

Ms. Sara Krepps
Oregon Department of Environmental Quality
Northwest Region Portland Office
700 NE Multnomah St.
Portland, OR 97201-4987

Arcadis U.S., Inc.
1420 5th Avenue
Suite 2400
Seattle, WA 98101
United States
Phone: 206 325 5254
www.arcadis.com

Date: June 27, 2024

Former Petroleum Terminal #0022 and Manufactured Gas Plant
DEQ ECSI #1646
256 Marine Drive
Astoria, Oregon

Subject: Monitoring Well Abandonment Work Plan

Dear Ms. Krepps,

On behalf of Union Oil Company of California (Union Oil) and PacifiCorp, collectively referred to as the Parties, Arcadis U.S., Inc. (Arcadis) has prepared this Monitoring Well Abandonment Work Plan (Work Plan) for the Astoria Unocal (Former Petroleum Terminal #0022 and Manufactured Gas Plant [MGP]) located at 256 Marine Drive, Astoria, Oregon Washington (site; Figure 1). The Oregon Department of Environmental Quality (DEQ) issued a Conditional No Further Action (CNFA) Letter (Attachment A) for the site on May 22, 2024. The objective of this Work Plan is to detail the work to be completed for the abandonment of the select monitoring wells at the site (MW-4, MW-5R, MW-6, MW-7, MW-9R, MW-11, MW-10, MW-13, MW-14, and MW-15).

Site Background

The site is comprised of the property located at 256 Marine Drive and adjacent properties to the north, northeast, and northwest, including submerged land within the Columbia River and is divided into three distinct areas, collectively referred to as the Locality of Facility (LOF):

- On-site upland area, which includes the 256 Marine Drive property (the Site)
- Off-site upland area, which includes upland areas north and northeast of the city block denoted as the Site
- Off-site in-water area, which includes the intertidal zone of the Columbia River north of the Site

Historically, the site was used as an MGP and a petroleum storage/distribution terminal. Monitoring wells were installed at the Site over the course of investigation and remediation activities conducted at the site between 1996 and 2023 for impacts related to historical use.

On November 14, 2023, DEQ notified the Parties that it concurred with the recommendation for an NFA. A CNFA for the LOF was issued by DEQ on May 22, 2024 (Attachment 1). After DEQ issued the CNFA, a Certification of Completion was issued by the Oregon DOJ on June 14, 2024 (DOJ 2024).

The current groundwater monitoring network includes 11 wells and the Parties recommend abandoning 10 of them, as described in this Work Plan. The following section describes the monitoring well abandonment activities to be completed in 2024.

Monitoring Well Abandonment

Prior to the start of field work, adjacent property owners and relevant stakeholders will be notified of proposed field activities and a. A Right-of-Way permit will be obtained from the City of Astoria. Traffic control will be required for the abandonment of MW-11, MW-13, MW-14, and MW-15 to protect work areas from pedestrian and vehicular traffic within the public Right-of-Way.

As required by the Occupational Safety and Health Administration 29 Code of Federal Regulations 1910.120 (Hazardous Waste Operations and Emergency Responses), Arcadis will prepare a Health and Safety Plan (HASP) that addresses the hazards associated with fieldwork at the site. The HASP is intended to identify and prevent potential safety hazards. Field staff and contractors will be required to review the HASP before beginning field operations at the site.

Underground utility location will be completed using the one call center and a private utility locating subcontractor. Utility clearance will be performed by the subcontractor prior to well abandonment and excavation activities. Utilities that will be inspected and marked during the site walk include existing utilities within the lot, and perimeter of the site. The subcontractor will check valves, meters, conduit trenching seams, utility vaults, lids and public mark-outs. The subcontractor will use magnetic detection, magnetic locator sweep, electromagnetic induction, and/or ground penetrating radar. Identified utilities will be discussed prior to any subsurface activities.

Arcadis will coordinate field activities associated with the abandonment of monitoring wells MW-4, MW-5R, MW-6, MW-7, MW-9R, MW-10, MW-11, MW-13, MW-14, and MW-15. Depth to water and total depth gauging will be performed at each of the 10 monitoring wells using an oil-water interface probe prior to abandonment.

Under the supervision and direction of Arcadis, an Oregon licensed driller will over-drill 10 groundwater monitoring wells (MW-4, MW-5R, MW-6, MW-7, MW-9R, MW-11, MW-10, MW-13, MW-14, and MW-15) with a rotary sonic drill rig to a minimum diameter of the original installation, in accordance with Oregon Administrative Rule (OAR) 690-240-0510. Monitoring wells that will be abandoned are shown on Figure 1. Attachment 2 includes well logs from the Oregon Water Resources Department (OWRD) Well Log Database. All well abandonment reports will be filed with the Oregon Water Resources Department (OWRD) after the work is completed.

Investigation-Derived Waste (IDW), including well decommissioning materials, purge water and decontamination liquids, will be stored on site in appropriately labeled containers and properly disposed. Disposable materials will be stored separately and properly disposed. Containers must be labeled at the time of collection and will include date, location(s), site name, city, state, and description of matrix contained (e.g., water, PPE).

Reporting

Upon completion of the field activities proposed in this Work Plan, Arcadis will describe the well abandonment activities in the 2024 Upland Cap Inspection and Maintenance Report to be submitted to Oregon DEQ as part of the CNFA.

Sara Krepps
Oregon DEQ
June 27, 2024

Sincerely,
Arcadis U.S., Inc.

A handwritten signature in black ink, appearing to read "Eric Epple".

Eric Epple
Project Manager

Email: Eric.Epple@arcadis.com
Direct Line: 206.578.5812

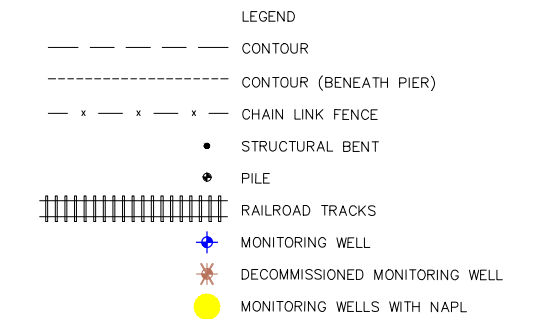
Enclosures:

- Figure 1. Site Plan
- Attachment 1. No Further Action Letter; DEQ
- Attachment 2. Oregon State Well Logs

References

DOJ 2024. Certification of Completion (DEQ ECSI No. 1646). June 14.

Figure



1. BASE MAP FROM A SURVEY PREPARED BY HLB AND ASSOCIATES, INC. ENTITLED "SURVEY FOR MAUL FOSTER & ALONGI", AUTOCAD FILENAME GO3-8424-01-02.DWG, DATED JANUARY 8, 2004 IN AN APPARENT ASSUMED HORIZONTAL DATUM. SITE FEATURES FROM THE SURVEY WERE MOVED TO APPROXIMATELY MATCH GEOREFERENCED GIS DATA. APPARENT COORDINATE SYSTEM IS:
NAD_1983_HARN_StatePlane_Oregon_North_FIPS_3601_IntlFeet.
2. ALL FEATURE LOCATIONS ARE APPROXIMATE.



SITE PLAN



FIGURE
1

Attachment 1

Oregon DEQ

No Further Action Letter



Oregon

Kate Brown, Governor

Department of Environmental Quality

Northwest Region

700 NE Multnomah St., Suite 600

Portland, OR 97232

(503) 229-5696

May 22, 2024

Jackie Wetzsteon
PacifiCorp
Environmental Policy and Strategy
825 NE Multnomah, Suite 2000
Portland, OR 97232

Nathan Blomgren
Chevron Environmental Management Company
5001 Executive Parkway, Suite 200
San Ramon, CA 94583

RE: Conditional No Further Action Determination
for PacifiCorp/Unocal Former Petroleum Terminal No. 0022 and Manufactured Gas Plant in
Astoria, ECSI #1646

Dear Ms. Wetzsteon & Mr. Blomgren:

The Oregon Department of Environmental Quality (DEQ) has completed a review of the available information for the PacifiCorp/Unocal Former Petroleum Terminal No. 0022 facility, including the closure reports cited in the August 19, 2022 Request for Issuance of Conditional No Further Actions, which was submitted to DEQ by Arcadis and DOF on your behalf. The PacifiCorp/Unocal Former Petroleum Terminal No. 0022 and Manufactured Gas Plant facility includes:

- One city block located at 256 Marine Drive, Astoria, Oregon comprising Lots 1 through 8 of Block 2 of McClures, Astoria (the Property)
- Upland areas between the Property and the Columbia River, and
- An in-water area including the intertidal zone of the Columbia River north and northeast of the Property.

DEQ has determined that remedial action to address environmental contamination at PacifiCorp/Unocal Former Petroleum Terminal No. 0022 is complete, and no further action is required, conditioned upon adherence to restrictions recorded with the property through an Easement and Equitable Servitude agreement (EES). This determination is a result of our evaluation and judgment based on the DEQ regulations and the facts as we now understand them including the following, and as more fully described in DEQ's Staff Memo dated March 21, 2024:

- Historical industrial use of the site included a manufactured gas plant (MGP) and a petroleum storage and distribution terminal.
- Contamination sources are from surface and subsurface spills or leaks from the former MGP and petroleum storage and distribution terminal operations, including sources of PAHs, diesel range organics, cyanide, metals and volatile organic compounds.
- The impacted media are soil, sediment, groundwater and surface water.
- In 1987, contaminated soil was removed and replaced with clean fill. In 2018, an upland cap was completed. In 2020, an in-water cap construction was completed. LNAPL recovery from monitoring wells began in 2002 and is ongoing.

- Contaminated soil, shallow groundwater, and LNAPL remain under portions of the upland and in-water caps.
- Reasonably anticipated short-term future land use at the site is commercial/industrial, though redevelopment to residential use may be allowed as a conditional use under current zoning. The lower reach of the Columbia River is north of the site, just upstream of Youngs Bay. Current uses of this portion of the Columbia River include ecological habitat, transportation, recreation, commercial and subsistence fishing, and irrigation.
- Complete human health pathways include the following: soil ingestion, dermal contact, and inhalation for all on-site receptors; groundwater incidental ingestion for excavation and construction workers, dermal contact and inhalation and air inhalation for potential occupational workers. Complete ecological exposure pathways include groundwater ingestion, dermal contact and gill uptake for aquatic organisms.
- The upland cap prevents direct contact with contamination in soil and shallow groundwater, including LNAPL. The in-water remedy prevents LNAPL from discharging to sediment and the cap prevents contact with impacted sediments.
- The 45-day public comment period for the CNFA started on April 1, 2024, and closed May 15, 2024, at 5:00pm. No public comments were received.
- Institutional controls for capped areas will be maintained through an Easement and Equitable Servitude agreement (EES) with a Contaminated Material Management Plan (CMMP) to address future subsurface maintenance or site redevelopment activities. Upland and in-water caps shall be maintained in accordance with their respective Operation, Monitoring, and Maintenance Plans. Upland LNAPL monitoring and removal will continue according to the adaptive management approach established in the LNAPL Pilot Scale Study and Recovery Report (Arcadis 2014). The EES prohibits use of shallow groundwater for consumption or other beneficial uses, and on-Property building construction without installation of a vapor barrier. An DEQ-approved investigation of the soil gas to indoor air pathway is required to remove this restriction.

Based on the available information, soil, sediment, groundwater and surface water conditions at PacifiCorp/Unocal Former Petroleum Terminal No. 0022 are currently protective of public health and the environment in accordance with Oregon environmental cleanup law, ORS 465.200 et seq. The site requires no further action unless new or previously undisclosed information becomes available, or there are changes in site development or land and water uses, or more contamination is discovered. DEQ will update the Your DEQ Online (YDO) database to reflect this decision.

This letter only applies to the release(s) discussed above. If any contaminated media is encountered in the future, it must be handled and disposed of in accordance with local, state and federal regulations. Monitoring wells that are not related to ongoing monitoring should be maintained or decommissioned in accordance with Oregon Water Resources Department regulations.

A copy of the relevant reports, including the EES, CMMP, approved monitoring plans and DEQ's Staff Memo supporting this Conditional No Further Action decision can be viewed at: https://ormswd2.synergydcs.com/HPRMWebDrawer/Record?q=webdrawercode%3A%22*082*%22+And+recAnyWord%3A%22ECSI1646%22&sortBy=recTypedTitle-. DEQ recommends keeping a copy of all the documentation associated with this remedial action with the permanent facility records. If you have any questions, please contact Sara Krepps at 503-956-9363, or via email at sara.krepps@deq.oregon.gov.

Sincerely,



Amanda Wozab, Manager
Northwest Region Cleanup Section

Attachment(s): Site Map
CMMP
EES

cc: Erin McDonnell, DEQ
Mike Romero, DEQ
Eric Epple, Arcadis
Rob Webb, DOF
Anna St. John, Bridgewater
Nathan Blomgren, Chevron
Kristopher Byrd, WRD
ECSI #1646 File

Attachment 2

Oregon State Well Logs

STATE OF OREGON
MONITORING WELL REPORT
(as required by ORS 537.765 & OAR 690-240-095)

Instructions for completing this report are on the last page of this form.

(1) OWNER/PROJECT:

Name Unocal CERT - northern Region
Address P.O. Box 96
City Seattle State WA Zip 98111

(2) TYPE OF WORK:

- ☒ New construction ☐ Alteration (Repair/Recondition)
☐ Conversion ☐ Deepening ☐ Abandonment

(3) DRILLING METHOD

- ☒ Rotary Air ☐ Rotary Mud ☐ Cable
☐ Hollow Stem Auger ☐ Other

(4) BORE HOLE CONSTRUCTION

Special Standards ☐ Yes ☒ No
Depth of completed well 20 ft.

Protective casing ☐ Locking cap
Cement monument ☐ Protective post

Land surface

Monument +3 ft. TO -2 ft.

Seal 1 ft. TO 3 ft.

Filter pack 3 ft. TO 20 ft.

Casing diameter 2 in. material PVC sch 40
Welded ☐ Threaded ☒ Glued ☐
Liner diameter _____ in. material _____
Welded ☐ Threaded ☒ Glued ☐
Well seal: Material Bentonite chips
Amount 50 lbs
Grout weight _____
Borehole diameter 6 in.
Bentonite plug at least 3 ft. thick
Screen material PVC sch 40
interval(s): From 5 To 20
Slot size .010 in.
Filter pack: Material 10/20 sand
Size _____ in.

(5) WELL TEST:

☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian
Permeability _____ Yield _____ GPM
Conductivity _____ PH _____
Temperature of water 48°F °F/C Depth artesian flow found _____ ft.
Was water analysis done? ☐ Yes ☒ No
By whom?
Depth of strata to be analyzed. From _____ ft. to _____ ft.
Remarks:

Name of supervising Geologist/Engineer Terry Fish

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT

RECEIVED

JUL - 5 1994

Start Card # 65055

(6) LOCATION OF WELL By legal description

Well Location: County Clatsop
Township 8 (N or S) Range 9 (E or W) Section 9
1. NE 1/4 of SE 1/4 of above section.
2. Either Street address of well location 256 Marine Dr.
Astoria, Ore.
or Tax lot number of well location

3. ATTACH MAP WITH LOCATION IDENTIFIED. Map shall include approximate scale and north arrow.

(7) STATIC WATER LEVEL:

0 Ft. below land surface. Date 6-24-94
Artesian Pressure 0 lb/sq. in. Date

(8) WATER BEARING ZONES:

Depth at which water was first found N/A

From	To	Est. Flow Rate	SWL

(9) WELL LOG:

Ground elevation approx 20 ft.

Material	From	To	SWL
Brown to Black silty sand	0	1.5	
Brown to Gray mottled silt	1.5	9.5	
Gray Green silt	9.5	12	
Mottled Gray Brown Orange Brown silt	12	19	
Dark gray silt	19	20	

Date started 6-24-94 Completed 6-24-94

(unbonded) Monitor Well Constructor Certification:

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to the best knowledge and belief.

Signed Dan Chassen

MWC Number 10284

Date 6-24-94

(bonded) Monitor Well Constructor Certification:

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

Signed [Signature]

MWC Number 10054

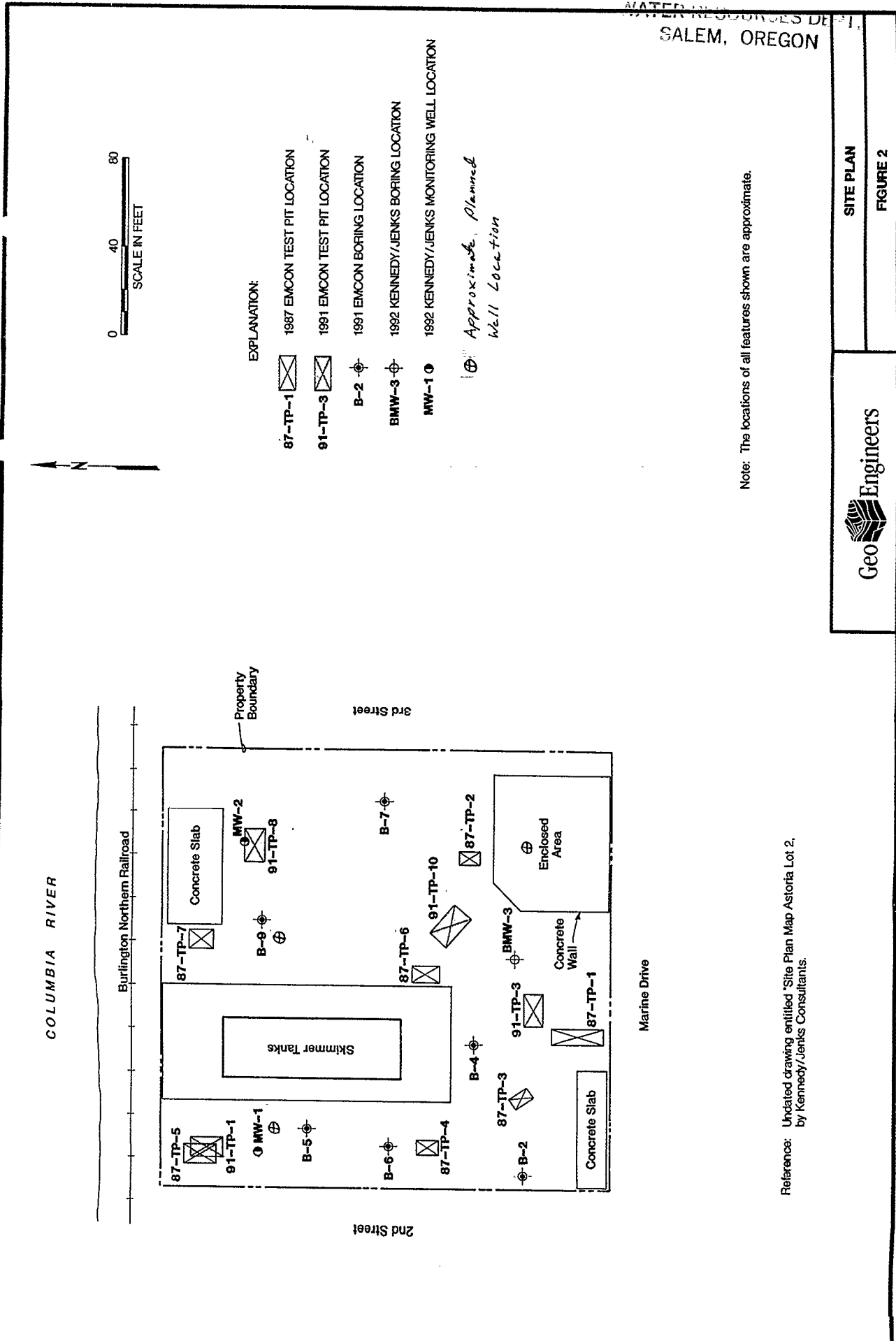
Date 6/29/94

SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER

RECEIVED

JUL - 5 1994

WATER RESOURCES DEPT.
SALEM, OREGON



SHERWOOD (SEPERATE BILL)

TROLLEY TRACKS

CONFIDENTIAL

107
PARKING

THIS MON. NEWS TO BE
ONCE CORED OUT. EZ STREET
AND TOP

AF 2

11/17/73
11/17/73

EXISTING

PARKING
LOT

START TO
NEED
SHOWN

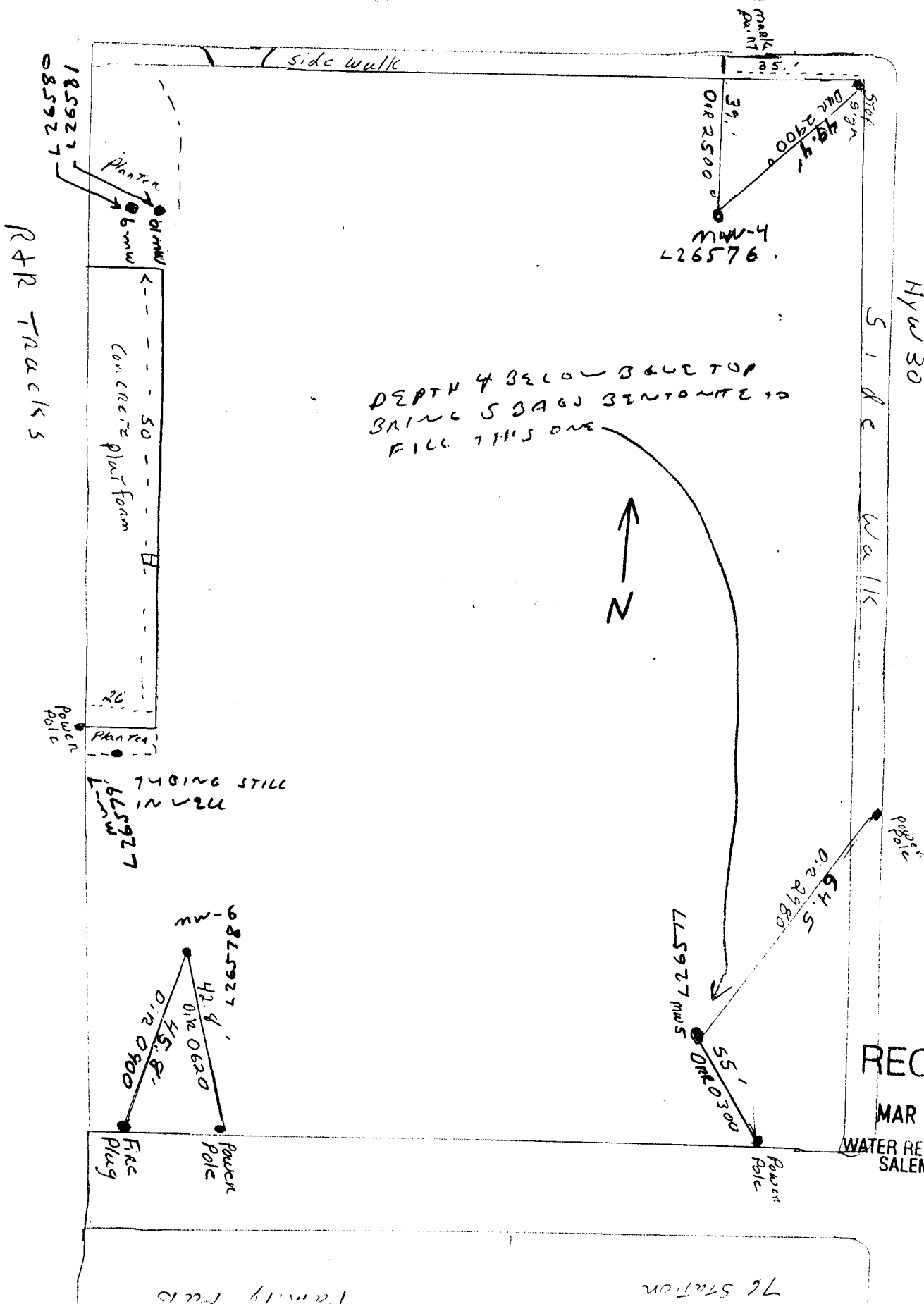
EXISTING
WELLS

RECEIVED

JAN 21 2004

**WATER RESOURCES DEPT
SALEM, OREGON**

Burger King



Instructions for completing this report are on the last page of this form.

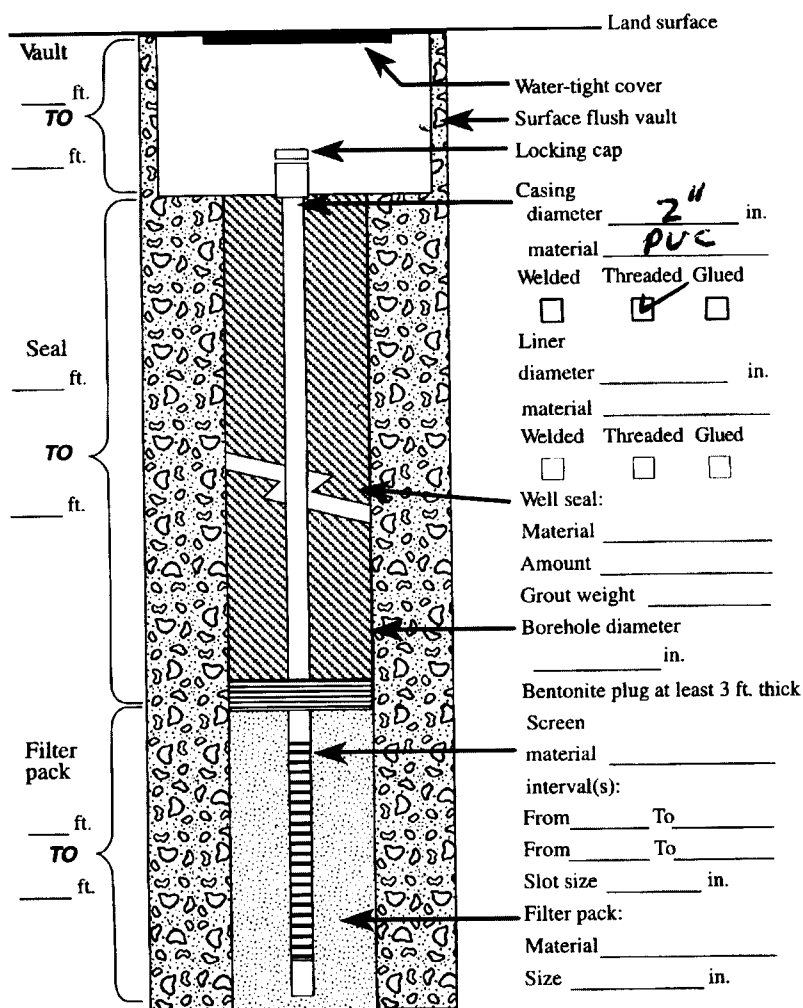
WELL NO. MW-7

Name Pacific Corp.
Address 825 N. Melba Ave
City Portland State OR Zip 97232

☐ New construction ☒ Alteration (Repair/Recondition)
☐ Conversion ☐ Deepening ☐ Abandonment

☐ Rotary Air ☐ Rotary Mud ☐ Cable
☐ Hollow Stem Auger ☐ Other _____

Special Standards ☐ Yes ☐ No Depth of Completed Well 20.48 ft.



☐ Pump ☒ Bailer ☐ Air ☐ Flowing Artesian
 Permeability _____ Yield _____ GPM
 Conductivity _____ PH _____
 Temperature of water 48 °C Depth artesian flow found _____ ft.
 Was water analysis done? ☐ Yes ☐ No
 By whom? _____
 Depth of strata to be analyzed. From _____ ft. to _____ ft.
 Remarks: _____

Name of supervising Geologist/Engineer

County Clatsop Latitude _____ Longitude _____
Township 8N (N or S) Range 9W (E or W) Section 7
NE 1/4 of SE 1/4 of above section.

Street address of well location 2530 Marine Dr.
Astoria, OR

Tax lot number of well location 700

ATTACH MAP WITH LOCATION IDENTIFIED. Map shall include approximate scale and north arrow.

_____ Ft. below land surface. Date _____

Artesian Pressure _____ lb/sq. in. Date _____

Depth at which water was first found

From	To	Est. Flow Rate	SWL

Ground Elevation

[illegible]

Date started 1-16-02 Completed 1-16-02

(unbonded) Monitor Well Constructor Certification:

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

Signed _____ Date _____

(bonded) Monitor Well Constructor Certification:

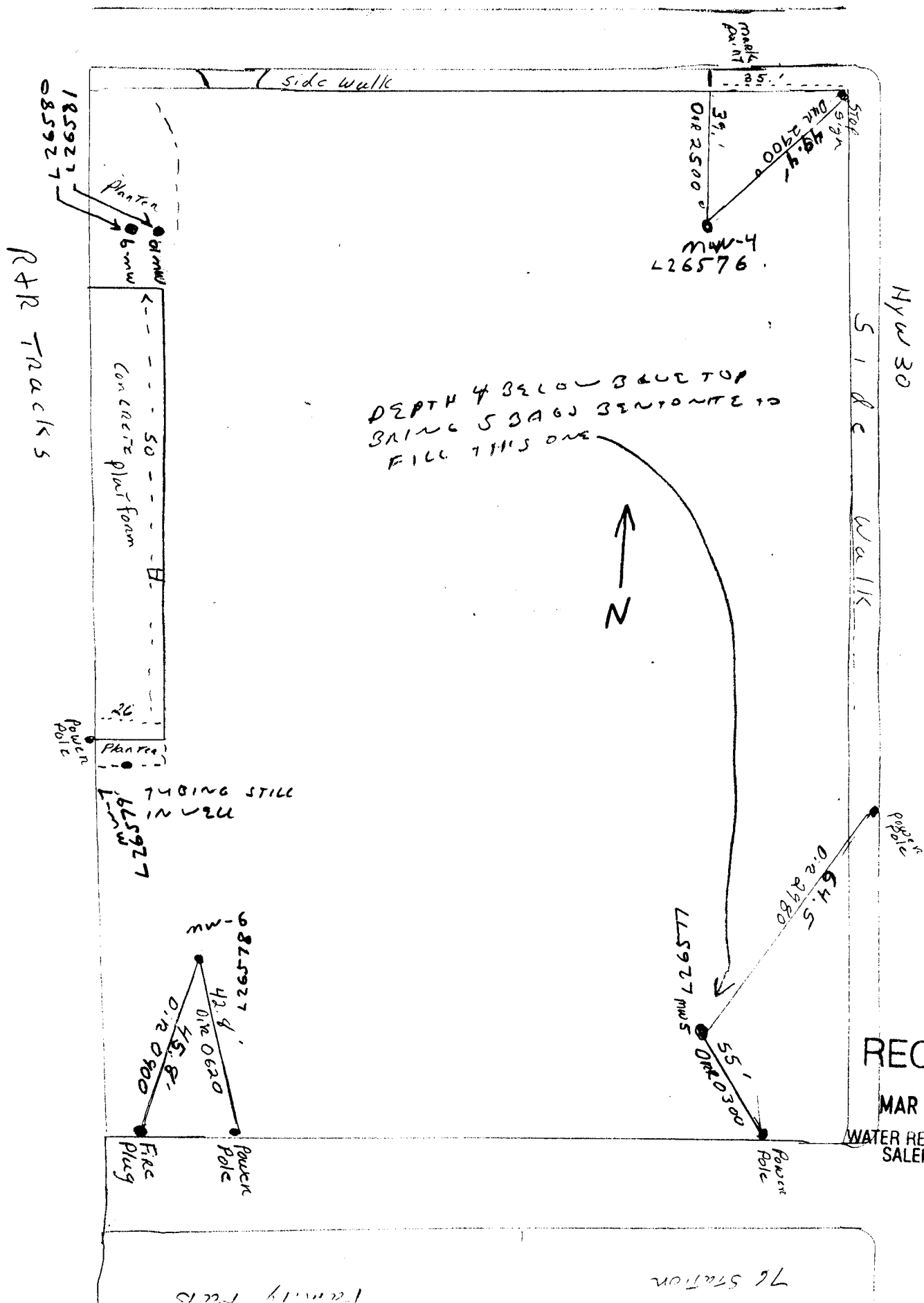
I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.

Signed [Signature] MWC Number 10077
Date 1/16/02

ORIGINAL COPY – WATER RESOURCES DEPARTMENT

FIRST COPY – CONSTRUCTOR SECOND COPY – CUSTOMER

Burger King



RECEIVED

MAR 12 2002

WATER RESOURCES DEPT.
SALEM, OREGON

L 26581

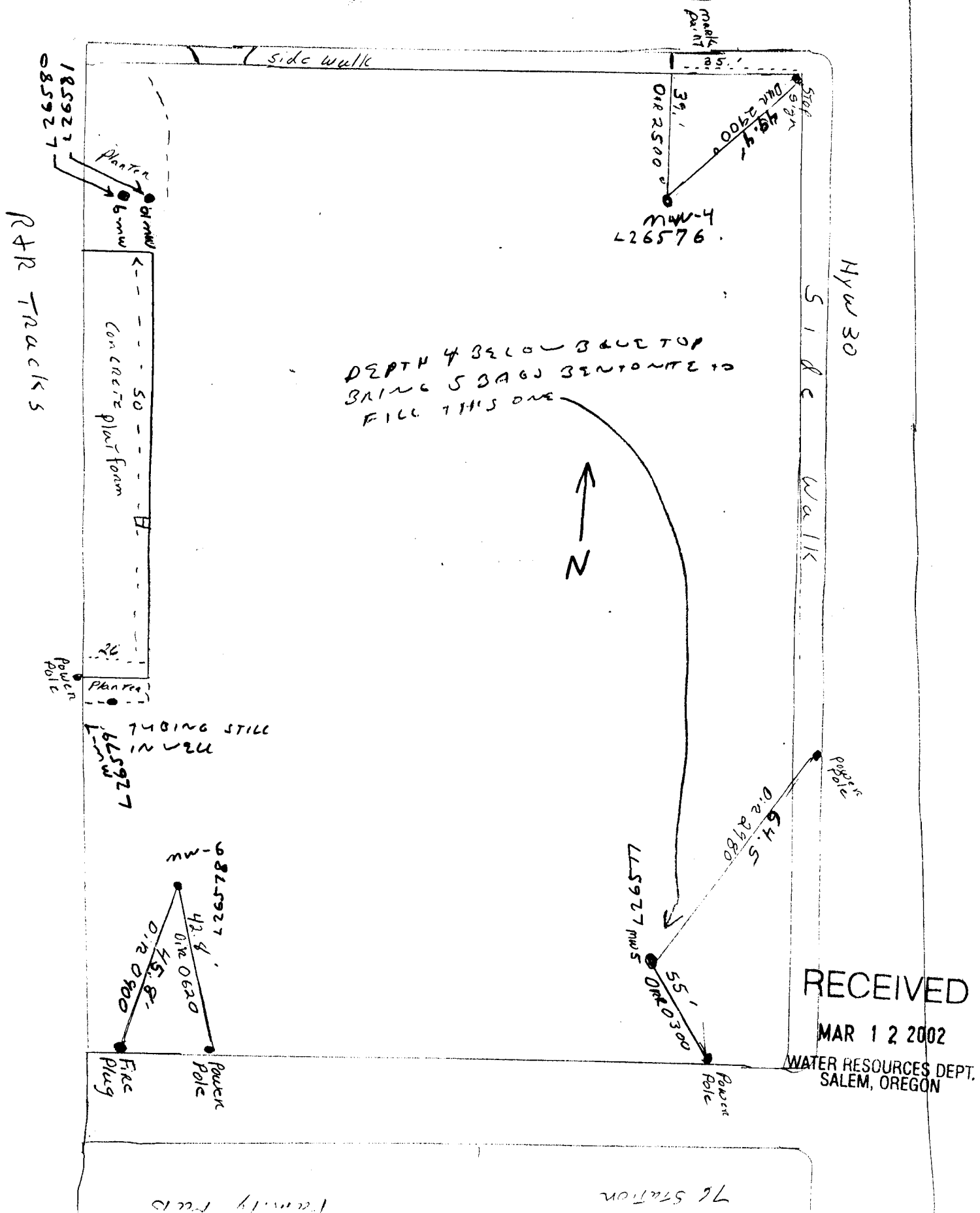
Instructions for completing this report are on the last page of this form.

Start Card # 137936

Signed [Signature] MWC Number 10077
Date 1/16/02

SECOND COPY – CUSTOMER

Burger King



STATE OF OREGON

MONITORING WELL REPORT

(as required by ORS 537.765 & OAR 690-240-095)

Instructions for completing this report are on the last page of this form.

WELL I.D.# L33377CLAT
50931Start Card # 123031

(1) OWNER/PROJECT:

WELL NO. MW 11Name Unocal 76
Address 11220 Unocal Rd. Bldg. C
City Edmonds State WA Zip 98020

(2) TYPE OF WORK:

- ☒ New construction ☐ Alteration (Repair/Recondition)
☐ Conversion ☐ Deepening ☐ Abandonment

(3) DRILLING METHOD

- ☐ Rotary Air ☐ Rotary Mud ☐ Cable
☐ Hollow Stem Auger ☒ Other Sonic

(6) LOCATION OF WELL By legal description

Well Location: County Clatsop
 Township 8 (N or S) Range 9 (E or W) Section 7
 1. SW 1/4 of NW 1/4 of above section.
 2. Either Street address of well location 256 Marine
Astoria, Oregon 97103
 or Tax lot number of well location Right of way

3. ATTACH MAP WITH LOCATION IDENTIFIED. Map shall include approximate scale and north arrow.

(7) STATIC WATER LEVEL:

11' Ft. below land surface. Date 10/22/98
 Artesian Pressure 0 lb/sq. in. Date

BORE HOLE CONSTRUCTION

Special Standards Yes ☐ No ☒ Depth of completed well 21.25 ft.

Protective casing → Locking cap
 Cement monument → Protective post

Land surface

Monument 0 ft. TO 1 ft.

Seal 1 ft. TO 2 ft.

Filter pack 4.75 TO 23 ft.

Casing diameter 2 in.
 material PVC
 Welded ☐ Threaded ☒ Glued ☐
 Liner diameter _____ in.
 material _____
 Welded ☐ Threaded ☐ Glued ☐
 Well seal: Portland grout
 Material 100#
 Amount _____
 Grout weight _____
 Borehole diameter 8 in.
 Bentonite plug at least 3 ft. thick
 Screen material PVC
 interval(s): From 5.75 To 21.25
 From _____ To _____
 Slot size .01 in.
 Filter pack: Material _____
 Size _____ in.

(8) WATER BEARING ZONES:

Depth at which water was first found 11'

From	To	Est. Flow Rate	SWL
<u>8</u>	<u>23</u>	<u>NA</u>	<u>11'</u>

(9) WELLLOG:

Ground elevation _____

Material	From	To	SWL
<u>Silty Sandy</u>			
<u>Gravel</u>	<u>0</u>	<u>2.5</u>	
<u>Sand Silty</u>	<u>2.5</u>	<u>5</u>	
<u>Gravel</u>			
<u>Sandy Silty</u>	<u>5</u>	<u>8</u>	
<u>Gravel w/cobbles</u>			
<u>Silty Gravel</u>	<u>8</u>	<u>23</u>	<u>11</u>
<u>with Sand TO</u>			
<u>Sandy Gravel w/cobbles</u>			

RECEIVED

RECEIVED

SEP 21 1999

NOV 26 1999

WATER RESOURCES DEPT.
SALEM, OREGONWATER RESOURCES DEPT.
SALEM, OREGONDate started 10/21/98 Completed 10/22/98

(5) WELLTEST:

NA

- ☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian
 Permeability _____ Yield _____ GPM
 Conductivity _____ PH _____
 Temperature of water 12.5 °F Depth artesian flow found _____ ft.
 Was water analysis done? ☐ Yes ☐ No
 By whom? _____
 Depth of strata to be analyzed. From _____ ft. to _____ ft.
 Remarks: _____

Name of supervising Geologist/Engineer R. Healy CH2M Hill

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT

(unbonded) Monitor Well Constructor Certification:

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to the best knowledge and belief.

MWC Number _____

Signed _____ Date _____

(bonded) Monitor Well Constructor Certification:

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

MWC Number 1047Signed Daniel Casey Date 8/30/99
 SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER

MW 11 ID # 133377

NOV 26 1999

—98—

UMBIA RIVER

A

WATER RESOURCES DEPT.
SALEM, OREGON

30'

FORMER BURLINGTON NORTHERN RAILROAD

Subsurface Concrete Structures Identified Within TP-18.

Property Line

- Newer Utility Vols
Covered With Sh

- Utility Pole

18 Foot-High
Cyclone Fer

THIRD EFFECT

84

ce/Warehouse
Concrete Floor Slob
(Street Grade) -

MARINE DRIVE

FIGURE # 1 / PAGE 1

SEP 21 1999

WATER RESOURCES DEP
SALEM, OREGON

\\pctcorp\135729\drawings\13572918.dwg

STATE OF OREGON
MONITORING WELL REPORT

as required by ORS 517.265 & OAR 690.240.095

Instructions for completing this report are on the last page of this form

CLAT 51643

OR 3088-0

"Amended" *

Well ID# LG 3021

Start Card # 156301

(1) OWNER/PROJECT
Name Unocal
Address P.O. Box 399
City Edmonds State WA Zip 98020

WELL NO MW 13

(6) LOCATION OF WELL By legal description:

County Clatsop Latitude _____ Longitude _____
Township 8N (N or S) Range 9W (E or W) Section 7
NE 1/4 of SE 1/4 of above section

Street address of well location

256 Marine Dr. Astoria, OR

Tax lot number of well location 11700

ATTACH MAP WITH LOCATION IDENTIFIED. Map shall include approximate scale and north arrow.

(2) TYPE OF WORK

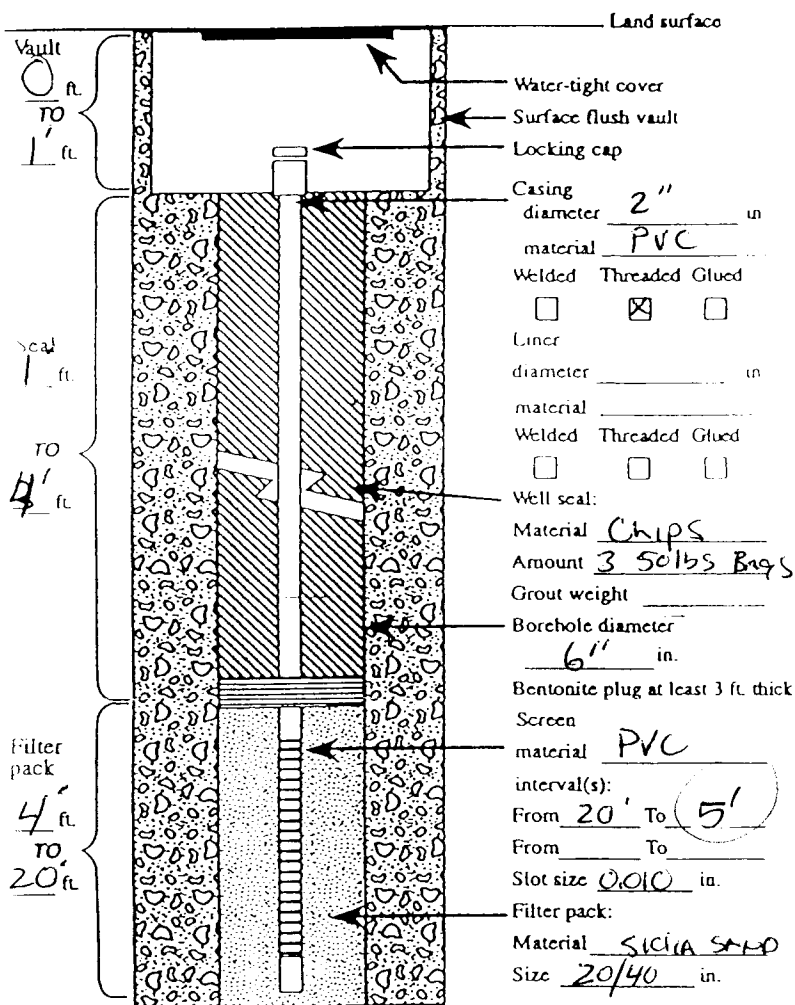
- ☒ New construction ☐ Alteration (Repair/Recondition)
☐ Conversion ☐ Deepening ☐ Abandonment

(3) DRILLING METHOD

- ☐ Rotary Air ☐ Rotary Mud ☐ Cable
☐ Hollow Stem Auger ☐ Other Service rig

(4) BORE HOLE CONSTRUCTION:

Yes No
Special Standards ☐ ☒ Depth of Completed Well 20' ft.



(8) WATER BEARING ZONES:

Depth at which water was first found 12'

From	To	Est. Flow Rate	SWI
<u>SPU</u>			

(9) WELL LOG:

Ground Elevation _____

Material	From	To	SWI
<u>cobbles + silty sands</u>	<u>0'</u>	<u>20'</u>	

RECEIVED

JUL 28 2003

WATER RESOURCES DEPT
SALEM, OREGON

Date started 5-13-03 Completed 5-13-03

(unbonded) Monitor Well Constructor Certification

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

Signed _____

MWC Number 10529
Date 5-13-03

(bonded) Monitor Well Constructor Certification

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.

Signed _____

MWC Number 10024
Date 6-5-03

(5) WELL TESTS:

- ☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Permeability _____ Yield _____ GPM

Conductivity _____ PH _____

Temperature of water 54° °F/C Depth artesian flow found _____ ft.

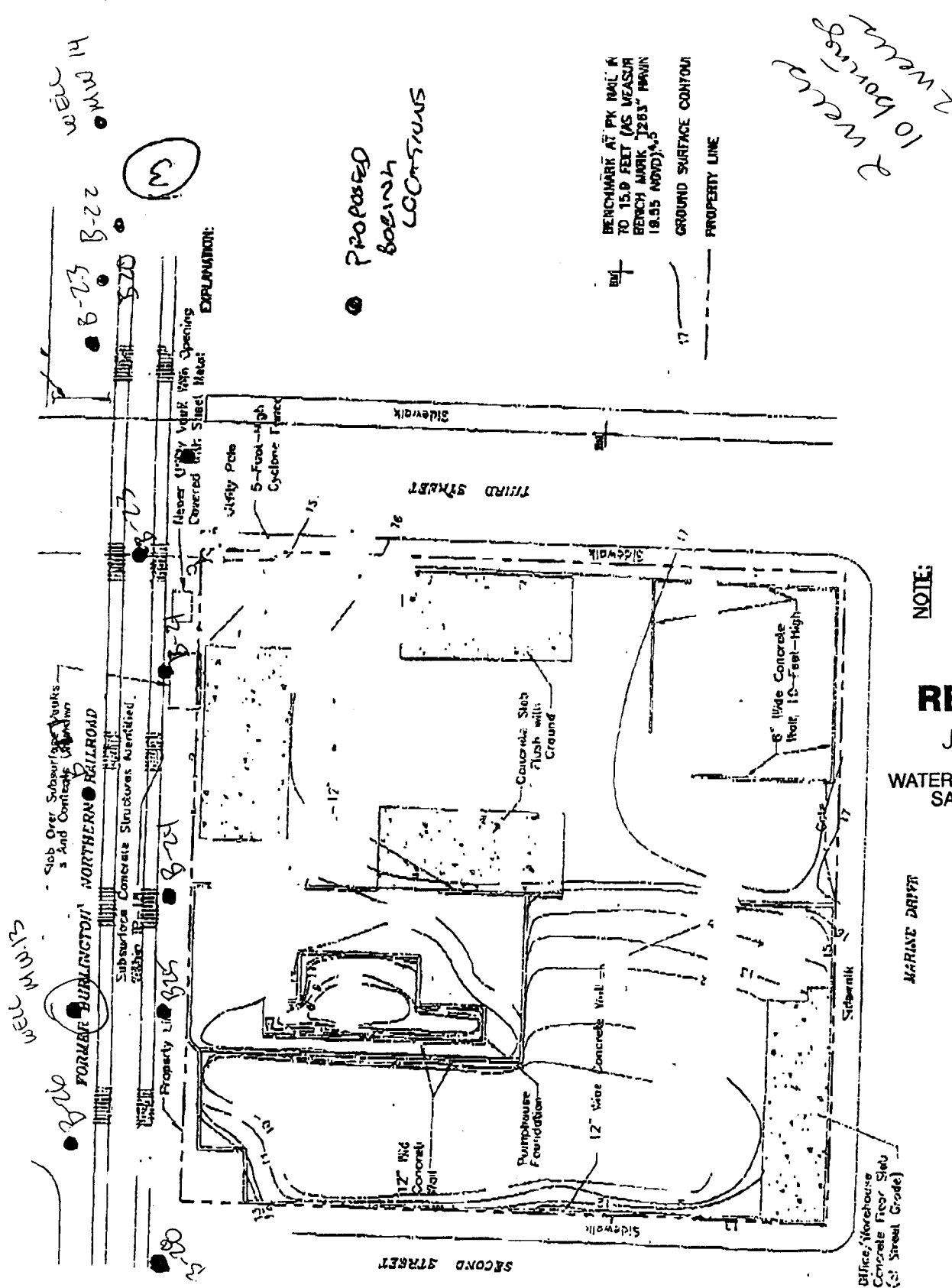
Was water analysis done? ☐ Yes ☐ No

By whom? _____

Depth of strata to be analyzed. From _____ ft. to _____ ft.

Remarks: _____

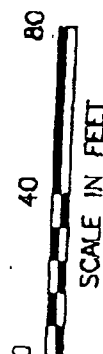
Name of supervising Geologist/Engineer _____



NOTE:

BASE MAP PROVIDED BY CH2M HILL, CORVALLIS,
OREGON.**RECEIVED**

JUN 17 2003

WATER RESOURCES DEPT.
SALEM, OREGON

DATE	06/27
DWN.	AD
APPR.	
REVIS.	
PROJECT NO.	

**MAUL
FOSTER
ALONGI**

Suite B
7223 NE Hazel Dell Ave.
Vancouver, WA 98665

P 360.684.2691
F 360.906.1958

CLAT 51642
OR 3088-0
Amended

Well ID# 156302
Start Card # 156302

(1) OWNER/PROJECT Name: Unocal WELL NO. MW-14
Address: P.O. Box 399
City: Edmonds State: WA Zip: 98020

County Clatsop Latitude _____ Longitude _____
Township 8N (N or S) Range 9W (E or W) Section 7
NE 1/4 of SE 1/4 of above section

2576 Marine Dr Astoria, OR
Tax lot number of well location 11600

Tax lot number of well location

ATTACH MAP WITH LOCATION IDENTIFIED. Map shall include approximate scale and north arrow.

☐ Rotary Air ☐ Rotary Mud ☐ Cable
☐ Hollow Stem Auger ☐ Other Sonic Logging

(7) STATIC WATER LEVEL:

12' ft below land surface Date 5-16-03
Artesian Pressure _____ lb/sq in Date _____

Yes No

Special Standards ☐ ☒ Depth of Completed Well 35 ft

(8) WATER BEARING ZONES:

Depth at which water was first found

From	To	Est. Flow Rate	SWI
SAC			

(9) WELL LOG:

Ground Elevation

[illegible]

Date started 5 16 03 Completed 5 16 03

(unbonded) Monitor Well Constructor Certification

I certify that the work performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

knowledge and belief

MWC Number 10529

Signed _____ Date 5-16-03

(bonded) Monitor Well Constructor Certification

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.

construction standards. This report is true to the best of my knowledge and belief.

Signed _____ MWC Number 10024
Date 6-5-03

5) WELL TESTS:

☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Permeability _____ Yield _____ GPM _____

Conductivity _____ PH _____

Temperature of water _____ °F/C Depth artesian flow found _____ ft

Was water analysis done? ☐ Yes ☐ No

By whom?

Depth of strata to be analyzed. From _____ ft to _____ ft

Remarks:

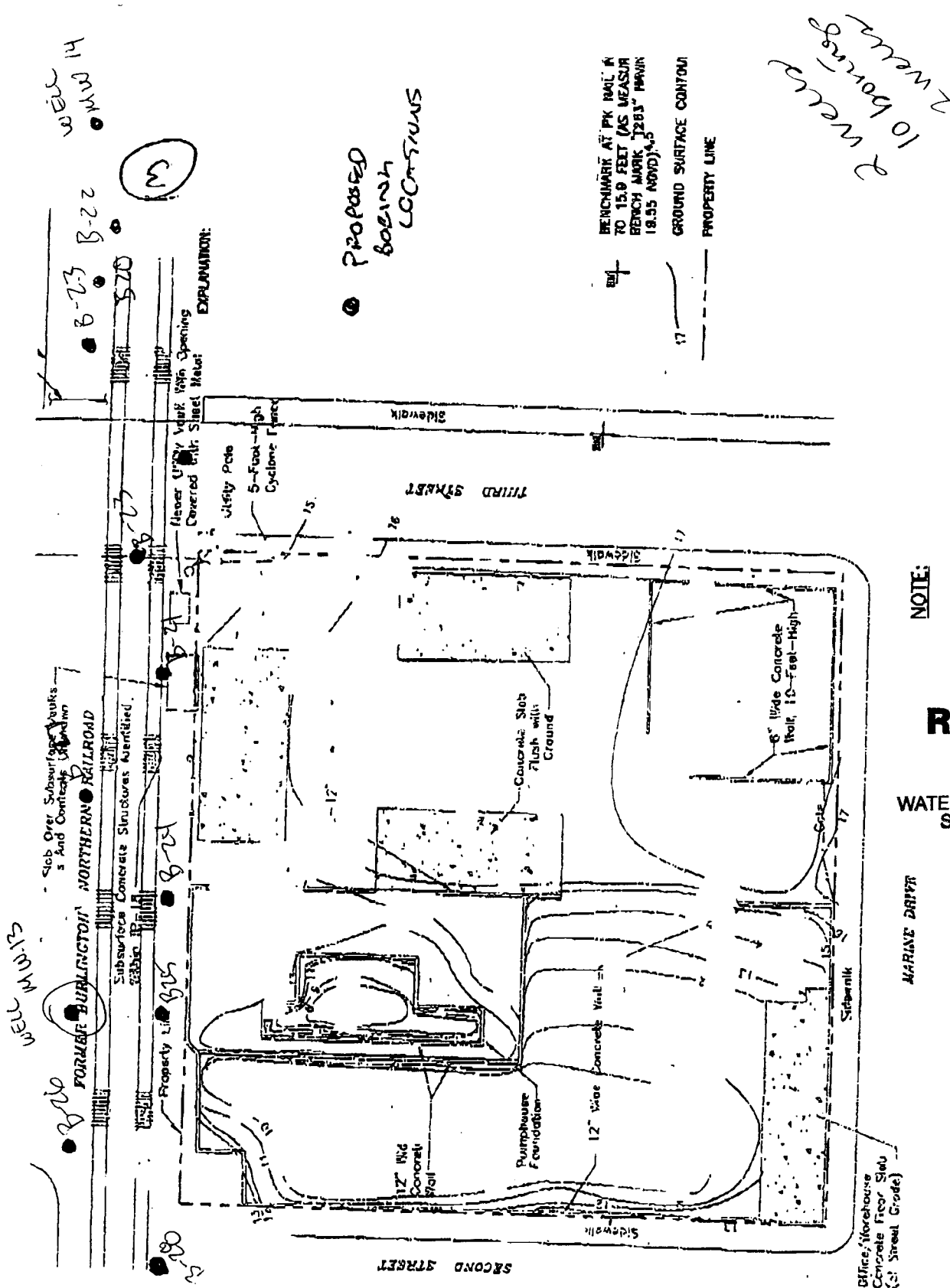
Name of supervising Geologist/Engineer _____

ORIGINAL COPY - SUITED DISPOSITIONS UNDER PROTECT

TABLE 1. (continued)

CONFIDENTIAL

PRODUCED BY THE CUSTOMER

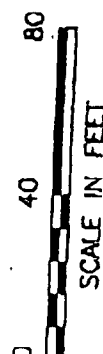


NOTE:

BASE MAP PROVIDED BY CH2M HILL, CORVALLIS,
OREGON.

RECEIVED

JUN 17 2003

WATER RESOURCES DEPT.
SALEM, OREGON

DATE: 06/27/03
DWN: ADJ
APPR: _____
REVIS: _____
PROJECT NO. _____

**MAUL
FOSTER
ALONGI**

Suite B
7223 NE Road Dell Ave.
Vancouver, WA 98665

P 360.684.2691
F 360.906.1958

Form Version:

