station
11989 Dublin Boulevard
Dublin, California
WIC #204-2277-0204
Cambria Project #240-548-7

Dear Mr. Weston:

On behalf of Shell Oil Products Company (Shell), Cambria Environmental Technology, Inc. (Cambria) is submitting this well abandonment report for the site referenced above. Cambria supervised the abandoning of six tank backfill wells. One tank backfill well remains at the site.

Cambria obtained an Alameda County Flood Control and Water Conservation District (ACFCWCD) well abandonment permit. As discussed in an August 5, 1997 telephone conversation with Wyman Hong on the ACFCWCD, the wells were grouted with neat Portland I/II cement using a grouting hose as a tremie pipe.

On August 8, 1997, Cambria geologists Josh Bergstrom and Maureen Feineman supervised the well abandonment. Gregg Drilling of Martinez, California was on site to conduct the grouting. The well abandonment permit is included in Attachment A and water well driller's reports for well destruction are enclosed. Cambria's standard field procedures are included in Attachment B.

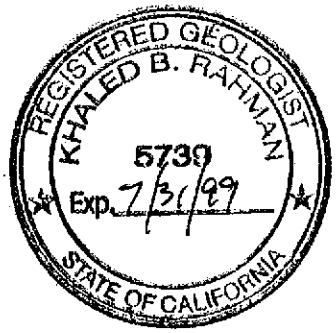
CAMBRIA
ENVIRONMENTAL
TECHNOLOGY, INC.
1144 65TH STREET,
SUITE B
OAKLAND,
CA 94608
PH: (510) 420-0700
FAX: (510) 420-9170

Mr. Rob Weston
August 20, 1997

CAMBRIA

**CLOSING**

We appreciate the opportunity to work with you on this project. Please call if you have any questions or comments.




Sincerely,

**Cambria Environmental Technology, Inc.**

Khaled Rahman, R.G., C.H.G.
Senior Geologist

cc: Dan Kirk, Shell Oil Products Company, P.O. Box 4023, Concord, CA 94524
Eva Chu, Alameda County Department of Environmental Health, 1131 Harbor Bay Parkway, 2nd Floor, Alameda, California, 94502
Wyman Hong, Alameda County Flood Control and Water Conservation District, 5997 Parkside Drive, Pleasanton, California, 94566

Attachments: A - Well Abandonment Permits
B - Standard Field Procedures

Enclosure: Water Well Driller's Reports

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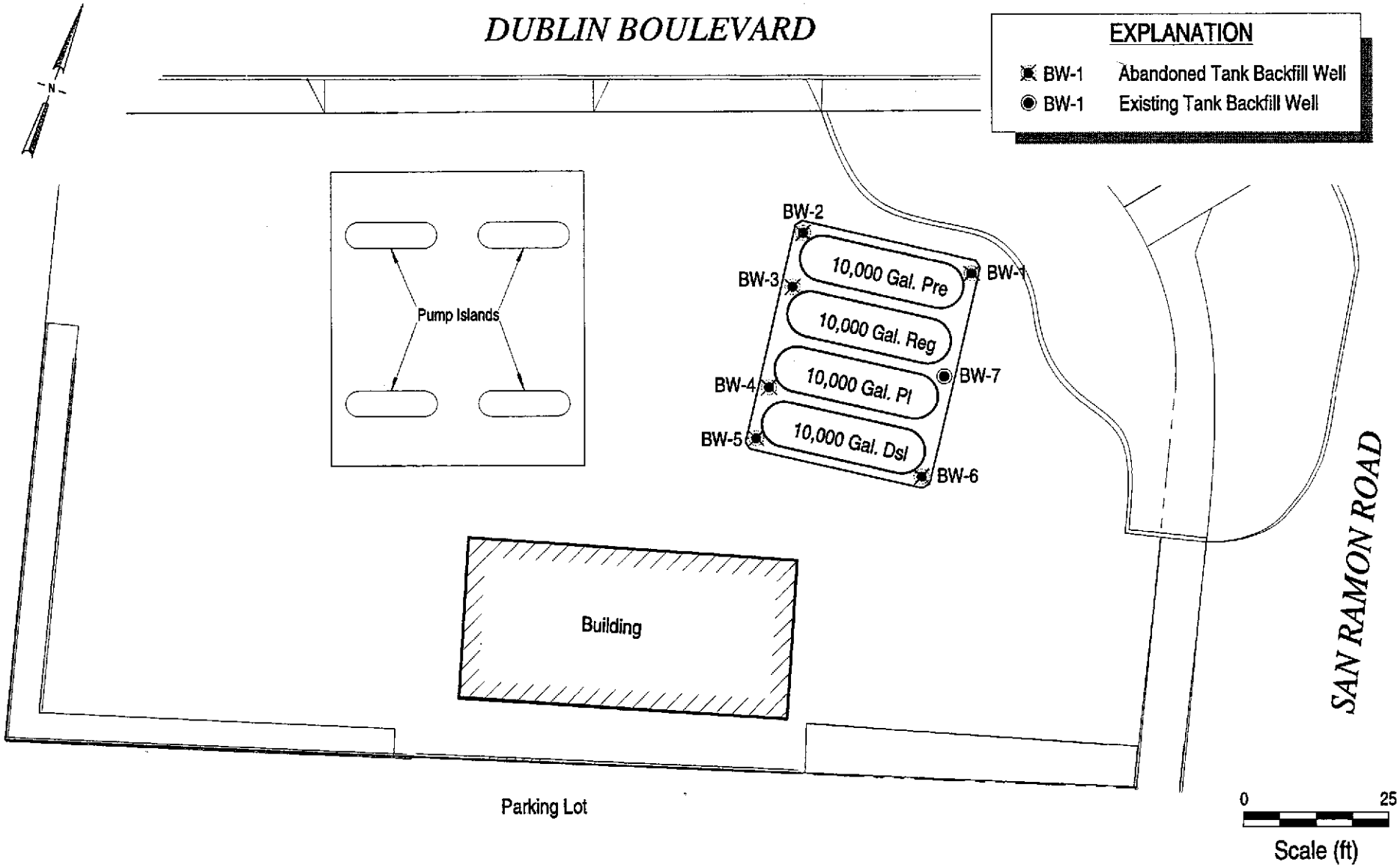


CAMBRIA
Environmental Technology, Inc.

Shell Service Station WIC#204-2277-0204
11989 Dublin Boulevard
Dublin, California

F:\PROJECT\SHELL\DUB11989\FIGURES\TANK-BAKFL.DWG

Tank Backfill Well Location

August 8, 1997

FIGURE
1

08/15/97

**ATTACHMENT A**

Well Abandonment Permits

To Wyman Hong. Fax 510-462-3914

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

5997 PARKSIDE DRIVE ♦ PLEASANTON, CALIFORNIA 94566 ♦ (415) 484-2600

# GROUNDWATER PROTECTION ORDINANCE PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

(1) LOCATION OF PROJECT 11989 Dublin Av. Dublin, CA

(2) CLIENT
Name Shell Oil Products Company
Address P.O. Box 4023 Phone 800-675-6168
City Concord CA Zip 94524

(3) APPLICANT
Name Cambria Environmental Technology Inc Attn. Paul Waite
Address 1144 65th St #C Phone 510.420-3305
City Oakland CA Zip 94608

(4) DESCRIPTION OF PROJECT

| | | | |
|---|---|---|---|
| Water Well Construction | ___ | Geotechnical Investigation | |
| Cathodic Protection | ___ | General | ___ |
| Well Destruction | X | Contamination | ___ |

(5) PROPOSED WATER WELL USE

| | | | | | |
|---|---|---|---|---|---|
| Domestic | ___ | Industrial | ___ | Irrigation | ___ |
| Municipal | ___ | Monitoring | ___ | Other | ___ |

(6) PROPOSED CONSTRUCTION
Drilling Method:
Mud Rotary ___ Air Rotary ___ Auger ___
Cable ___ Other ___

DRILLER'S LICENSE NO. C57-485-165

WELL PROJECTS
Drill Hole Diameter ___ in. Maximum
Casing Diameter ___ in. Depth 15 ft.
Surface Seal Depth ___ ft. Number 7
1-10" and 6-4" observation wells,

GEOTECHNICAL PROJECTS
Number of Borings ___ Maximum
Hole Diameter ___ in. Depth ___ ft.

(7) ESTIMATED STARTING DATE 8/4/97
ESTIMATED COMPLETION DATE 8/4/97

(8) I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE [signature] Date 7/25/97

FOR OFFICE USE

PERMIT NUMBER 97433
LOCATION NUMBER 3S/1W 2J1 to 2J7

ccc: 1,584,790.2 ccn: 440,760.1

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

B. WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic, irrigation, and monitoring wells unless a lesser depth is specially approved.

C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

(E.) WELL DESTRUCTION. See attached.

Note: These are tank pit observation wells. They are set in pea gravel backfill, not native soil. We will abandon by grouting using a tremmie pipe, as I discussed with Wyman Hong on 7/25/97.

Approved Wyman Hong Date 31 Jul 97
Wyman Hong

21989

August 1, 1997

# Zone 7
# Water Resources Engineering
# Groundwater Protection Ordinance

Shell Oil Products Company
11989 Dublin Avenue
Dublin
Wells 3S/1W 2J1 to 2J7
Permit 97433

Destruction Requirements:

1. Clean out all bridged or poorly compacted materials to the bottom of the well.

2. Remove the casing, seal, and gravel pack to two feet below the finished grade or original ground, whichever is the lower elevation.

3. Fill the entire casing with cement grout using a tremie pipe. Allow the sealing material to spill over the top of the casing to fill any annular space between the casing and soil.

4. After the seal has set, backfill the remaining hole with compacted material.

We do not need to follow requirement #2, as per Paul Waites 8/5/97 telephone conversation with Wyman Hong of Zone 7.

**ATTACHMENT B**

Water Well Driller's Reports

# STANDARD FIELD PROCEDURES FOR ABANDONING MONITORING WELLS

This document presents standard field methods for abandoning ground water monitoring wells. The objective of well abandonment is to destroy wells in a manner that is protective of potential water resources. The two procedures most commonly used are pressure grouting and drilling out the well. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

## Pressure Grouting

Pressure grouting consists of injecting neat Portland cement through a tremie pipe under pressure to the bottom of the well. The cement is composed of about five gallons of water to a 94 lb. sack of Portland I/II Cement. Once the well casing is full of grout, it remains pressurized by applying pressure with a grout pump. The well casing can also be pressurized by extending the well casing to the appropriate height and filling it with grout. In either case, the additional pressure allows the grout to be forced into the sand pack. After grouting the sand pack and casing, the well vault is removed and the area resurfaced or backfilled as required.

## Well Drill Out

When well drill out is required, a hollow-stem auger drilling rig is used to drill out the well casing and pack materials. First, drill rods are dropped down the well and used to guide the augers as they drill out the well. Once the well is drilled out, the boring is filled with Portland cement injected through the augers or a tremie pipe under pressure to the bottom of the boring. The well vault is removed and the area resurfaced or backfilled as required.