CAMBRIA

March 7, 2002

MAR 11 2002

Mr. Scott Hooton
BP Oil Company
Environmental Resources Management
295 SW 41st Street
Bldg. 13 STE N.
Renton, Washington 98055-4931

Re: **LETTER OF TRANSMITTAL**
Well Abandonment Report
BP Site No. 11116
7197 Village Parkway
Dublin, California

Dear Mr. Hooton:

Cambria Environmental Technology, Inc. has enclosed the *Well Abandonment Report* for the above-referenced site for your use. We have distributed copies of the report on your behalf as noted below.

We appreciate the opportunity to provide BP with environmental consulting services. If you have any questions or comments, please do not hesitate to call me at (510) 450-1985.

Sincerely,
Cambria Environmental Technology, Inc.

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

Enclosures: *Well Abandonment Report* dated March 7, 2002 (4 copies)

cc: Eva Chu, Alameda County Health Services Agency, 1131 Harbor Bay Parkway, 2nd Floor, Alameda, California 94502 (1 copy)
Wyman Hong, Alameda County Zone 7 Water Agency, 5997 Parkside Drive, Pleasanton, California 94588-5127 (1 copy)

Oakland, CA
San Ramon, CA
Sonoma CA

Cambria
Environmental
Technology, Inc.

1144 65th Street
Suite B
Oakland, CA 94608
Tel (510) 420-0700
Fax (510) 420-9170

CAMBRIA

WELL ABANDONMENT REPORT

MAR 1 1 2002

BP Site No. 11116
7197 Village Parkway
Dublin, California
Cambria Project No. 852-1743

March 7, 2002

Prepared for:

BP Oil Company
Environmental Resources Management
295 S.W. 41st Street
Building 13, Suite N
Renton, Washington 98055

Prepared by:

Cambria Environmental Technology, Inc.
1144 65th Street, Suite B
Oakland, California 94608

REGISTERED GEOLOGIST
KHALED B. RAHMAN
No. 0261
CERTIFIED
HYDROGEOLOGIST
Exp. 7/31/03
STATE OF CALIFORNIA

Sara Dwight
Staff Scientist

Khaled B Rahman, R.G., C.H.G.
Associate Geologist

Oakland, CA
San Ramon CA
Sonoma CA

Cambria
Environmental
Technology, Inc.

1144 65th Street
Suite B
Oakland CA 94608
Tel (510) 420-0700
Fax (510) 420-9170

CAMBRIA

WELL ABANDONMENT REPORT

BP Site No. 11116
7197 Village Parkway
Dublin, California
Cambria Project No. 852-1743

March 7, 2002

INTRODUCTION

Cambria Environmental Technology, Inc. (Cambria) is submitting this *Well Abandonment Report* for activities at the above-referenced BP Oil Company (BP) site. These well abandonment activities were requested in an October 25, 2001 Alameda County Health Care Services Agency (ACHCSA) letter. The site background and well abandonment activities are described below.

SITE BACKGROUND

Site Description: The site is an inactive gasoline retail outlet located at the intersection of Village Parkway and Amador Valley Boulevard in Dublin, California. BP acquired the property from Mobil Oil Corporation in 1989. In 1994, BP transferred the property to TOSCO Marketing Company (TOSCO) and has not operated the facility since that time.

Previous Work: Six monitoring wells (MW-1 through MW-3 and AW-4 through AW-6) were installed at the site in 1989-1990 and have been monitored periodically since that time (see Appendix A). We understand that wells AW-5 and AW-6 were previously destroyed.

WELL ABANDONMENT ACTIVITIES

The October 25, 2001 ACHCSA letter requested that onsite monitoring wells MW-1 through MW-3, AW-4 and the tank backfill well be abandoned before a remedial action completion letter could be issued. During a November 13, 2001 conversation with Wyman Hong of the Alameda County Zone 7 Water Agency (ACZWA), pressure grouting was acceptable because no further action was required at the site.

Personnel Present: Sara Dwight, Cambria Scientist, working under the supervision of Khaled Rahman, California Registered Geologist.

Wells Abandoned: Five (MW-1, MW-2, MW-3, AW-4 and tank backfill well).

Permits: ACZWA Permit No. 22011 was issued for the abandonment of the wells (see Appendix B).

Drilling Company: Gregg Drilling of Martinez, California (C-57 License # 485165).

Well Abandonment Date: January 31, 2002.

Well Depths: Before pressure grouting, the total depths of the wells were recorded. The total depth of well MW-1 was 25 feet below ground surface (bgs). The total depth of wells MW-2 and MW-3 was 26 feet bgs. The total depth of well AW-4 was 35 feet bgs. The total depth of the tank backfill well 17 feet bgs.

Abandonment Method: Wells MW-1 through MW-3, AW-4 and the tank backfill well were abandoned by injecting neat Portland cement grout through a tremie pipe under pressure to the bottom of the well. After the well casing had been filled with grout, the casing was pressurized using a grout pump. After grouting the casing and sand pack, wells MW-1 through MW-3 were capped with rapid set concrete. Well AW-4 and the tank backfill well were located on unpaved ground and were not capped with concrete. Cambria's standard procedures for well abandonment are included as Appendix C, boring logs are presented as Appendix D, and Well Completion Report forms are presented in Appendix E.

CLOSING

The abandonment of wells MW-1 through MW-3, AW-4 and the tank backfill well completes field activities at this site. As noted in the ACHCSA letter, with the abandonment of these wells, the site now meets requirements for issuance of a remedial action completion letter.

ATTACHMENTS

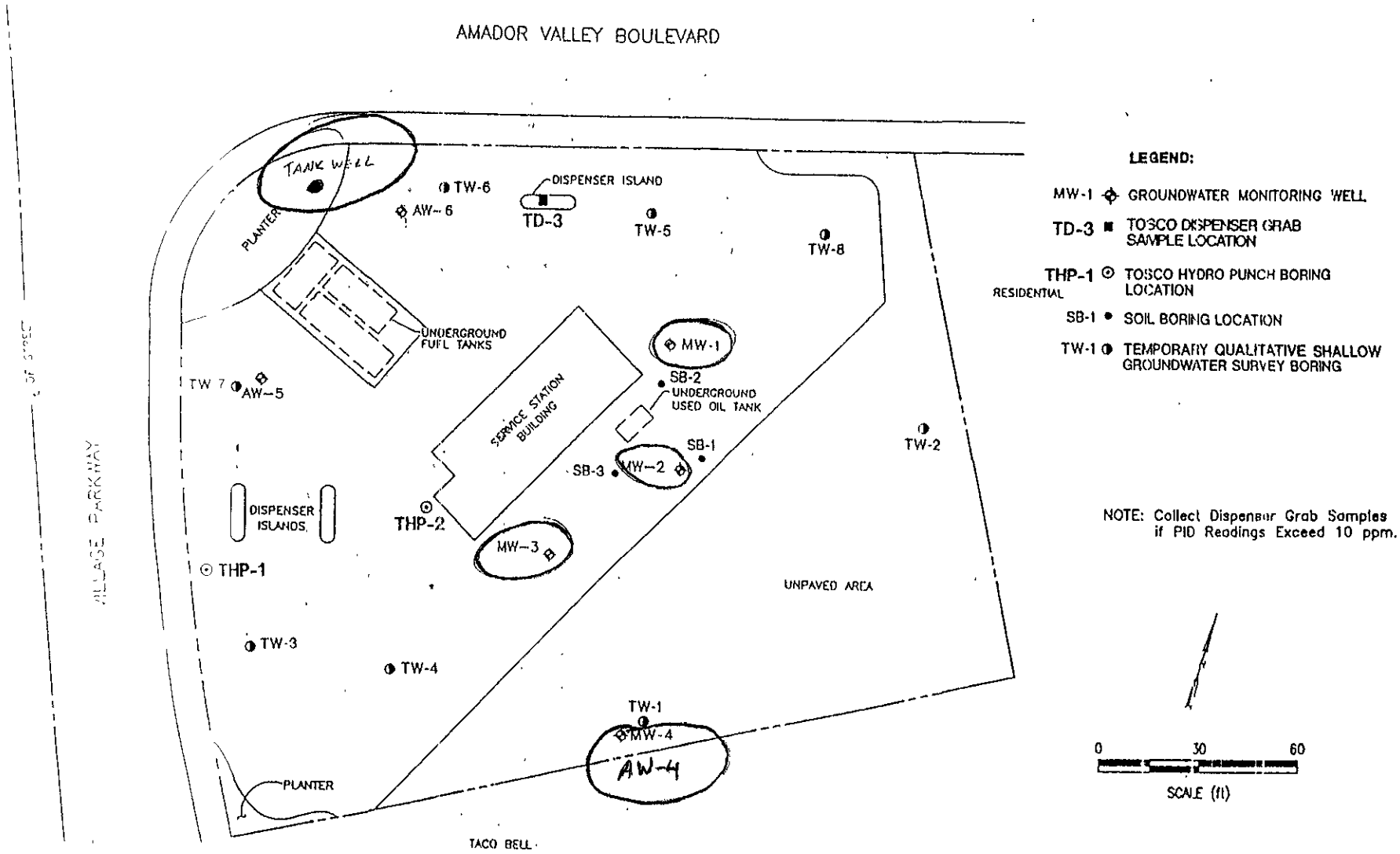
Appendix A – Background Information
Appendix B – Well Abandonment Permits
Appendix C – Standard Field Procedures for Abandoning Monitoring Wells
Appendix D – Boring Logs
Appendix E – Well Completion Report Forms

H:\British Petroleum\11116-Dublin\Well Abandonment\Well Abandonment Report.doc

CAMBRIA

Appendix A

Background Data



SOURCE: ALISTO (APRIL 7, 1994)

EMCON Northwest, Inc

DATE 2-11-94
DWN. MLP
REV.
APPR.
PROJECT NO.
0952-032.03

Figure A-1
TOSCO #11116
7197 VILLAGE PARKWAY
DUBLIN, CALIFORNIA
SITE PLAN

CAMBRIA

Appendix B

Well Abandonment Permits

ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588-5127 VOICE (925) 484-2600 X235
FAX (925) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT 7197 Village Parkway
Dublin

California Coordinates Source _____ ft. Accuracy= _____ ft.
CCN _____ ft. CCE _____ ft.
APN _____

CLIENT
Name BP Oil Company - Scott Hooton
Address 295 SW 41st St Phone 425-251-0689
City Renton WA Zip 98055

APPLICANT
Name Cambria Environmental - Khaled Rahman
Fax 510-450-8295
Address 6262 Hollis St Phone 510-450-8294
City Emeryville CA Zip 94608

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☐
Monitoring	☐	Well Destruction	☒

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other _____	☐

DRILLING METHOD:
Mud Rotary ☐ Air Rotary ☐ Auger ☐
Cable ☐ Other ☒ Pressure Grout

DRILLER'S LICENSE NO. C57-485165 Gregg Drilling

WELL PROJECTS See Attached - 5 wells to be abandoned
Drill Hole Diameter _____ in. Maximum
Casing Diameter _____ in. Depth _____ ft.
Surface Seal Depth _____ ft. Number _____

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

ESTIMATED STARTING DATE 1/31/01 ESTIMATED COMPLETION DATE 1/31/01

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68
APPLICANT'S SIGNATURE Khaled Rahman (Cambria) Date 12/18/01
for BP & Gregg

PERMIT NUMBER 22011
WELL NUMBER 2S/1W 36P15 - 36P18 & 36P37
APN 941 0210 013 00

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 SUPPLY WELLS
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 and irrigation wells unless a lesser depth is specially approved.
3. An access port at least 0.5 inches in diameter is required on the wellhead for water level measurements.
4. A sample port is required on the discharge pipe near the wellhead.

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. 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.

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

(F) WELL DESTRUCTION. See attached

G SPECIAL CONDITIONS

Approved Wyman Hong Date 1/18/02
Wyman Hong

8/6/99

January 18, 2002

Zone 7
Water Resources Engineering
Groundwater Protection Ordinance

BP Oil Company
7197 Village Parkway
Dublin
Wells 2S/1W 36P15 (MW-1), 36P16 (MW-2), 36P17 (MW-3), 36P18 (AW-4) and 36P37 (tank well)
Permit 22011

Destruction Requirements:

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

2. Sound the well as deeply as practicable and record for your report.

3. Pressure grout the casing to two feet below the finished grade or original ground, whichever is the lower elevation.

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

5. After the seal has set, backfill the remaining hole with compacted material(optional).

CAMBRIA

Appendix C

Standard Field Procedures for Abandoning Monitoring Wells

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.

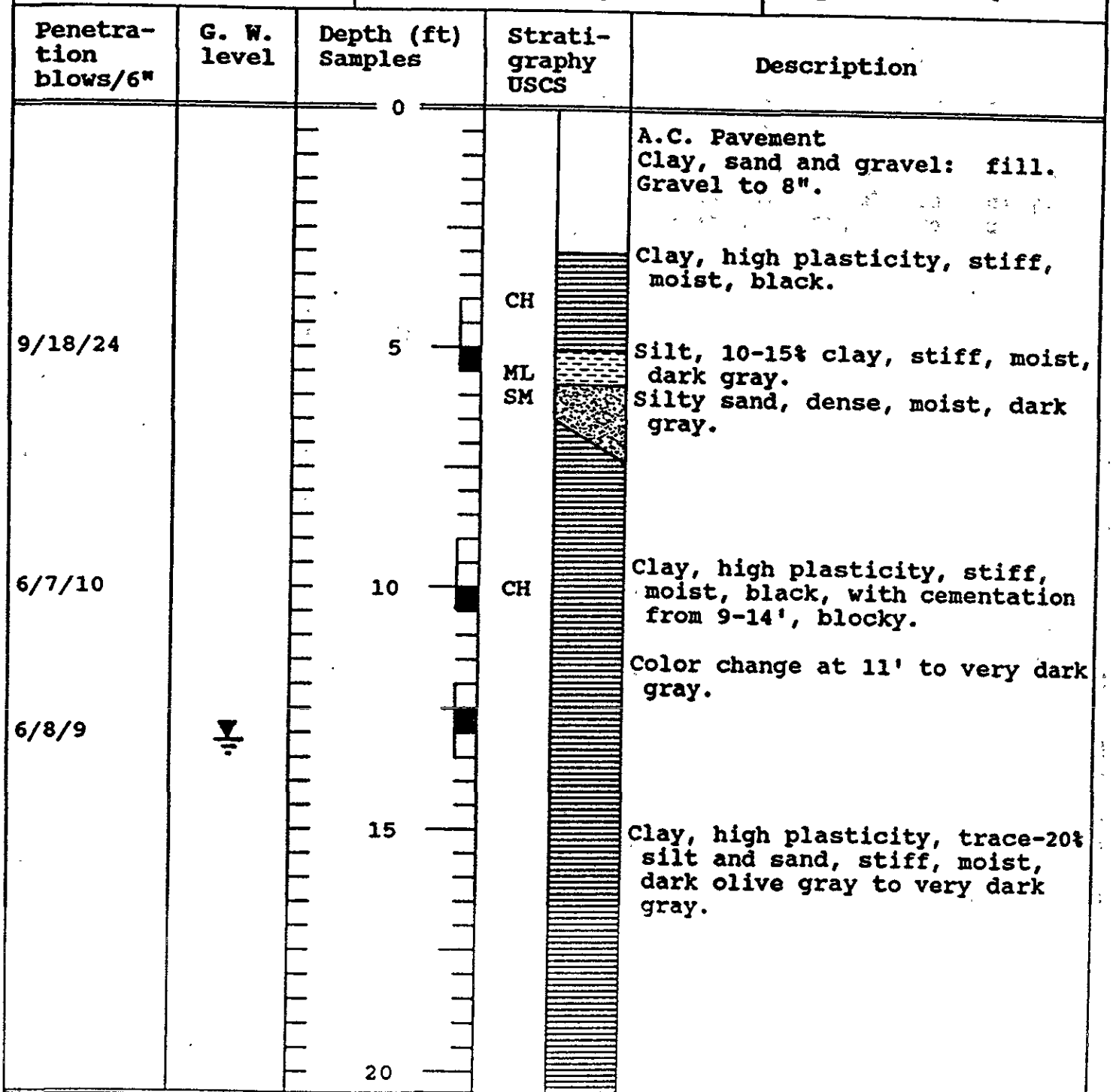
CAMBRIA

Appendix D

Boring Logs

BORING LOG

Project No. KEI-P88-1206	Boring & Casing Diameter 9" 2"	Logged By D.L.
Project Name Mobil, Dublin, Village Pkwy.	Well Head Elevation N/A	Date Drilled 8/29/89
Boring No. MW1	Drilling Method Hollow-stem Auger	Drilling Company EGI



BORING LOG

Project No. KEI-P88-1206	Boring & Casing Diameter 9" 2"	Logged By D.L.
Project Name Mobil, Dublin, Village Pkwy.	Well Head Elevation N/A	Date Drilled 8/29/89
Boring No. MW1	Drilling Method Hollow-stem Auger	Drilling Company EGI

Penetration blows/6"	G. W. level	Depth (ft) Samples	Stratigraphy USCS	Description
		25	CH	Clay, as above.
				Silty clay, high plasticity, stiff, moist, olive gray.
		30		
		35		
		40		TOTAL DEPTH 26'

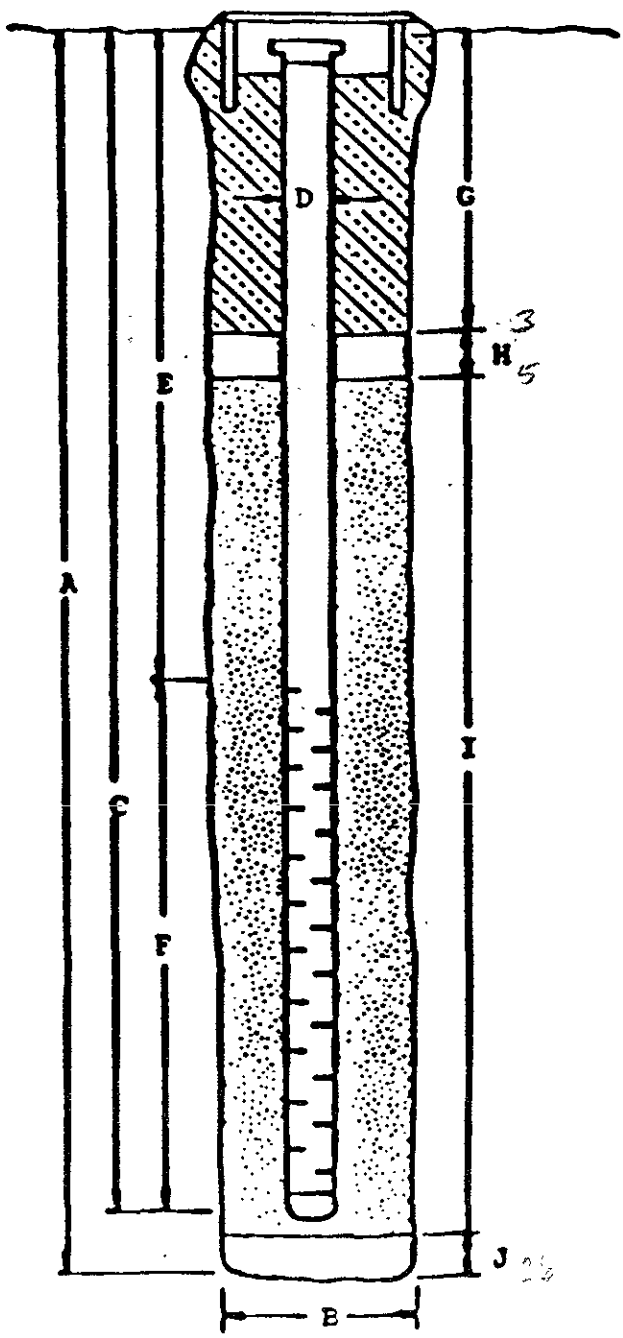
WELL COMPLETION DIAGRAM

PROJECT NAME: Mobil - Dublin, Village Parkway BORING/WELL NO. MW1

PROJECT NUMBER: KEI-P88-1206

WELL PERMIT NO.:

Flush-mounted Well Cover



A. Total Depth: 26'

B. Boring Diameter*: 9"

Drilling Method: Hollow Stem Auger

C. Casing Length: 26'

Material: Schedule 40 PVC

D. Casing Diameter: OD = 2.375"

ID = 2.067"

E. Depth to Perforations: 6'

F. Perforated Length: 20'

Perforation Type: Machined Slot

Perforation Size: 0.020"

G. Surface Seal: 3'

Seal Material: Concrete

H. Seal: 2'

Seal Material: Bentonite

I. Gravel Pack: 21'

Pack Material: RMC Lonestar Sand

Size: #3

J. Bottom Seal: None

Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

BORING LOG

Project No. KEI-P88-1206	Boring & Casing Diameter 9" 2"	Logged By D.L.
Project Name Mobil, Dublin, Village Pkwy.	Well Head Elevation N/A	Date Drilled 8/29/89
Boring No. MW2	Drilling Method Hollow-stem Auger	Drilling Company EGI

Penetration blows/6"	G. W. level	Depth (ft) Samples	Stratigraphy USCS	Description
		0		A.C. Pavement Clay, sand and gravel: fill.
			CH	Clay, high plasticity, stiff, moist, black.
14/17/21		5	ML SM	Silt with clay, stiff, moist, dark gray. Silty sand, dense, moist, dark gray.
8/13/12		10	CH/CL	Sandy clay, high plasticity, stiff, moist, very dark gray.
9/11/11				Clay, high plasticity, stiff, moist, dark olive gray with cementation, blocky. Color change at 14' to very dark gray.
8/8/14	▼	15		Clay, high plasticity, trace-20% silt and sand, stiff, moist, dark olive gray to very dark gray.
		20		

BORING LOG

Project No. KEI-P88-1206	Boring & Casing Diameter 9" 2"	Logged By D.L.
Project Name Mobil, Dublin, Village Pkwy.	Well Head Elevation N/A	Date Drilled 8/29/89
Boring No. MW2	Drilling Method Hollow-stem Auger	Drilling Company EGI

Penetration blows/6"	G. W. level	Depth (ft) Samples	Stratigraphy USCS	Description
			CH	Clay, as above.
				Silty clay, high plasticity, stiff, moist, olive gray.
		25		
		30		
		35		
		40		TOTAL DEPTH 26'

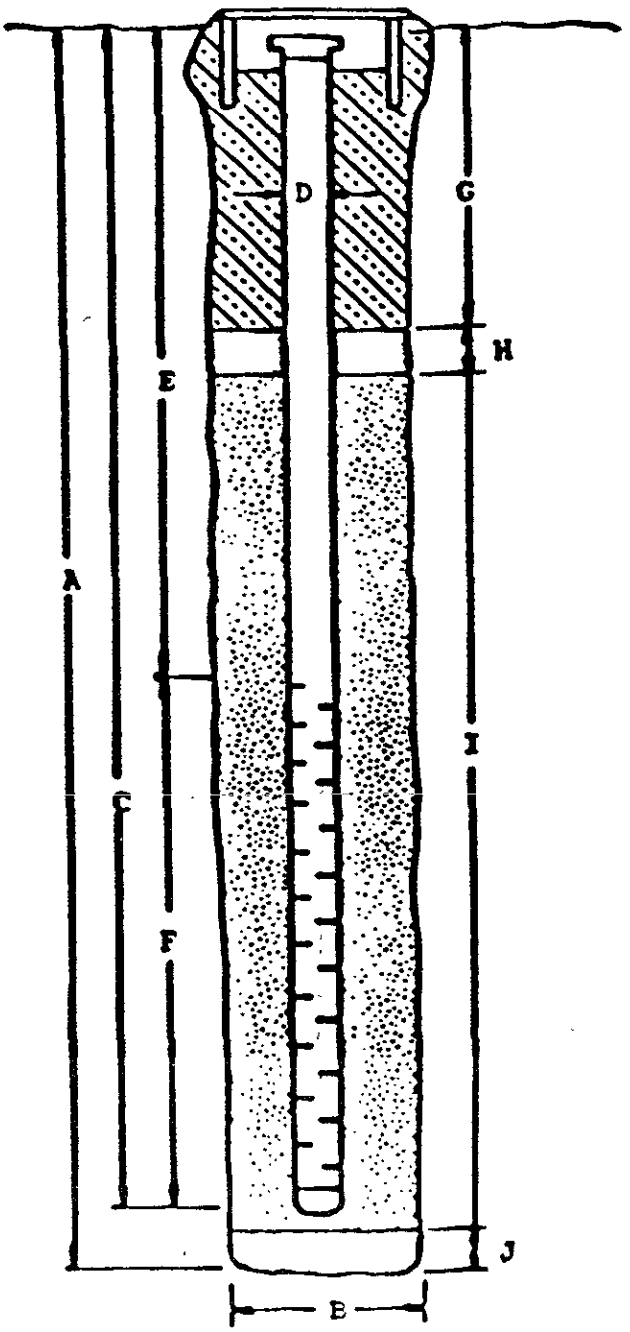
WELL COMPLETION DIAGRAM

PROJECT NAME: Mobil - Dublin, Village Parkway BORING/WELL NO. MW2

PROJECT NUMBER: KEI-P88-1206

WELL PERMIT NO.:

Flush-mounted Well Cover



A. Total Depth: 26'

B. Boring Diameter*: 9"

Drilling Method: Hollow Stem Auger

C. Casing Length: 26'

Material: Schedule 40 PVC

D. Casing Diameter: OD = 2.375"

ID = 2.067"

E. Depth to Perforations: 6'

F. Perforated Length: 20'

Perforation Type: Machined Slot

Perforation Size: 0.020"

G. Surface Seal: 3'

Seal Material: Concrete

H. Seal: 2'

Seal Material: Bentonite

I. Gravel Pack: 21'

Pack Material: RMC Lonestar Sand

Size: #3

J. Bottom Seal: None

Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

BORING LOG

Project No. KEI-P88-1206	Boring & Casing Diameter 9" 2"	Logged By D.L.
Project Name Mobil, Dublin, Village Pkwy.	Well Head Elevation N/A	Date Drilled 8/29/89
Boring No. MW3	Drilling Method Hollow-stem Auger	Drilling Company EGI

Penetration blows/6"	G. W. level	Depth (ft) Samples	Stratigraphy USCS	Description
		0		A.C. Pavement Clay, sand and gravel: fill.
			CH	Clay, high plasticity, stiff, moist, black, silty above 3'.
10/16/22		5	ML	Silt, 10-15% clay, stiff, moist, dark gray.
				Clay, high plasticity, stiff, moist, very dark gray to black.
5/5/6		10	CH	Sandy clay, high plasticity, soft, moist to very moist, very dark gray, with cemented root holes, increasing with depth.
9/9/12				Silty clay, high plasticity, trace sand, firm, moist, dark olive gray, with cemented root holes, trace gravel below 13'.
4/7/9	▼			
		15		
				Clay, high plasticity, very stiff, moist, dark olive gray to very dark gray.
9/12/17		20		

BORING LOG

Project No. KEI-P88-1206	Boring & Casing Diameter 9" 2"	Logged By D.L.
Project Name Mobil, Dublin, Village Pkwy.	Well Head Elevation N/A	Date Drilled 8/29/89
Boring No. MW3	Drilling Method Hollow-stem Auger	Drilling Company EGI

Penetration blows/6"	G. W. level	Depth (ft) Samples	Stratigraphy USCS	Description
				Clay, as above.
			CH	Silty clay, high plasticity, very stiff, moist, olive gray.
		25		
		30		
		35		
		40		TOTAL DEPTH 26'

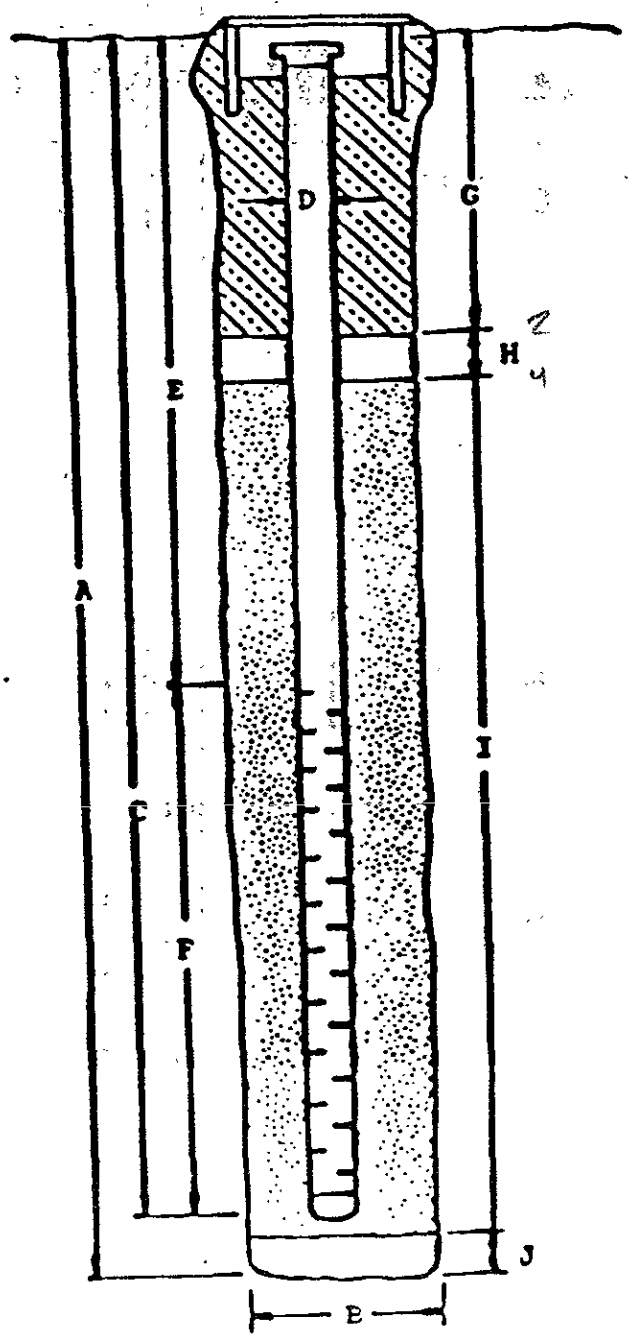
WELL COMPLETION DIAGRAM

PROJECT NAME: Mobil - Dublin, Village Parkway BORING/WELL NO. MW3

PROJECT NUMBER: KEI-P88-1206

WELL PERMIT NO.:

Flush-mounted Well Cover



A. Total Depth: 26'

B. Boring Diameter*: 9"

Drilling Method: Hollow Stem Auger

C. Casing Length: 26'

Material: Schedule 40 PVC

D. Casing Diameter: OD = 2.375"

ID = 2.067"

E. Depth to Perforations: 6'

F. Perforated Length: 20'

Perforation Type: Machined Slot

Perforation Size: 0.020"

G. Surface Seal: 2'

Seal Material: Concrete

H. Seal: 2'

Seal Material: Bentonite

I. Gravel Pack: 22'

Pack Material: RMC Lonestar Sand

Size: #3

J. Bottom Seal: None

Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

ALTON GEOSCIENCE, Inc.
LOG OF EXPLORATORY BORING

PROJECT NO. 30-095 DATE DRILLED 11/6/90
CLIENT Mobil Oil Corporation
LOCATION 7197 Village Pkwy, Dublin
LOGGED BY B. Nagle APPROVED BY

BORING NO. AW-4
WELL NO. AW-4

FIELD SKETCH OF BORING LOCATION

TOP OF CASING ELEVATION 333.44

DRILLING METHOD Hollow stem auger HOLE DIAM. 10"
SAMPLER TYPE Modified split spoon
CASING DATA Perforations: 20-35'
DRILLER West Hazmat

WATER LEVEL	26'	8.51'	
DATE	11/6/90	11/15/90	
TIME	0930		

BLOWS PER FOOT(N)	OGI (PPM)	SAMPLE	DEPTH	WELL CONSTRUCTION OR BORING CLOSURE	USCS	PROFILE	DESCRIPTION
			0	Street Box			
8, 5, 8	0		6	4" sch. 40 PVC Casing	SM		SILTY CLAY; brown, damp to moist, moderate plasticity, stiff; minor lens of silty sand
3, 4, 6	0		10		CL		Appearance of abundant rootlets; no sand lens
4, 7, 10	0		16				Appearance of occasional gravels to 1/2-inch diameter; no rootlets
3, 4, 8	0		20				Appearance of minor sand; moisture change to moist
5, 9, 9			26	4" sch. 40 PVC .010" Slot	∇		Color change to mottled grayish brown and brown; moisture change to wet
			28				Softer drilling at 28 feet
3, 5, 11			30		SM		SILTY SAND; light brown, wet, medium dense
			34		CL		SILTY CLAY; brown, damp to moist, low plasticity, very stiff

ALTON GEOSCIENCE, Inc.
LOG OF EXPLORATORY BORING

PROJECT NO. 30-095 DATE DRILLED 11/6/90
CLIENT Mobil Oil Corporation, USA
LOCATION 7197 Village Pkwy., Dublin
LOGGED BY B. Nagle APPROVED BY

BORING NO. AW-4
WELL NO. AW-4

FIELD SKETCH OF BORING LOCATION

TOP OF CASING ELEVATION 333.4

DRILLING METHOD Hollow stem auger HOLE DIAM. 10"
SAMPLER TYPE Modified split spoon
CASING DATA Perforations: 20-35
DRILLER West Hazmat

BLOWS PER FOOT(N)	CGI (PPM)	SAMPLE	DEPTH	WELL CONSTRUCTION OR BORING CLOSURE	USCS	PROFILE	WATER LEVEL			
							DATE			
							TIME			
							DESCRIPTION			
5, 11, 12			34 36 38 40 42 44 46 48 50	End Cap			SILTY CLAY; brown, damp to moist, low plasticity, very stiff			

Boring termiated at 36.5'

Free ground water encountered at approximately 26.5 feet below grade.

Portland Cement
Sand #3 Lonestar
Bentonite Pellets
Driven interval
Sample
Water level encountered during

CAMBRIA

Appendix E

Well Completion Report Forms

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED