

January 14, 2015

City of Portland Bureau of Environmental Services **Facilities Services Division** 1120 SW 5<sup>th</sup> Avenue. Room 1000 Portland, OR 97204

Attention: Ms. Taryn Meyer

#### Report of Environmental Oversight Well Abandonment

Former Linnton Oil Fire Training Grounds NW 125<sup>th</sup> Avenue and Marina Way Portland, Oregon

GeoDesign Project: PortBES-24-04

#### INTRODUCTION

GeoDesign, Inc. is pleased to submit this report of environmental oversight for the abandonment of 12 groundwater monitoring wells at the former Linnton Oil Fire Training Grounds located at NW 125<sup>th</sup> Avenue and Marina Way in Portland, Oregon (project site).

Our services were performed in accordance with the scope of services provided in Task Order 86.0.14 dated August 19, 2014 and Task Order Amendment 86.1.14 dated November 6, 2014 for the City of Portland Bureau of Environmental Services (BES). Our work was completed as part of the BES Site Investigations and Related Services On-Call Service Contract with GeoDesign (Contract Number 30003168).

#### **SCOPE OF SERVICES**

The scope of services was based on our preliminary review of well logs and site maps provided by BES staff as well as a site visit conducted with BES staff. The scope of services included the following:

- Coordinated and managed the monitoring well abandonment activities, including project site access authorizations and scheduling of subcontractors and GeoDesign field staff.
- Completed a water well search on the Oregon Water Resources Department (OWRD) database for the well construction reports for the project site.
- Conducted a field verification site visit of the physical locations of the groundwater monitoring wells at the project site with the drilling subcontractor.

- Contacted the Oregon One-Call Utility Notification Center to mark the location of public utilities beneath the project site.
- Subcontracted Cascade Drilling, L.P. of Clackamas, Oregon, to complete the groundwater
  monitoring well abandonment by over-drilling methods and special standards methods when
  approved by OWRD. The abandonment activities were completed over three days of drilling
  at the project site utilizing a hollow-stem auger drill rig owned and operated by Cascade
  Drilling, L.P.
- Continuously observed the drilling activities, including observation of drill cuttings.
- Summarized the results of the groundwater monitoring well abandonment activities in this report.

#### **FIELD ACTIVITIES**

GeoDesign personnel mobilized to the project site on November 10, 11, and 12, 2014 to observe the abandonment of 12 groundwater monitoring wells (MW-1, MW-2, MW-4, MW-5, and MW-7 through MW-14). Cascade Drilling, L.P. of Clackamas, Oregon, was on site each day with a three-person work crew and a hollow-stem auger drill rig to complete the abandonment activities in accordance with approved OWRD well construction standards.

On November 10, 2014 monitoring wells MW-11, MW-7, and MW-10 were abandoned by over drilling and backfilling with bentonite grout and then restoring the surface with concrete. Monitoring wells MW-8 and MW-9 were abandoned by removing the well monuments and the first 5 feet of well casing, then backfilling with bentonite chips and restoring the surface with concrete.

On November 11, 2014 monitoring wells MW-1, MW-5, and MW-14 were abandoned by over drilling and backfilling with bentonite grout and then restoring the surface with concrete. Monitoring well MW-13 was abandoned by removing the well monuments and pulling the well casing, then backfilling with bentonite grout and restoring the surface with concrete.

On November 12, 2014 monitoring wells MW-2 and MW-4 were abandoned by over drilling and backfilling with bentonite grout and then restoring the surface with concrete. Monitoring well MW-12 was abandoned by removing the well monument and pulling the first 5 feet of casing, then backfilling with bentonite grout and restoring the surface with concrete.

The final well reports are presented in the Attachment of this report and include the locations of the wells on the site plans, start card numbers, and OWRD special standards final orders when applicable.

GeoDesign observed the soil cuttings generated during the over-drilling activities. Soil included sand from the monitoring well filter pack and native silt. Nine 55-gallon drums of soil cuttings and two 55-gallon drums of decontamination water were produced during the abandonment activities. In addition, six drums, including three with water and three empty drums, were located on the project site upon our arrival. All of the drums were moved to the gated entrance of the project site for subsequent disposal by BES.



We appreciate the opportunity to work with you on this project. Please do not hesitate to contact us if you have questions or require additional information.

Sincerely,

GeoDesign, Inc.

Stephen C. Nelson Project Manager

Robert E. Belding, R.G. (

**Principal Geologist** 

SCN:REB:kt

Attachment

One copy submitted (via email only)

Document ID: PortBES-24-04-011415-envlr.docx © 2015 GeoDesign, Inc. All rights reserved.



# **ATTACHMENT**

### STATE OF OREGON MONITORING WELL REPORT

(as required by ORS 537.765 & OAR 690-240-0395)

WELL I.D. LABEL# L	
START CARD#	1024734

(1) LAND OW	VNER Owner Well I.D. MW-1	(6) LOCATION OF WELL (legal description)	
First Name	Last Name	County MULTNOMAH Twp 2.00 N N/S Range 1.00 W	E/W WM
Company CITY OF	PORTLAND	Sec 34 NE 1/4 of the NE 1/4 Tax Lot 1700	-
Address 1120 SW	5TH AVE STE. 100	Tax Map Number Lot	
City PORTLAND	State OR Zip 97204		MS or DD
(2) TYPE OF V	WORK New Deepening Conversion	8	MS or DD
1 <u>-1-1</u>	air/recondition) X Abandonment	Street address of well Nearest address	
		NW 125TH AND NW MARINA WAY	
(3) DRILL ME		PORTLAND, OR 97231	
	Rotary Mud Cable Hollow Stem Auger Cable Mud	(7) STATIC WATER LEVEL	
Reverse Rotary	Other	Date SWL(psi) + SW	/L(ft)
(4) CONSTRUC	CTION Piezometer Well	Existing Well / Predeepening 11/11/2014 Completed Well	5
De	epth of Completed Well 20.00 ft. Special Standard	Flowing Artesian? Dry Hole?	
	20.00	WATER BEARING ZONES Depth water was first found	
	MONUMENT/VAULT Above Ground	SWL Date From To Est Flow SWL(psi) + S	SWI (ft)
	From <u>0</u> To <u>2</u>	SWE Date From To Estriow SWE(psi)	3 VV L(IL)
	BORE HOLE		
	Diameter 10 From 0 To 20		
	CASING	(9) WELL LOC	
	Dia. From To	(8) WELL LOG Ground Elevation	
			То
	Gauge Wld Thrd  Material Steel Plastic	Restore Surface 0	3
	Material Steel Plastic	Overdrill and backfill 3	20
	LINER		
	Dia. From To		
	Gauge Wld Thrd		
	Material Steel Plastic		
	SEAL		
	From <u>0</u> To <u>3</u>		
	Material Concrete  Amount 6 Sacks Grout weight		
	Amount 6 Sacks Grout weight		
	SCREEN		
	Casing/Liner Material		
	Diameter From To		
	Slot Size	L	
	<del></del>	Date Started <u>11/11/2014</u> Completed <u>11/11/2014</u>	
	FILTER	(unbonded) Monitor Well Constructor Certification	
From To	Material Size of pack	I certify that the work I performed on the construction, deepening, all	
		abandonment of this well is in compliance with Oregon monitories construction standards. Materials used and information reported above	
(5) WELL TES	TS	the best of my knowledge and belief.	are true to
O Pump	Bailer Air Flowing Artesian	License Number 10609 Date 12/10/2014	
Yield gal/min	Drawdown Drill stem/Pump depth Duration (hr)	Password : (if filing electronically)	
		Signed JEFF JONES (E-filed)	
		(bonded) Monitor Well Constructor Certification	
	OF L1 1 : \By Pr	I accept responsibility for the construction, deepening, alteration, or about	andonment
Temperature 56	°F Lab analysis Yes By	work performed on this well during the construction dates reported a	above. All
Supervising Geologic		work performed during this time is in compliance with Oregon monit	
Water quality concer		construction standards. This report is true to the best of my knowledge a	and belief.
From T	To Description Amount Units	License Number 10443 Date 12/10/2014	
		Password : (if filing electronically) Signed RYAN R GALBRETH (E-filed)	
		Contact Info (optional) Cascade Drilling LP	
	ORIGINAL - WATER RESOURCE		

START CARD # 1024734

(4) CC	NSTRU	UCTIO	N						(7) STATI
Bo	ORE HO	LE	FI	LTER P	ACK				Water Be
Dia	From	To	Fron	n Te	o M	Iaterial	Siz	e	water B
									SWL Date
			]						
			SEAL			sacks	grout		
	Mater	ial	From	To	Amt	lbs	weight		
	Bentonit	e Grout	3	20	3	S			
									(8) WELL

#### CASING/LINER

Casing Liner	Dia	+	From	To	Gauge	Stl Plstc Wld Thrd

#### **SCREENS**

Perf/	Casing/	Screen			Scrn size/	Slot	# of	Tele/
Screen	Liner	Dia	From	То	slot width	length	slots	pipe size
						_		

#### (5) WELL TESTS

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
1			

#### **Water Quality Concerns**

From	То	Description	Amount	Units

#### C WATER LEVEL

aring Zones

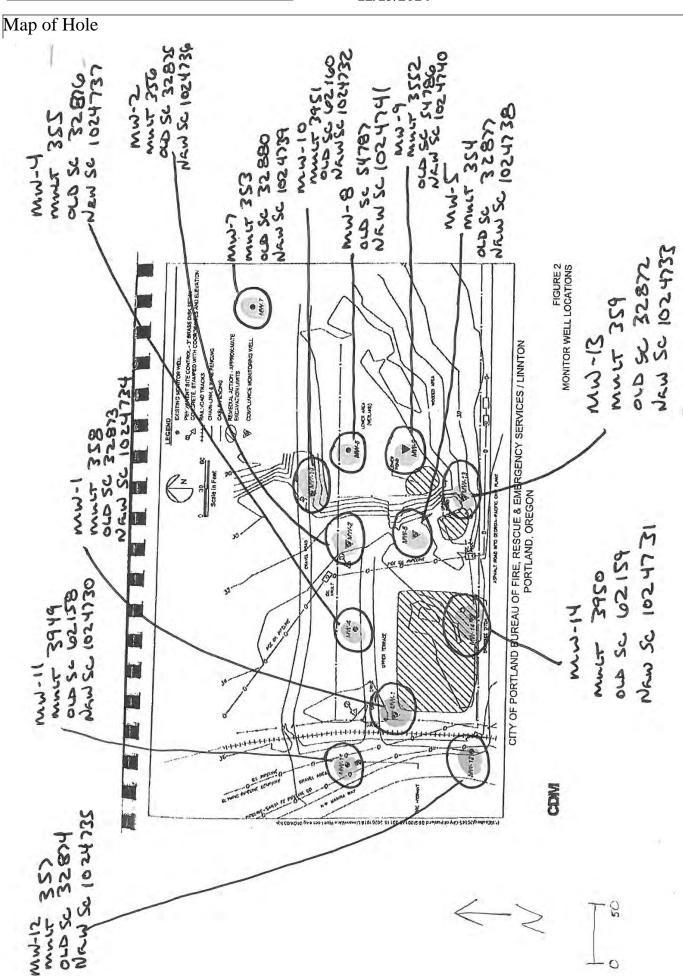
SWL Date	From	То	Est Flow	SWL(psi)	+ SWL(ft)

#### LOG

Material	From	To
<u> </u>		
1		

# Comments/Remarks

Remove Monument. Pull Well and overdrill 0-20'. Backfill with bentonite
Grout 3'-20'. Restore Surface with Concrete 0-3'.
Original Start#-32873
Original Well Tag-Unavailable



#### STATE OF OREGON MONITORING WELL REPORT

(as required by ORS 537.765 & OAR 690-240-0395)

WELL I.D. LABEL# L	
START CARD #	1024736

County   MULTNOMAIL   Twp   2.00   N   N/S   Range   1.00   W   E/M   Address   1120 SW 5TH AVE STE   100	
Company CITY OF PORTLAND   Address   1120 SW STH AVE STE.   100   State   OR   Zip   97204   Tax Map Number   Lot   Lot   Tax Map Number   Lot   Tax Map Number   Lot   L	/ WM
City PORTLAND State OR Zip 97204  (2) TYPE OF WORK New Deepening Conversion Alteration (repair/recondition) Abandonment  (3) DRILL METHOD  Rotary Air Rotary Mud Cable Hollow Stem Auger Cable Mud Reverse Rotary Other  (4) CONSTRUCTION Piezometer Well Deepth of Completed Well 20.00 ft. Special Standard MONUMENT/VAULT From 0 To 2  BORE HOLE Diameter 10 From 0 To 2  CASING Dia. From To Gauge Wild Thrd Material Steel Plastic Money or conversion Deepth water was first found Street address Nearest address Nearest address New Yell Congleted Well PortLand, OR 97231  (7) STATIC WATER LEVEL  Existing Well / Predeepening 11/12/2014 5.  Completed Well SWL(psi) + SWL(fti)  Existing Well / Predeepening 11/12/2014 5.  SWL Date From To Est Flow SWL(psi) + SWL(fti)  SWL Date From To Est Flow SWL(psi) + SWL(fti)  Material From To Material From To Material From To Sestore Surface 0 3 3 20 20	
Alteration (repair/recondition) Abandonment  Street address of well Nearest address  NW 125TH AND NW MARINA WAY  PORTLAND, OR 97231  (4) CONSTRUCTION  Depth of Completed Well 20.00 ft. Special Standard  MONUMENT/VAULT  From 0 To 2  BORE HOLE  Diameter 10 From 0 To 20  CASING  Dia. From To  Gauge Wld Thrd  Material Steel Plastic   Plastic   Plastic   Overdrill and backfill   3 20	
Alteration (repair/recondition) Abandonment  Street address of well Nearest address  NW 125TH AND NW MARINA WAY  PORTLAND, OR 97231  (4) CONSTRUCTION  Depth of Completed Well 20.00 ft. Special Standard  MONUMENT/VAULT  From 0 To 2  BORE HOLE  Diameter 10 From 0 To 20  CASING  Dia. From To  Gauge Wld Thrd  Material Steel Plastic   Plastic   Plastic   Overdrill and backfill   3 20	
Substant   Cable   Cable   Mollow Stem Auger   Cable Mud   Cable   Cable Mud   Cable Mud   Cable   Cable Mud   C	טט
Cable Mud   Cable   Monument	
CASING   Dia.   From   To   Gauge   Wild   Thrd   Material   Steel   Plastic   Plastic   Plastic   Coverdrill and backfill   Date   SWL(psi) + SWL(ft)   SWL(psi) + SWL(psi) + SWL(psi) + SWL(psi) + SWL(psi) + SWL(psi)   SWL(psi) + SWL(psi) + SWL(psi) + SWL(psi) + SWL(psi)   SWL(psi) +	
CONSTRUCTION	
Depth of Completed Well 20.00 ft. Special Standard MONUMENT/VAULT From 0 To 2  BORE HOLE Diameter 10 From To Est Flow SWL(psi) + SWL(to SWL)   SWL Date From To Est Flow SWL(psi) + SWL(to SWL)   SWL Date From To Est Flow SWL(psi) + SWL(to SWL)   SWL Date From To Est Flow SWL(psi) + SWL(to SWL)   SWL Date From To Est Flow SWL(psi) + SWL(to SWL)   SWL Date From To Est Flow SWL(psi) + SWL(to SWL)   SWL Date From To Est Flow SWL(psi) + SWL(to SWL)   SWL Date From To Est Flow SWL(psi) + SWL(to SWL)   SWL Date From To Est Flow SWL(psi) + SWL(to SWL)   SWL Date From To Est Flow SWL(psi) + SWL(to SWL)   SWL Date From To Est Flow SWL(psi) + SWL(to SWL)   SWL Date From To Est Flow SWL(psi) + SWL(to SWL)   SWL Date From To Est Flow SWL(psi) + SWL(to SWL)   SWL(psi) + SWL(to SWL(psi) + SWL(to SWL)	
Depth of Completed Well 20.00 ft. Special Standard  MONUMENT/VAULT From 0 To 2  BORE HOLE Diameter 10 From 0 To Gauge Wld Thrd Material Steel Plastic   Plastic   Plastic   Overdrill and backfill   Special Standard   Dry Hole?   Depth water was first found   SWL Date   From To   Est Flow SWL(psi) + SWL(psi) + SWL(psi)   SWL(psi)	
MONUMENT/VAULT From 0 To 2  BORE HOLE Diameter 10 From 0 To 20  CASING Dia. From To Est Flow SWL(psi) + SWL(to to t	
SWL Date   From   To   Est Flow   SWL(psi)   + SWL(psi)	
BORE HOLE   Diameter 10   From 0   To 20	t)
CASING  Dia. From To  Gauge Wld Thrd  Material Steel Plastic Description Dia. Steel Plastic Description Dia. Steel Plastic Description Description Dia. From To  Material From To  Restore Surface Description Des	_
CASING  Dia. From To  Gauge Wld Thrd  Material Steel Plastic	$\dashv$
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Dia. From To Gauge Wld Thrd Material Steel Plastic Delastic Delast	<u></u>
Gauge Wld Thrd Material Steel Plastic Material From To Restore Surface 0 3  Overdrill and backfill 3 20	
Material Steel Plastic Overdrill and backfill 3 20	
	_
LINER	$\dashv$
Dia. From To	$\dashv$
Gauge Wld Thrd	$\dashv$
Material Steel Plastic	$\Box$
	$\dashv$
SEAL	
From 0 To 3	_
Material Concrete Amount 6 Sacks Grout weight	$\dashv$
SCREEN	_
Casing/Liner Material	$\dashv$
DiameterFromTo	
Slot Size Date Started 11/12/2014 Completed 11/12/2014	
FILTER (unbonded) Monitor Well Constructor Certification	_
From To Material Size of pack I certify that the work I performed on the construction, deepening, alteration	
abandonment of this well is in compliance with Oregon monitoring construction standards. Materials used and information reported above are tr	
(5) WELL TESTS  the best of my knowledge and belief.	uc to
Pump Bailer Air Flowing Artesian License Number 10609 Date 12/10/2014	
Yield gal/min Drawdown Drill stem/Pump depth Duration (hr) Password : (if filing electronically)	_
Signed JEFF JONES (E-filed)	_
(bonded) Monitor Well Constructor Certification	
Temperature 56 °F Lab analysis Yes By I accept responsibility for the construction, deepening, alteration, or abandon work performed on this well during the construction dates reported above.	
Supervising Geologist/Engineer work performed during this time is in compliance with Oregon monitoring	well
Water quality concerns? Yes (describe below) construction standards. This report is true to the best of my knowledge and be	lief.
From To Description Amount Units License Number 10443 Date 12/10/2014	_
Password : (if filing electronically) Signed RYAN R GALBRETH (E-filed)	_
Contact Info (optional) Cascade Drilling LP	

(4) C(	NSTRU	JCTION	1								
В	ORE HOL	Æ		FILTER PACK							
Dia	From	To		Fron	n T	o	M	aterial		Siz	e
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				EAL		!					
								sacks/	g	rout	
	Materi	al	F	rom	To	1	Amt	lbs	W	eight	
	Bentonite	e Grout		3	20		3	S			

## CASING/LINER

Casing Liner	Dia	+	From	To	Gauge	Stl Plstc Wld Thrd
						$\overline{0}$ $\overline{0}$ $\overline{0}$ $\overline{0}$

#### **SCREENS**

Perf/	Casing/	Screen			Scrn size/	Slot	# of	Tele/
Screen	Liner	Dia	From	То	slot width	length	slots	pipe size
						_		

#### (5) WELL TESTS

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
1			

#### **Water Quality Concerns**

From	To	Description	Amount	Units

# (7) STATIC WATER LEVEL

**Water Bearing Zones** 

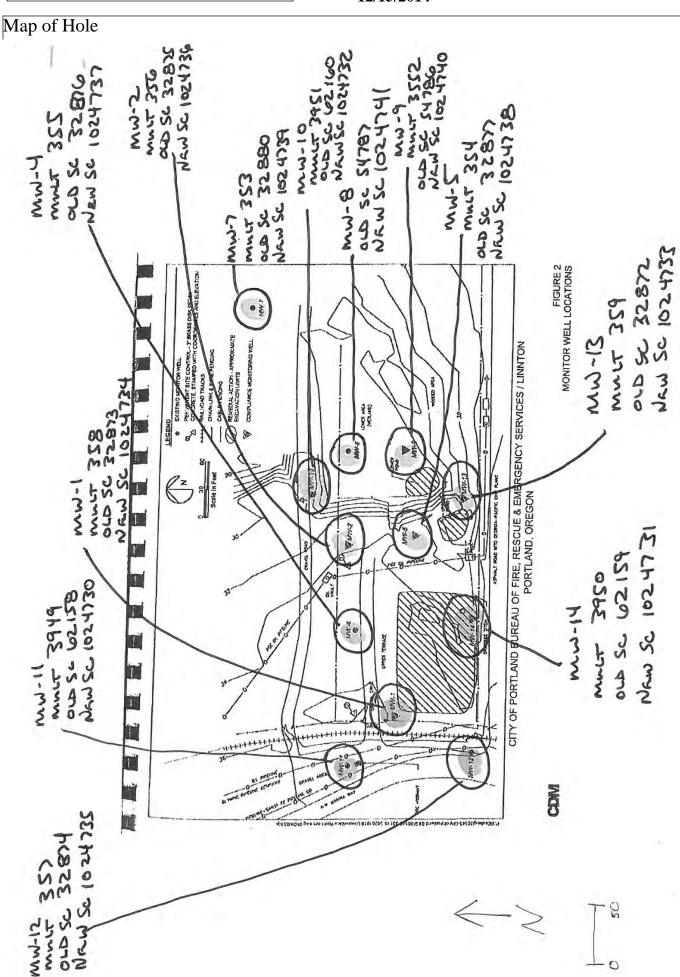
SWL Date	From	То	Est Flow	SWL(psi)	+ SWL(ft)

#### (8) WELL LOG

Material	From	To

#### Comments/Remarks

Remove Monument. Pull Well and overdrill 0-20'. Backfill with bentonite
Grout 3'-20'. Restore Surface with Concrete 0-3'.
Original Start#-32875
Original Well Tag-Unavailable



#### STATE OF OREGON MONITORING WELL REPORT

(as required by ORS 537.765 & OAR 690-240-0395)

WELL I.D. LABEL# L	
START CARD#	1024737

(1) LAND OW	NER Owner Well I.D. MW-4	(6) LOCATION OF WELL (legal description)				
First Name	Last Name	County MULTNOMAH Twp 2.00 N N/S Range 1.00 W E/W WM				
Company CITY OF I		Sec 34 NE 1/4 of the NE 1/4 Tax Lot 1700				
Address 1120 SW 5	TH AVE STE. 100	Tax Map Number Lot				
City PORTLAND	State OR Zip 97204	Tax Map Number         Lot           Lat         " or         DMS or DD           Long         " or         DMS or DD				
(2) TYPE OF W		Long ' 'or DMS or DD  Street address of well • Nearest address				
Alteration (repair	r/recondition) X Abandonment	NW 125TH AND NW MARINA WAY				
(3) DRILL MET		PORTLAND, OR 97231				
	otary Mud Cable Hollow Stem Auger Cable Mud	(7) STATIC WATER LEVEL				
Reverse Rotary	Other	Date $SWL(psi) + SWL(ft)$				
(4) CONSTRUC	TION Piezometer Well	Existing Well / Predeepening 11/12/2014 5				
Der	oth of Completed Well 20.00 ft. Special Standard	Completed Well  Flowing Artesian? Dry Hole?				
2 cp		WATER BEARING ZONES  Depth water was first found				
	MONUMENT/VAULT	SWL Date From To Est Flow SWL(psi) + SWL(ft)				
	From <u>0</u> To <u>2</u>					
	BORE HOLE					
	Diameter 10 From 0 To 20					
	CASDIC					
	CASING	(8) WELL LOG Ground Elevation				
	Dia. From To	Material From To				
	Gauge Wld Thrd	Restore Surface 0 3				
	Material Steel Plastic	Overdrill and backfill 3 20				
	LINER					
	Dia. From To					
	Gauge Wld Thrd					
	Material Steel Plastic Plastic					
	SEAL					
	From <u>0</u> To <u>3</u>					
	Material Concrete  Amount 6 Sacks Grout weight					
	Amount 6 Sacks Grout weight					
	SCREEN					
	Casing/Liner Material					
	Diameter From To					
	Slot Size	Date Started 11/12/2014 Completed 11/12/2014				
	FILTER	(unbonded) Monitor Well Constructor Certification				
From To	Material Size of pack	I certify that the work I performed on the construction, deepening, alteration, or				
		abandonment of this well is in compliance with Oregon monitoring well construction standards. Materials used and information reported above are true to				
(5) WELL TEST	S	the best of my knowledge and belief.				
Pump	Bailer Air Flowing Artesian	License Number 10609 Date 12/10/2014				
Yield gal/min	Drawdown Drill stem/Pump depth Duration (hr)	Password : (if filing electronically)				
		Signed <u>JEFF JONES (E-filed)</u>				
		(bonded) Monitor Well Constructor Certification				
Temperature 56	°F Lab analysis Yes By	I accept responsibility for the construction, deepening, alteration, or abandonment work performed on this well during the construction dates reported above. All				
Supervising Geologist	/Engineer	work performed on this wen during the constitution dates reported above. All work performed during this time is in compliance with Oregon monitoring well				
Water quality concern		construction standards. This report is true to the best of my knowledge and belief.				
From To	Description Amount Units	License Number 10443 Date 12/10/2014				
		Password : (if filing electronically) Signed RYAN R GALBRETH (E-filed)				
		Contact Info (optional) Cascade Drilling LP				

(4) CONSTRUCTION											
В	ORE HO	LE		FI	LTER F	Α	.CK				
Dia	From	To		Fron	n T	o'	Ma	aterial		Siz	ze
			5	SEAL				sacks/	, e	rout	
	Mater	ial	I	From	To		Amt	lbs		eight	
	Bentonit	e Grout		3	20		3	S			
						Т					

## CASING/LINER

Casing Liner	Dia +	From	То	Gauge	Stl I	Plstc Wld	Thrd
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					$\bigcap$	$\exists \sqcap$	
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ŎŎ					$\bigcirc$	$\Box$	
						$\Box$	
					$\bigcirc$	$\Box$	

#### **SCREENS**

Perf/	Casing/	Screen			Scrn size/	Slot	# of	Tele/
Screen	Liner	Dia	From	То	slot width	length	slots	pipe size
						_		

#### (5) WELL TESTS

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
1			

#### **Water Quality Concerns**

From	То	Description	Amount	Units

# (7) STATIC WATER LEVEL

**Water Bearing Zones** 

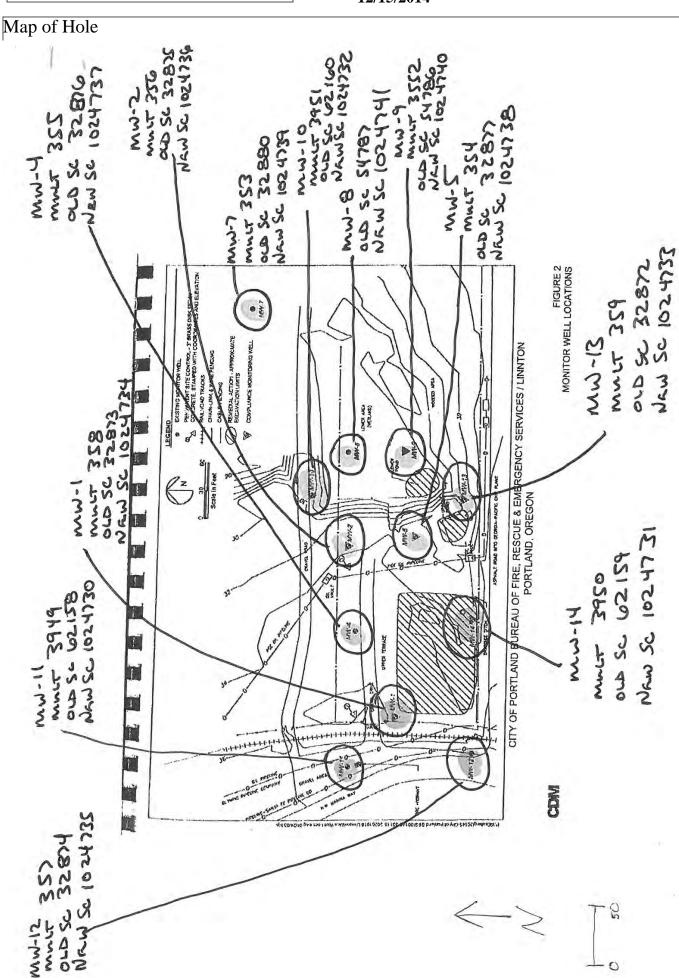
SWL Date	From	То	Est Flow	SWL(psi)	+ SWL(ft)
					Щ

#### (8) WELL LOG

Material	From	To

# Comments/Remarks

Remove Monument. Pull Well and overdrill 0-20'. Backfill with bentonite
Grout 3'-20'. Restore Surface with Concrete 0-3'.
Original Start#-32876
Original Well Tag-Unavailable



### STATE OF OREGON MONITORING WELL REPORT

(as required by ORS 537.765 & OAR 690-240-0395)

W	WELL I.D. LABEL# L						
	START CARD#	1024738					

(1) LAND OWNER Owner Well I.D. MW-5	(6) LOCATION OF WELL (legal description)
First Name Last Name	County MULTNOMAH Twp 2.00 N N/S Range 1.00 W E/W WM
Company CITY OF PORTLAND	Sec 34 NE 1/4 of the NE 1/4 Tax Lot 1700
Address 1120 SW 5TH AVE STE. 100	Tax Map Number Lot
City PORTLAND State OR Zip 97204	Lat ° " or DMS or DD
(2) TYPE OF WORK New Deepening Conversion	Long DMS or DD
Alteration (repair/recondition) X Abandonment	Street address of well • Nearest address
	NW 125TH AND NW MARINA WAY
(3) DRILL METHOD  Reterm Air Peterm Mud Coble Millellow Sterm Aveca Coble Mud	PORTLAND, OR 97231
Rotary Air Rotary Mud Cable Hollow Stem Auger Cable Mud	(7) STATIC WATER LEVEL
Reverse Rotary Other	Date SWL(psi) + SWL(ft)
(4) CONSTRUCTION Piezometer Well	Existing Well / Predeepening 11/12/2014 5 Completed Well 5
Depth of Completed Well 20.00 ft. Special Standard	Flowing Artesian? Dry Hole?
	WATER BEARING ZONES  Depth water was first found
MONUMENT/VAULT Above Ground	SWL Date From To Est Flow SWL(psi) + SWL(ft)
From <u>0</u> To <u>2</u>	SWEDUC FIOM TO ESTITION SWE(DSI) - SWE(II)
BORE HOLE	
Diameter 10 From 0 To 20	
CASING	(a) WELL LOC
Dia. From To	(8) WELL LOG Ground Elevation
	Material From To
Gauge Wld Thrd  Material Steel Plastic	Restore Surface 0 3
Material Steel Flastic	Overdrill and backfill 3 20
LINER	
Dia. FromTo	
Gauge Wld Thrd	
Material Steel Plastic	
SEAL	
From <u>0</u> To <u>3</u>	
Material Concrete Amount 6 Sacks Grout weight	
Amount 6 Sacks Grout weight	
SCREEN	
Casing/Liner Material	
Diameter From To	
Slot Size	
	Date Started <u>11/12/2014</u> Completed <u>11/12/2014</u>
FILTER	(unbonded) Monitor Well Constructor Certification
From To Material Size of pack	I certify that the work I performed on the construction, deepening, alteration, or
	abandonment of this well is in compliance with Oregon monitoring well construction standards. Materials used and information reported above are true to
(5) WELL TESTS	the best of my knowledge and belief.
Pump Bailer Air Flowing Artesian	License Number 10609 Date 12/10/2014
Yield gal/min Drawdown Drill stem/Pump depth Duration (hr)	Password : (if filing electronically)
	Signed JEFF JONES (E-filed)
	(bonded) Monitor Well Constructor Certification  I accept responsibility for the construction, deepening, alteration, or abandonment
Temperature 56 °F Lab analysis Yes By	work performed on this well during the construction dates reported above. All
Supervising Geologist/Engineer	work performed during this time is in compliance with Oregon monitoring well
Water quality concerns? Yes (describe below)	construction standards. This report is true to the best of my knowledge and belief.
From To Description Amount Units	License Number 10443 Date 12/10/2014
	Password: (if filing electronically)
	Signed RYAN R GALBRETH (E-filed) Contact Info (optional) Cascade Drilling LP
ORIGINAL - WATER RESOURCE	

START CARD # 1024738

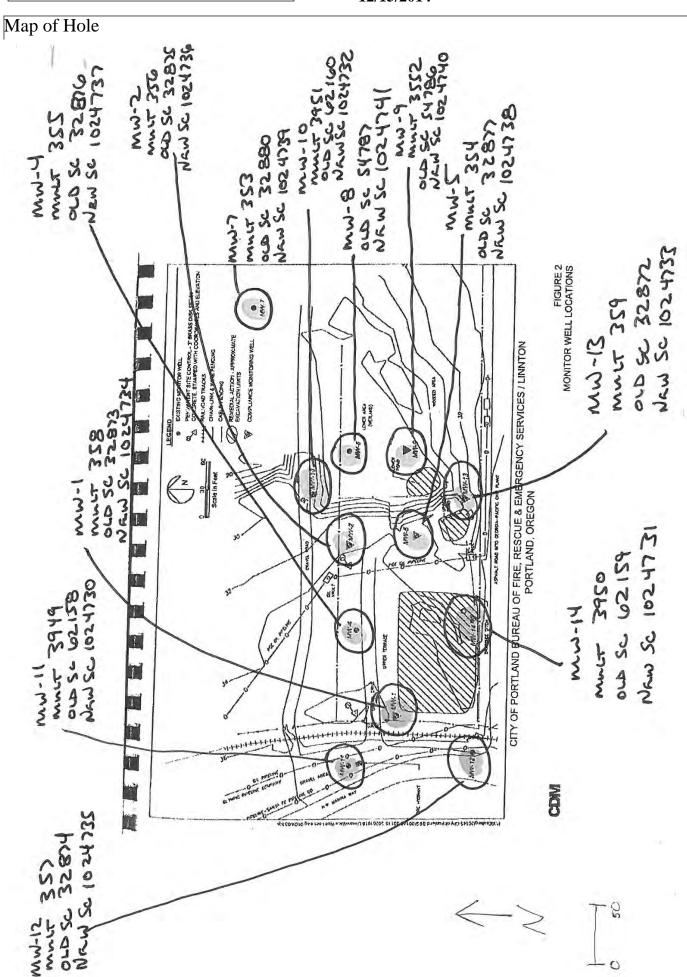
									12/15/2							
(4) C(	ONSTR	UCTIO	ON							(7) STATIC	WATER	LEVEL				
В	ORE HO	LE		FII	LTER P					Water Bea						
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6) WE	LL TES	STS									_					
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Yield	gal/min	Drav	vdown	D <sub>1</sub>	rill stem/	Pump d	epth	Duratio	n (hr)							
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Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
1			

#### **Water Quality Concerns**

From	То	Description	Amount	Units

Remove Monument. Pull Well and overdrill 0-20'. Backfill with bentonite
Grout 3'-20'. Restore Surface with Concrete 0-3'.
Original Start#-32877
Original Well Tag-Unavailable



#### STATE OF OREGON MONITORING WELL REPORT

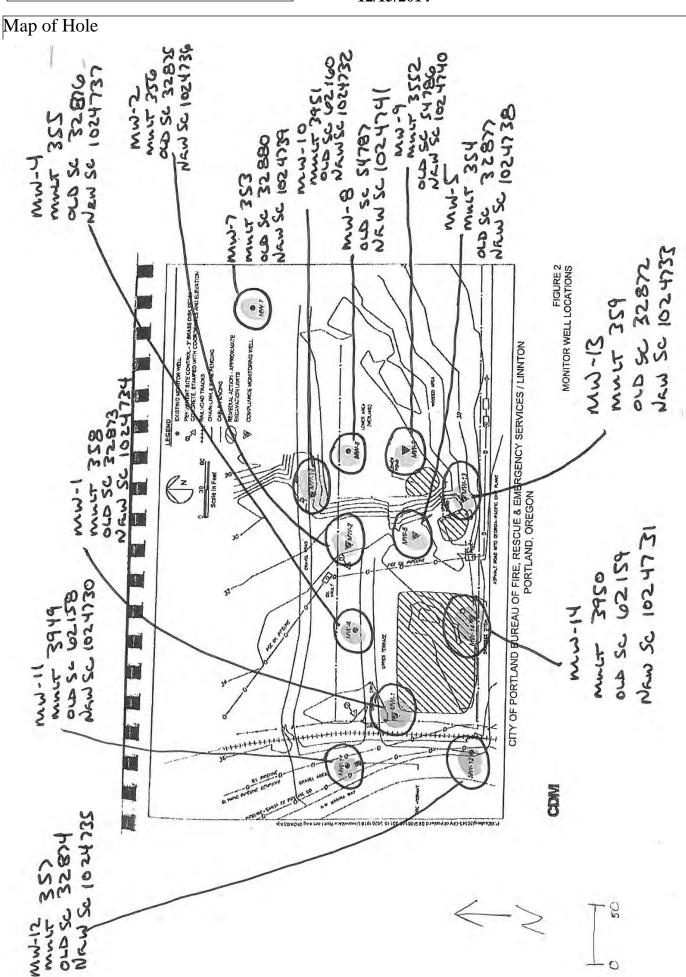
(as required by ORS 537.765 & OAR 690-240-0395)

WELL I.D. LABEL# 1	
START CARD #	1024739

(1) LAND OWNER Owner Well I.D. MW-7	(6) LOCATION OF WELL (legal description)
First Name Last Name	County MULTNOMAH Twp 2.00 N N/S Range 1.00 W E/W WM
Company CITY OF PORTLAND	Sec 34 NE 1/4 of the NE 1/4 Tax Lot 1700
Address 1120 SW 5TH AVE STE. 100	Tax Map Number Lot
City PORTLAND State OR Zip 97204	Lat o DMS or DD
(2) TYPE OF WORK New Deepening Conversion	Long ODMS or DD
Alteration (repair/recondition) X Abandonment	Street address of well • Nearest address
	NW 125TH AND NW MARINA WAY
(3) DRILL METHOD	PORTLAND, OR 97231
Rotary Air Rotary Mud Cable Hollow Stem Auger Cable Mud	(7) STATIC WATER LEVEL
Reverse Rotary Other	Date SWL(psi) + SWL(ft)
(4) CONSTRUCTION Piezometer Well	Existing Well / Predeepening 11/10/2014 5 Completed Well
Depth of Completed Well 14.00 ft. Special Standard	Flowing Artesian? Dry Hole?
Depth of completed wen 14,000	WATER BEARING ZONES  Depth water was first found
MONUMENT/VAULT Above Ground	SWL Date From To Est Flow SWL(psi) + SWL(ft)
From <u>0</u> To <u>2</u>	SWE Date From 10 Est From SWE(psi)   SWE(it)
BORE HOLE	
Diameter 10 From 0 To 14	
CASING	
Dia. From To	(8) WELL LOG  Ground Elevation
	Material From To
Gauge Wld Thrd	Restore Surface 0 3
Material Steel Plastic	Overdrill and backfill 3 14
LINER	
DiaFromTo	
Gauge Wld Thrd	
Material Steel Plastic	
and a	
SEAL	
From <u>0</u> To <u>3</u>	
Material Concrete	
Amount 6 Sacks Grout weight	
SCREEN	
Casing/Liner Material Diameter From To	
DiameterFromToTo	
Siot Size	Date Started 11/10/2014 Completed 11/10/2014
FILTER	(unbonded) Monitor Well Constructor Certification
From To Material Size of pack	I certify that the work I performed on the construction, deepening, alteration, or
	abandonment of this well is in compliance with Oregon monitoring well
(5) WELL TESTS	construction standards. Materials used and information reported above are true to the best of my knowledge and belief.
Pump Bailer Air Flowing Artesian	
Yield gal/min Drawdown Drill stem/Pump depth Duration (hr)	License Number 10609 Date 12/10/2014
	Password : (if filing electronically) Signed JEFF JONES (E-filed)
	(bonded) Monitor Well Constructor Certification  I accept responsibility for the construction, deepening, alteration, or abandonment
Temperature 56 °F Lab analysis Yes By	work performed on this well during the construction dates reported above. All
Supervising Geologist/Engineer	work performed during this time is in compliance with Oregon monitoring well
Water quality concerns? Yes (describe below)	construction standards. This report is true to the best of my knowledge and belief.
From To Description Amount Units	License Number 10443 Date 12/10/2014
	Password : (if filing electronically)
	Signed RYAN R GALBRETH (E-filed)  Contact Info (ontional) Cossada Drilling I R
ODICINAL WATER RESOURCE	Contact Info (optional) Cascade Drilling LP

START CARD # 1024739

#### (4) CONSTRUCTION (7) STATIC WATER LEVEL BORE HOLE FILTER PACK **Water Bearing Zones** Dia From To From To Material Size SWL Date From To Est Flow SWL(psi) + SWL(ft) **SEAL** sacks/ grout Material To From Amt lbs weight Bentonite Grout 3 14 2 (8) WELL LOG To Material From **CASING/LINER** Casing Liner Stl Plstc Wld Thrd From To Gauge **SCREENS** Perf/ Casing/ Screen Tele/ Scrn size/ Slot # of To Screen Liner Dia From slot width length slots pipe size (5) WELL TESTS Comments/Remarks Yield gal/min Drawdown Drill stem/Pump depth Duration (hr) Remove Monument. Pull Well and overdrill 0-14'. Backfill with bentonite Grout 3'-14'. Restore Surface with Concrete 0-3'. Original Start#-32880 Original Well Tag-Unavailable **Water Quality Concerns** From To Amount Units Description



### STATE OF OREGON MONITORING WELL REPORT

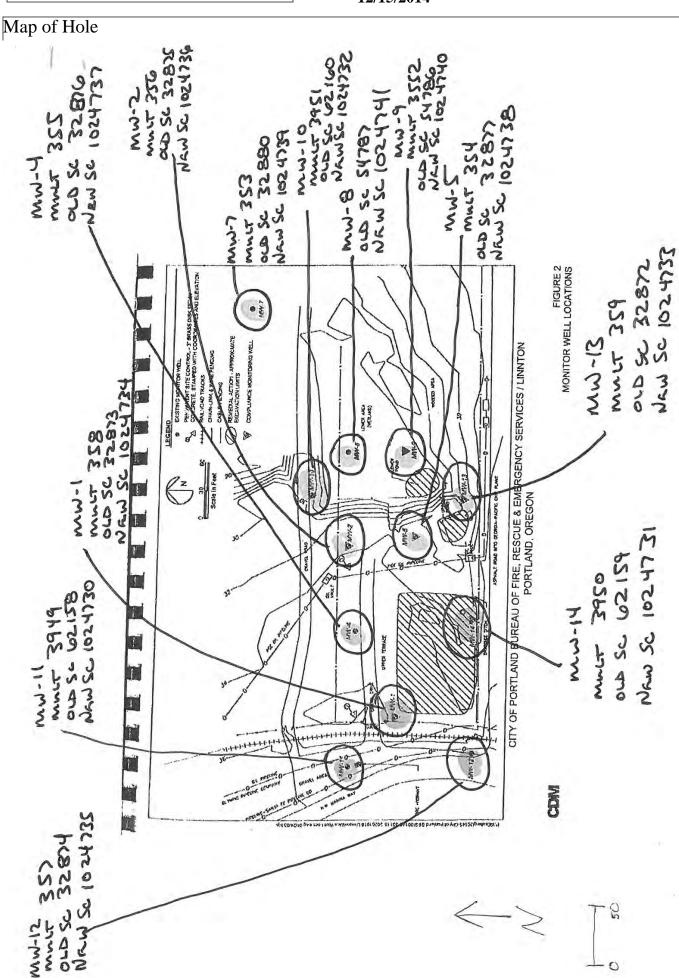
(as required by ORS 537.765 & OAR 690-240-0395)

W	/ELL I.D. LABEL# L	
	START CARD#	1024741

(1) LAND OWNER Owner Well I.D. MW-8	(6) LOCATION OF WELL (legal description)
First Name Last Name	County MULTNOMAH Twp 2.00 N N/S Range 1.00 W E/W WM
Company CITY OF PORTLAND	Sec 34 NE 1/4 of the NE 1/4 Tax Lot 1700
Address 1120 SW 5TH AVE STE. 100	Tax Map Number Lot
City PORTLAND State OR Zip 97204	Lat ° ' " or DMS or DD
(2) TYPE OF WORK New Deepening Conversion	Long OMS or DD
Alteration (repair/recondition) X Abandonment	Street address of well   Nearest address
	NW 125TH AND NW MARINA WAY
(3) DRILL METHOD	PORTLAND, OR 97231
Rotary Air Rotary Mud Cable Hollow Stem Auger Cable Mud	(7) STATIC WATER LEVEL
Reverse Rotary X Other CHIP IN PLACE	Date $SWL(psi) + SWL(ft)$
(4) CONSTRUCTION Piezometer Well	Existing Well / Predeepening 11/10/2014 5
Depth of Completed Well 17.00 ft. Special Standard	Completed Well  Flowing Artesian?  Dry Hole?
Depth of Completed Well 17,000	WATER BEARING ZONES    Depth water was first found   Depth water w
MONUMENT/VAULT Above Ground	
From <u>0</u> To <u>2</u>	SWL Date From To Est Flow SWL(psi) + SWL(ft)
BORE HOLE	
Diameter <u>2</u> From <u>0</u> To <u>17</u>	
CASING	
Dia. From To	(8) WELL LOG Ground Elevation
	Material From To
Gauge Wld Thrd	Restore Surface 0 2
Material Steel Plastic	Backfill by chip in place 2 17
LINER	
Dia From □ To	
Gauge Wld Thrd	
Material Steel Plastic	
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SEAL	
From <u>0</u> To <u>2</u>	
Material Concrete	
Amount 2 Sacks Grout weight	
SCREEN	
Casing/Liner Material Diameter From To	
Slot Size	
Slot Size	Date Started <u>11/10/2014</u> Completed <u>11/10/2014</u>
FILTER	(unbonded) Monitor Well Constructor Certification
From ToMaterial Size of pack	I certify that the work I performed on the construction, deepening, alteration, or
	abandonment of this well is in compliance with Oregon monitoring well
(5) WELL TESTS	construction standards. Materials used and information reported above are true to the best of my knowledge and belief.
Pump Bailer Air Flowing Artesian	
Yield gal/min Drawdown Drill stem/Pump depth Duration (hr)	License Number 10609 Date 12/10/2014  Password : (if filing electronically)
	Signed JEFF JONES (E-filed)
	(bonded) Monitor Well Constructor Certification  I accept responsibility for the construction, deepening, alteration, or abandonment
Temperature 56 °F Lab analysis Yes By	work performed on this well during the construction dates reported above. All
Supervising Geologist/Engineer	work performed during this time is in compliance with Oregon monitoring well
Water quality concerns? Yes (describe below)	construction standards. This report is true to the best of my knowledge and belief.
From To Description Amount Units	License Number 10443 Date 12/15/2014
	Password : (if filing electronically)
	Signed RYAN R GALBRETH (E-filed) Contact Info (optional) Cascade Drilling LP
ORIGINAL - WATER RESOURCE	

START CARD # 1024741

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#### 12/15/2014

# Map of Hole



Water Resources Department

North Mall Office Building 725 Summer St NE, Suite A Salem, OR 97301 Phone (503) 986-0900 Fax (503) 986-0904 www.wrd.state.or.us

December 10, 2014

RYAN GALBRETH MWC #10443 CASCADE DRILLING INC 13600 SE AMBLER ROAD CLACKAMAS OREGON 97015

#### FINAL ORDER

Dear Mr. Galbreth:

The Special Standards Request Form you submitted for owner, City of Portland, Start Card Numbers: 1024733 (MW-13), 1024740 (MW-9) and 1024741 (MW-8) are hereby is hereby approved for the following: You may abandon these monitoring wells utilizing the method described in OAR 690-240-0510(2). If you are going to use bentonite grout to abandon the wells, then it may only be used to abandon the portion of the monitoring wells that are below the static water level. Above the static water level another approved sealing material must be used.

The Special Standards Request Form submitted for Start Card Numbers: 10244730 (MW-11), 1024731 (MW-14), 1024732 (MW-10), 1024734 (MW-1), 1024736 (MW-2), 1024737 (MW-4), 1024738 (MW-5) and 1024739 (MW-7), are unfortunately denied due to the documented presence of groundwater contamination. All casing, screen, annular sealing material, drill cuttings, debris and filter pack must be removed prior to sealing. This abandonment method will help prevent the vertical migration of contaminants. A copy of your Special Standards Request Form is enclosed. All other standards must be adhered to.

Verbal approval for this Special Standards Request was provided on November 3, 2014.

The Well Construction Standards serve to protect ground water resources. By approving and issuing this special construction standard the Oregon Water Resources Department is not representing that a well, constructed in accordance with this condition will maintain structural integrity or that it meets engineering standards. The well constructor/or landowner is responsible for ensuring that a well is constructed in a manner that protects ground water resources as required under Oregon Administrative Rules 690-200 through 690-240.

If you have any questions regarding this letter, I may be contacted at (503) 986-0852, or by e-mail at Joel.W.Jeffery@wrd.state.or.us.

Sincerely.

Joel Jeffery, Coordinator Well Construction Program

Well Construction and Compliance Section

enclosure;

cc: NW Region Well Inspector

File

This is a final order in other than a contested case. This order is subject to judicial review under ORS 183.484. Any petition for judicial review must be filed within the 60 day time period specified by ORS 183.484(2). Pursuant to ORS 536.075 and OAR 137-004-0080 you may either petition for judicial review or petition the Director for reconsideration of this order. A petition for reconsideration may be granted or denied by the director, and if no action is taken within 60 days following the date the petition was filed, the petition shall be deemed denied.

### STATE OF OREGON MONITORING WELL REPORT

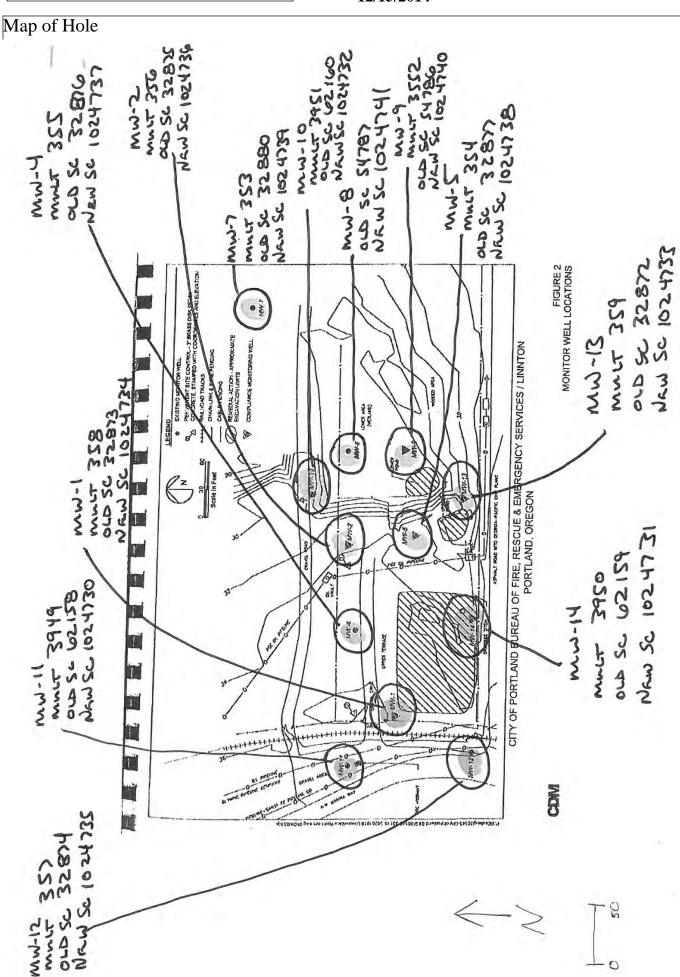
(as required by ORS 537.765 & OAR 690-240-0395)

WELL I.D. LABEL# L	
START CARD#	1024740

(1) LAND OWNER Owner Well I.D. MW-9	(6) LOCATION OF WELL (legal description)
First Name Last Name	County MULTNOMAH Twp 2.00 N N/S Range 1.00 W E/W WM
Company CITY OF PORTLAND	Sec 34 NE 1/4 of the NE 1/4 Tax Lot 1700
Address 1120 SW 5TH AVE STE. 100	Tax Map Number Lot
City PORTLAND State OR Zip 97204	Lat ° ' '' or DMS or DD
(2) TYPE OF WORK New Deepening Conversion	Long or DMS or DD
Alteration (repair/recondition) X Abandonment	Street address of well Nearest address
	NW 125TH AND NW MARINA WAY
(3) DRILL METHOD	PORTLAND, OR 97231
Rotary Air Rotary Mud Cable Hollow Stem Auger Cable Mud	(7) STATIC WATER LEVEL
Reverse Rotary X Other CHIP IN PLACE	Date SWL(psi) + SWL(ft)
(4) CONSTRUCTION Piezometer Well	Existing Well / Predeepening 11/10/2014 5
Depth of Completed Well 17.00 ft. Special Standard	Completed Well  Flowing Artesian? Dry Hole?
Depth of completed wen 17.00	WATER BEARING ZONES  Depth water was first found
MONUMENT/VAULT Above Ground	SWL Date From To Est Flow SWL(psi) + SWL(ft)
From <u>0</u> To <u>2</u>	SWE Date From To Est Frow SWE(psi) - SWE(it)
BORE HOLE	
Diameter 2 From 0 To 17	
CASING	(O) MELL LOC
Dia. From To	(8) WELL LOG Ground Elevation
	Material From To
Gauge Wld Thrd Material Steel Plastic	Restore Surface 0 2
Material Steel Frastic	Backfill by chip in place 2 17
LINER	
Dia. FromTo	
Gauge Wld Thrd	
Material Steel Plastic	
SEAL	
From 0 To 2	
Material Concrete Amount 2 Sacks Grout weight	
Yaniount <u>Z Sacks</u> Grout weight	
SCREEN	
Casing/Liner Material	
Diameter From To	
Slot Size ————————————————————————————————————	
	Date Started Completed
FILTER	(unbonded) Monitor Well Constructor Certification
From To Material Size of pack	I certify that the work I performed on the construction, deepening, alteration, or
	abandonment of this well is in compliance with Oregon monitoring well construction standards. Materials used and information reported above are true to
(5) WELL TESTS	the best of my knowledge and belief.
Pump Bailer Air Flowing Artesian	License Number 10609 Date 12/10/2014
Yield gal/min Drawdown Drill stem/Pump depth Duration (hr)	Password : (if filing electronically)
	Signed JEFF JONES (E-filed)
	(bonded) Monitor Well Constructor Certification
Tamanatura a CE Lab analysis Vos Ry	I accept responsibility for the construction, deepening, alteration, or abandonment
Temperature 56 °F Lab analysis Yes By	work performed on this well during the construction dates reported above. All
Supervising Geologist/Engineer	work performed during this time is in compliance with Oregon monitoring well
Water quality concerns? Yes (describe below)	construction standards. This report is true to the best of my knowledge and belief.
From To Description Amount Units	License Number 10443  Password: (if filing electronically)  Date 12/15/2014
	Password : (if filing electronically) Signed RYAN R GALBRETH (E-filed)
	Contact Info (optional) Cascade Drilling LP
ORIGINAL - WATER RESOURCE	

START CARD # 1024740

(4) CO BO Dia	NST ORE F Fron	IOL		ON	F. Fron		PACK To M	/ateria	Si	ize	(7	V) STATIC Water Bea	WATER aring Zones					
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#### 12/15/2014

# Map of Hole



Water Resources Department

North Mall Office Building 725 Summer St NE, Suite A Salem, OR 97301 Phone (503) 986-0900 Fax (503) 986-0904 www.wrd.state.or.us

December 10, 2014

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#### FINAL ORDER

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The Special Standards Request Form submitted for Start Card Numbers: 10244730 (MW-11), 1024731 (MW-14), 1024732 (MW-10), 1024734 (MW-1), 1024736 (MW-2), 1024737 (MW-4), 1024738 (MW-5) and 1024739 (MW-7), are unfortunately denied due to the documented presence of groundwater contamination. All casing, screen, annular sealing material, drill cuttings, debris and filter pack must be removed prior to sealing. This abandonment method will help prevent the vertical migration of contaminants. A copy of your Special Standards Request Form is enclosed. All other standards must be adhered to.

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Sincerely.

Joel Jeffery, Coordinator Well Construction Program

Well Construction and Compliance Section

enclosure;

cc: NW Region Well Inspector

File

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#### STATE OF OREGON MONITORING WELL REPORT

(as required by ORS 537.765 & OAR 690-240-0395)

WELL I,D. LABEL# L	
START CARD #	1024732

County   C	
Company CITY OF PORTLAND	WM
City PORTLAND  State OR Zip 97204  (2) TYPE OF WORK New Deepening Conversion Alteration (repair/recondition) Abandonment  (3) DRILL METHOD Rotary Air Rotary Mud Cable Hollow Stem Auger Cable Mud Reverse Rotary Other  (4) CONSTRUCTION Depth of Completed Well 25,00 ft. Special Standard Monument/VAULT Below Ground From 0 To 2  BORE HOLE Diameter 10 From 0 To 25  CASING Dia. From To Gauge Wld Thrd Material Steel Plastic   Cable Mud Material Steel Plastic   Cable Mud Non-Warran Auger Cable Mud Non-Warran Auger Cable Mud Non-Warran Material Steel Plastic   Cable Mud Non-Warran Material Steel Plast	
Alteration (repair/recondition) Abandonment  (3) DRILL METHOD  Rotary Air Rotary Mud Cable Hollow Stem Auger Cable Mud  Reverse Rotary Other  (4) CONSTRUCTION Piezometer Well Depth of Completed Well 25.00 ft. Special Standard MONUMENT/VAULT Below Ground From 0 To 2  BORE HOLE Diameter 10 From 0 To 25  CASING  Dia. From To Est Flow SWL(psi) + SWL(ft)  BORE HOLE Diameter 10 From Material Steel Plastic Material Steel Plastic Material Steel Plastic SEAL	
Alteration (repair/recondition) Abandonment  (3) DRILL METHOD  Rotary Air Rotary Mud Cable Hollow Stem Auger Cable Mud  Reverse Rotary Other  (4) CONSTRUCTION Piezometer Well Depth of Completed Well 25.00 ft. Special Standard MONUMENT/VAULT Below Ground From 0 To 2  BORE HOLE Diameter 10 From 0 To 25  CASING  Dia. From To Est Flow SWL(psi) + SWL(ft)  BORE HOLE Diameter 10 From Material Steel Plastic Material Steel Plastic Material Steel Plastic SEAL	
NW 125TH AND NW MARINA WAY   PORTLAND, OR 97231	טט
Rotary Air	$\neg$
Construction	
CONSTRUCTION	_
Depth of Completed Well 25.00 ft. Special Standard MONUMENT/VAULT Below Ground From 0 To 2  BORE HOLE Diameter 10 From 0 To 25  CASING Dia. From To Gauge Wld Thrd Material Steel Plastic	
Depth of Completed Well 25.00 ft. Special Standard MONUMENT/VAULT Below Ground From 0 To 2 Depth water was first found SWL Date From To Est Flow SWL(psi) + SWL(ft) SWL Date From To Est Flow SWL(psi) + SWL(ps	
MONUMENT/VAULT Below Ground From 0 To 2  BORE HOLE Diameter 10 From 0 To Gauge Wld Thrd Material Steel Plastic   Castle   Castle	
SWL Date   From   To   Est Flow   SWL(psi)   + SWL(ft)	
BORE HOLE   Diameter 10   From 0   To 25	— )
Diameter 10	]
CASING   Dia.	-
Dia.	
Dia.	
Gauge	
Material Steel Plastic Overdrill and backfill 3 25  LINER  Dia. From To  Gauge Wld Thrd  Material Steel Plastic Steel Strate  SEAL	_
LINER  Dia. From To  Gauge Wld Thrd  Material Steel Plastic T	4
DiaFromTo	┨
Gauge Wld Thrd Material Steel Plastic   SEAL	]
Gauge Wld Thrd Material Steel Plastic   SEAL	4
Material Steel Plastic SEAL	+
	]
	4
	1
From 0 To 3	7
Material Concrete Amount 6 Sacks Grout weight	+
Jacks of Sacks of Sac	
SCREEN	4
Casing/Liner Material	+
Diameter From To	
Slot Size Date Started 11/10/2014 Completed 11/10/2014	
FILTER (unbonded) Monitor Well Constructor Certification	_
From To Material Size of pack I certify that the work I performed on the construction, deepening, alteration	
abandonment of this well is in compliance with Oregon monitoring well construction standards. Materials used and information reported above are true	
(5) WELL TESTS  the best of my knowledge and belief.	C 10
Pump Bailer Air Flowing Artesian License Number 10609 Date 12/10/2014	
Yield gal/min Drawdown Drill stem/Pump depth Duration (hr) Password: (if filing electronically)	_
Signed <u>JEFF JONES (E-filed)</u>	_
(bonded) Monitor Well Constructor Certification	_
Temperature 56 °F Lab analysis Yes By I accept responsibility for the construction, deepening, alteration, or abandonm work performed on this well during the construction dates reported above.	
Supervising Geologist/Engineer work performed during this time is in compliance with Oregon monitoring v	well
Water quality concerns? Yes (describe below) construction standards. This report is true to the best of my knowledge and beli	ef.
From To Description Amount Units License Number 10443 Date 12/10/2014  Page page 4 (if filing electronically)	_
Password : (if filing electronically) Signed RYAN R GALBRETH (E-filed)	-
Contact Info (optional) Cascade Drilling LP	_

# (4) CONSTRUCTION BORE HOLE Dia From To From To Material Size SEAL Material From To Amt lbs weight Bentonite Grout 3 25 3 S

BLAL			sacks/	grout
From	To	Amt	lbs	weight
3	25	3	S	
		From To	From To Amt	From To Amt lbs

#### CASING/LINER

Casing Liner	Dia	+	From	To	Gauge	Stl Plstc Wld Thrd
Q						
Q Q		$\Box$				Q Q H H
$Q = Q \perp$						PAHH
P - P		$\vdash$				$\mathbb{R}$
$\cup$ $\cup$ $\cup$		Щ				

#### **SCREENS**

Perf/	Casing/	Screen			Scrn size/	Slot	# of	Tele/
Screen	Liner	Dia	From	То	slot width	length	slots	pipe size
						_		

#### (5) WELL TESTS

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)

### **Water Quality Concerns**

То	Description	Amount	Units
	To	To Description	To Description Amount

# (7) STATIC WATER LEVEL

**Water Bearing Zones** 

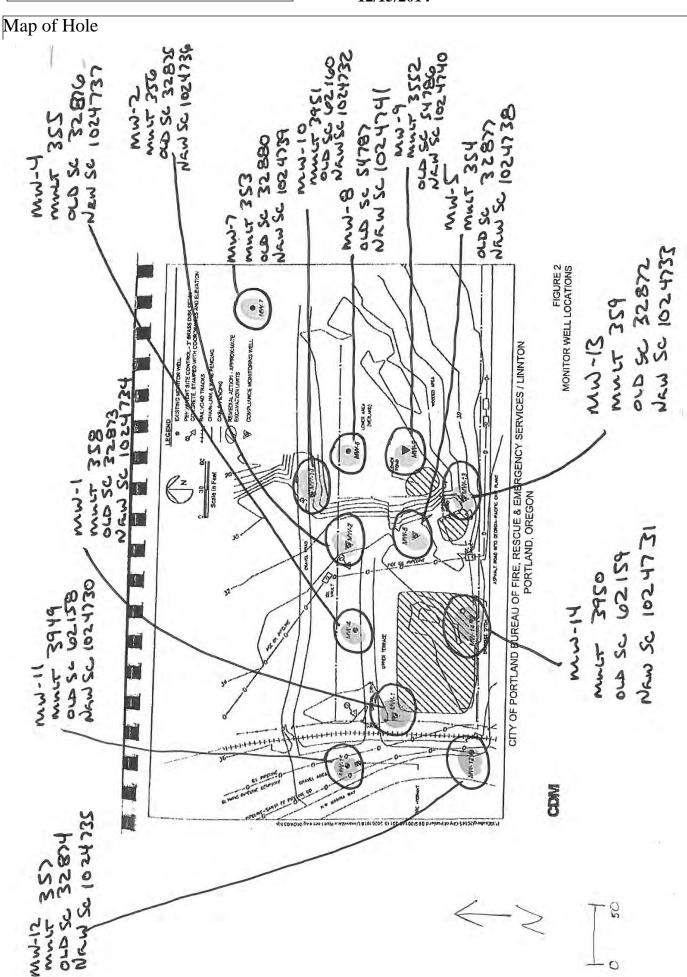
SWL Date	From	То	Est Flow	SWL(psi)	+ SWL(ft)
			L		$\sqcup$

#### (8) WELL LOG

Material	From	То

# Comments/Remarks

Remove Monument. Pull Well and overdrill 0-25'. Backfill with bentonite
Grout 3'-25'. Restore Surface with Concrete 0-3'.
Original Start#-62160
Original Well Tag-Unavailable



#### STATE OF OREGON MONITORING WELL REPORT

(as required by ORS 537.765 & OAR 690-240-0395)

12/10/2014

WELL I.D. LABEL# L	
START CARD #	1024730

(1) LAND OW	NER Owner Well I.D. MW-11	(6) LOCATION OF WELL (legal description)
First Name	Last Name	County MULTNOMAH Twp 2.00 N N/S Range 1.00 W E/W WM
Company CITY OF I		Sec 34 NE 1/4 of the NE 1/4 Tax Lot 1700
Address 1120 SW 5		Tax Map Number Lot
City PORTLAND	State OR Zip 97204	Lat or DMS or DD Long or or DMS or DD
(2) TYPE OF W	ORK New Deepening Conversion	
	r/recondition) X Abandonment	Street address of well  Nearest address  NW 125TH AND NW MARINA WAY
(3) DRILL MET		PORTLAND, OR 97231
Reverse Rotary	totary Mud Cable Hollow Stem Auger Cable Mud	(7) STATIC WATER LEVEL
	<u> </u>	Date SWL(psi) + SWL(ft)
(4) CONSTRUC	TION Piezometer Well	Existing Well / Predeepening 11/10/2014 5 Completed Well 5
Dep	oth of Completed Well 30.00 ft. Special Standard	WATER BEARING ZONES  Flowing Artesian? Dry Hole?  Depth water was first found
	MONUMENT/VAULT Below Ground	SWL Date From To Est Flow SWL(psi) + SWL(ft)
	From <u>0</u> To <u>2</u>	SWE Date From 10 Estriow SWE(psi) + SWE(ft)
	BORE HOLE	
	Diameter 10 From 0 To 30	
	<u>10</u>	
	CASING	(8) WELL LOG Ground Elevation
	Dia. From To	Glound Elevation
	Gauge Wld Thrd	Material From To Restore Surface 0 3
	Material Steel Plastic	Overdrill and backfill 3 30
	LINER	
	Gauge Wld Thrd  Material Steel Plastic	
	Material Steel Flastic	
	SEAL	
	From 0 To 3	
	Material Concrete	
	Amount 6 Sacks Grout weight	
	CONTINU	
	SCREEN	
	Casing/Liner Material	
	Diameter From To	
	Slot Size	Date Started <u>11/10/2014</u> Completed <u>11/10/2014</u>
	FILTER	(unbonded) Monitor Well Constructor Certification
From To _	Material Size of pack	I certify that the work I performed on the construction, deepening, alteration, or abandonment of this well is in compliance with Oregon monitoring well
(F) 11/101 1 (D)C(I	20	construction standards. Materials used and information reported above are true to
(5) WELL TEST		the best of my knowledge and belief.
Pump	Bailer Air Flowing Artesian	License Number 10609 Date 12/10/2014
Yield gal/min	Drawdown Drill stem/Pump depth Duration (hr)	Password : (if filing electronically)
		Signed <u>JEFF JONES (E-filed)</u>
		(bonded) Monitor Well Constructor Certification
Temperature 56	°F Lab analysis Yes By	I accept responsibility for the construction, deepening, alteration, or abandonment
Supervising Geologist	/Engineer	work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon monitoring well
Water quality concern		construction standards. This report is true to the best of my knowledge and belief.
From To		License Number 10443 Date 12/10/2014
	<del>                                     </del>	Password : (if filing electronically)
		Signed RYAN R GALBRETH (E-filed)  Contact Info (ontional) Coscade Deilling I.P.
		Contact Info (optional) Cascade Drilling LP

## 12/10/2014

(4) CO	NSTR	UCTION	1						
BC	RE HO	LE	FI	FILTER PACK					
Dia From To			From	n To	o M	aterial	S	ize	
			SEAL			sacks/	grout		
	Mater	ial	From	To	Amt	lbs	weight	_	
	Bentonit	e Grout	3	30	4	S			
								_	
								_	

#### **CASING/LINER**

Casing Liner Dia	+	From	То	Gauge	Stl Plstc Wld Thrd
88	┧┢╈				88HH
	╁┢╴				88HH
88	┧┢╴				88HH

#### **SCREENS**

Perf/	Casing/	Screen			Scrn size/	Slot	# of	Tele/
Screen	Liner	Dia	From	То	slot width	length	slots	pipe size
						_		

## (5) WELL TESTS

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)

#### **Water Quality Concerns**

From	То	Description	Amount Units			

# (7) STATIC WATER LEVEL

**Water Bearing Zones** 

SWL Date	From	То	Est Flow	SWL(psi)	+ SWL(ft)

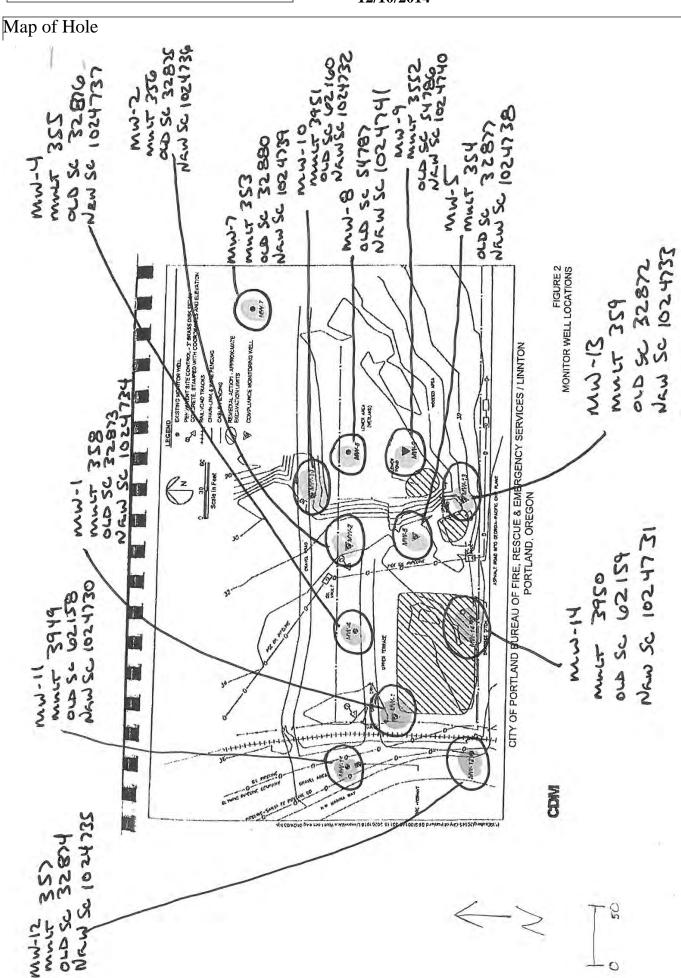
#### (8) WELL LOG

Material	From	To

#### Comments/Remarks

Remove Monument. Pull Well and overdrill 0-30'. Backfill with bentonite
Grout 3'-30'. Restore Surface with Concrete 0-3'.
Original Start#-62158
Original Well Tag-Unavailable

### 12/10/2014



#### STATE OF OREGON MONITORING WELL REPORT

(as required by ORS 537.765 & OAR 690-240-0395)

WELL I.D. LABEL# L	
START CARD#	1024735

(1) LAND OW	NER Owner Well I.D. MW-12	(6) LOCATION OF WELL (legal description)
First Name	Last Name	County MULTNOMAH Twp 2.00 N N/S Range 1.00 W E/W WM
Company CITY OF I		Sec 34 NE 1/4 of the NE 1/4 Tax Lot 1700
Address 1120 SW 5		Tax Map Number Lot
City PORTLAND	State OR Zip 97204	Tax Map Number         Lot           Lat
(2) TYPE OF W		Long or DMS or DD  Street address of well • Nearest address
Alteration (repair	r/recondition) X Abandonment	NW 125TH AND NW MARINA WAY
(3) DRILL MET	THOD	PORTLAND, OR 97231
	totary Mud Cable Hollow Stem Auger Cable Mud	(7) STATIC WATER LEVEL
Reverse Rotary	X Other GROUT IN PLACE	Date $SWL(psi) + SWL(ft)$
(4) CONSTRUC	TION Piezometer Well	Existing Well / Predeepening 11/12/2014 5
Der	oth of Completed Well 25.00 ft. Special Standard	Completed Well  Flowing Artesian? Dry Hole?
DCI	25.00	WATER BEARING ZONES  Depth water was first found
	MONUMENT/VAULT Below Ground	SWL Date From To Est Flow SWL(psi) + SWL(ft)
	From <u>0</u> To <u>2</u>	
	BORE HOLE	
	Diameter 2 From 0 To 25	
	CASING	(8) WELL LOG Ground Elevation
	Dia. From To	Material From To
	Gauge Wld Thrd	Restore Surface 0 3
	Material Steel Plastic	Backfill by grout in place 3 25
	LINER	
	Dia. From To	
	Gauge Wld Thrd	
	Material Steel Plastic	
	SEAL	
	From <u>0</u> To <u>3</u>	
	Material Concrete	
	Amount 2 Sacks Grout weight	
	SCREEN	
	Casing/Liner Material	
	Diameter From To	
	Slot Size	Date Started 11/12/2014 Completed 11/12/2014
	FILTER	(unbonded) Monitor Well Constructor Certification
From To	Material Size of pack	I certify that the work I performed on the construction, deepening, alteration, or
		abandonment of this well is in compliance with Oregon monitoring well
(5) WELL TEST	S	construction standards. Materials used and information reported above are true to the best of my knowledge and belief.
Pump	Bailer Air Flowing Artesian	License Number 10609 Date 12/10/2014
Yield gal/min	Drawdown Drill stem/Pump depth Duration (hr)	Password : (if filing electronically)
		Signed JEFF JONES (E-filed)
		(bonded) Monitor Well Constructor Certification
Temperature 56	°F Lab analysis Yes By	I accept responsibility for the construction, deepening, alteration, or abandonment
Supervising Geologist	_	work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon monitoring well
Water quality concern		construction standards. This report is true to the best of my knowledge and belief.
From To		License Number 10443 Date 12/15/2014
		Password : (if filing electronically)
		Signed RYAN R GALBRETH (E-filed)  Contact Info (optional) Cascade Drilling LP
		,

(4) CC	ONSTRU	JCTION	1					
В	ORE HOL	LE .	F	ILTER I	PACK			
Dia	From	To	Fro	m 7	o M	<b>I</b> aterial	Si	ze
			SEAL			sacks/	grout	
	Materi	al	From	To	Amt	lbs	weight	
	Bentonite	e Grout	3	25	0.25	S		]
								1

# CASING/LINER

Casing Liner	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
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#### **SCREENS**

Perf/	Casing/	Screen			Scrn size/	Slot	# of	Tele/
Screen	Liner	Dia	From	To	slot width	length	slots	pipe size
						-		

#### (5) WELL TESTS

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
1			

#### **Water Quality Concerns**

From	To	Description	Amount	Units

# (7) STATIC WATER LEVEL

**Water Bearing Zones** 

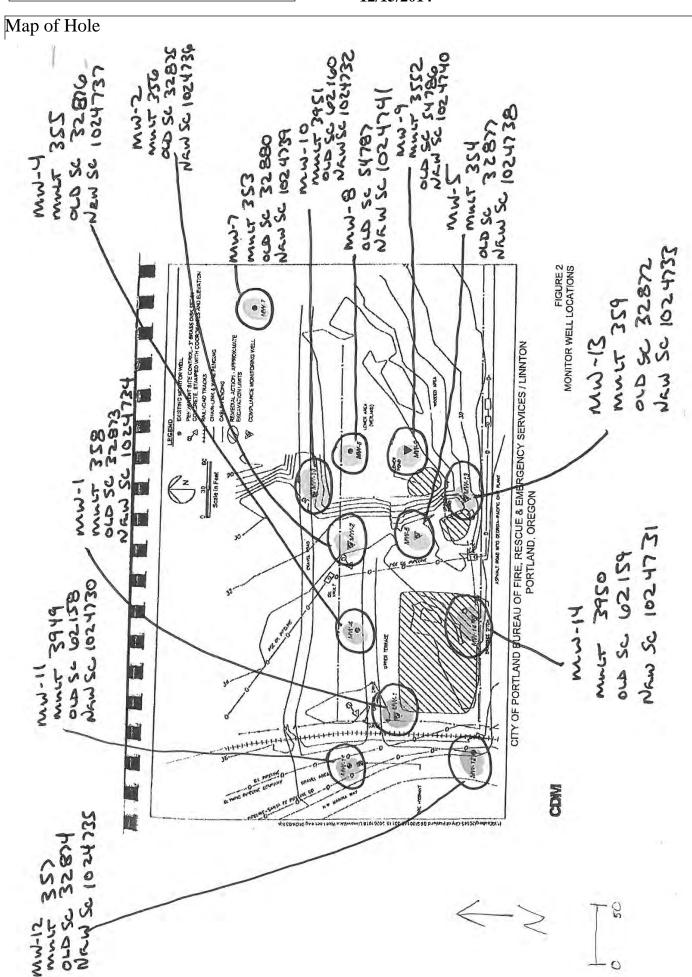
SWL Date	From	То	Est Flow	SWL(psi)	+ SWL(ft)
			L		$\sqcup$

#### (8) WELL LOG

Material	From	To

#### Comments/Remarks

Remove Monument. Grout in place well from 3'-25'. Restore Surface with
Concrete 0-3' As Per Final Order.
Original Start#-32874
Original Well Tag-Unavailable



#### 12/15/2014

# Map of Hole



Water Resources Department

North Mall Office Building 725 Summer St NE, Suite A Salem, OR 97301 Phone (503) 986-0900 Fax (503) 986-0904 www.wrd.state.or.us

December 10, 2014

RYAN GALBRETH MWC #10443 CASCADE DRILLING INC 13600 SE AMBLER ROAD CLACKAMAS OREGON 97015

#### FINAL ORDER

Dear Mr. Galbreth:

The Special Standards Request Form you submitted for owner: City of Portland, Start Card Number: 1024735 (MW-12) is hereby approved for the following: You may abandon this monitoring well utilizing the method described in OAR 690-240-0510(2). If you are going to use bentonite grout to abandon the wells, then it may only be used to abandon the portion of the monitoring wells that are below the static water level. Above the static water level another approved sealing material must be used. A copy of your Special Standards Request Form is enclosed. All other standards must be adhered to.

Verbal Approval of this Special Standards Request was given on November 11th, 2014

The Well Construction Standards serve to protect ground water resources. By approving and issuing this special construction standard the Oregon Water Resources Department is not representing that a well, constructed in accordance with this condition will maintain structural integrity or that it meets engineering standards. The well constructor/or landowner is responsible for ensuring that a well is constructed in a manner that protects ground water resources as required under Oregon Administrative Rules 690-200 through 690-240.

If you have any questions regarding this letter, I may be contacted at (503) 986-0852, or by e-mail at Joel.W.Jeffery@wrd.state.or.us.

Sincerely

Joel Jeffery, Coordinator Well Construction Program

Well Construction and Compliance Section

enclosure;

cc: NW Region Well Inspector

File

This is a final order in other than a contested case. This order is subject to judicial review under ORS 183.484. Any petition for judicial review must be filed within the 60 day time period specified by ORS 183.484(2). Pursuant to ORS 536.075 and OAR 137-004-0080 you may either petition for judicial review or petition the Director for reconsideration of this order. A petition for reconsideration may be granted or denied by the director, and if no action is taken within 60 days following the date the petition was filed, the petition shall be deemed denied.

### STATE OF OREGON MONITORING WELL REPORT

(as required by ORS 537.765 & OAR 690-240-0395)

WELL I.D. LABEL# L	
START CARD#	1024733

(1) LAND OWNER Owner Well I.D. MW-13	(6) LOCATION OF WELL (legal description)
First Name Last Name	County MULTNOMAH Twp 2.00 N N/S Range 1.00 W E/W WM
Company CITY OF PORTLAND	Sec 34 NE 1/4 of the NE 1/4 Tax Lot 1700
Address 1120 SW 5TH AVE STE. 100	Tax Map Number Lot
City PORTLAND State OR Zip 97204	Lat ° "or DMS or DD
(2) TYPE OF WORK New Deepening Conversion	Long DMS or DD
Alteration (repair/recondition) X Abandonment	Street address of well Nearest address
	NW 125TH AND NW MARINA WAY
(3) DRILL METHOD	PORTLAND, OR 97231
Rotary Air Rotary Mud Cable Hollow Stem Auger Cable Mud	(7) STATIC WATER LEVEL
Reverse Rotary X Other GROUT IN PLACE	Date SWL(psi) + SWL(ft)
(4) CONSTRUCTION Piezometer Well	Existing Well / Predeepening 11/11/2014 5
Depth of Completed Well 24.00 ft. Special Standard	Completed Well  Flowing Artesian?  Dry Hole?
Economic Completed Well 24.000	WATER BEARING ZONES  Depth water was first found
MONUMENT/VAULT Above Ground	SWL Date From To Est Flow SWL(psi) + SWL(ft)
From <u>0</u> To <u>2</u>	SWE Date From 10 Est Flow SWE(psi)   SWE(ft)
BORE HOLE	
Diameter 2 From 0 To 24	
CASING	(9) WITH 1 OC
Dia. From To	(8) WELL LOG Ground Elevation
	Material From To
Gauge Wld Thrd	Restore Surface 0 2
Material Steel Plastic	Backfill by grout in place 2 24
LINER	
Dia. FromTo	
Gauge Wld Thrd	ia From To
Material Steel Plastic	
OTAL STATE	
SEAL	
From <u>0</u> To <u>2</u>	
Material Concrete	
Amount 2 Sacks Grout weight	
SCREEN	
Casing/Liner Material Diameter From To	
Slot Size	
Slot Size	Date Started <u>11/11/2014</u> Completed <u>11/11/2014</u>
FILTER	(unbonded) Monitor Well Constructor Certification
From To Material Size of pack	I certify that the work I performed on the construction, deepening, alteration, or
	abandonment of this well is in compliance with Oregon monitoring well
(5) WELL TESTS	construction standards. Materials used and information reported above are true to the best of my knowledge and belief.
Pump Bailer Air Flowing Artesian	
Yield gal/min Drawdown Drill stem/Pump depth Duration (hr)	License Number 10609 Date 12/10/2014  Password: (if filing electronically)
	Signed JEFF JONES (E-filed)
	(bonded) Monitor Well Constructor Certification  I accept responsibility for the construction, deepening, alteration, or abandonment
Temperature 56 °F Lab analysis Yes By	work performed on this well during the construction dates reported above. All
Supervising Geologist/Engineer	work performed during this time is in compliance with Oregon monitoring well
Water quality concerns? Yes (describe below)	construction standards. This report is true to the best of my knowledge and belief.
From To Description Amount Units	License Number 10443 Date 12/15/2014
	Password : (if filing electronically)
	Signed RYAN R GALBRETH (E-filed)  Contact Info (optional) Consider Deliling I P
ORIGINAL - WATER RESOURCE	Contact Info (optional) Cascade Drilling LP

START CARD # 1024733

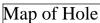
	NSTR		N								7) STATIO		VATER	LEVEL				
B( Dia	ORE HO	LE To		FI From		PACK To M	laterial	Siz	re.		Water Be	ari	ing Zones					
	T TOIL		7	11011							SWL Date		From	To	Est Flow	SWL(psi)	+	SWL(ft)
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	Mater	ial		From	To	Amt	sacks/ lbs	grout weight				+					ıĦ	
	Bentoni	te Grout		2	24	0.25	S											
			+							_		_						
										(	8) WELL	LC	)G					
													Mater	ial		From		To
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Casing	g Liner	Dia	+	From	То	Gaug	e Stl	Plstc W	ld Thrd			_						
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SCRE	ENS																	
	Casing/ Sc	reen			S	Scrn size/	Slot	# of	Tele/	$\ \cdot\ $								
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(5) WEI	LL TES	TS									Comments	s/R	Remarks					
Yield	gal/min	Draw	down	D	rill ster	m/Pump c	lepth	Duratio	n (hr)									
											Remove M	onu	ıment. Grou	t in place we	ell from 2'-2	4'. Restore S	urfa	ce with

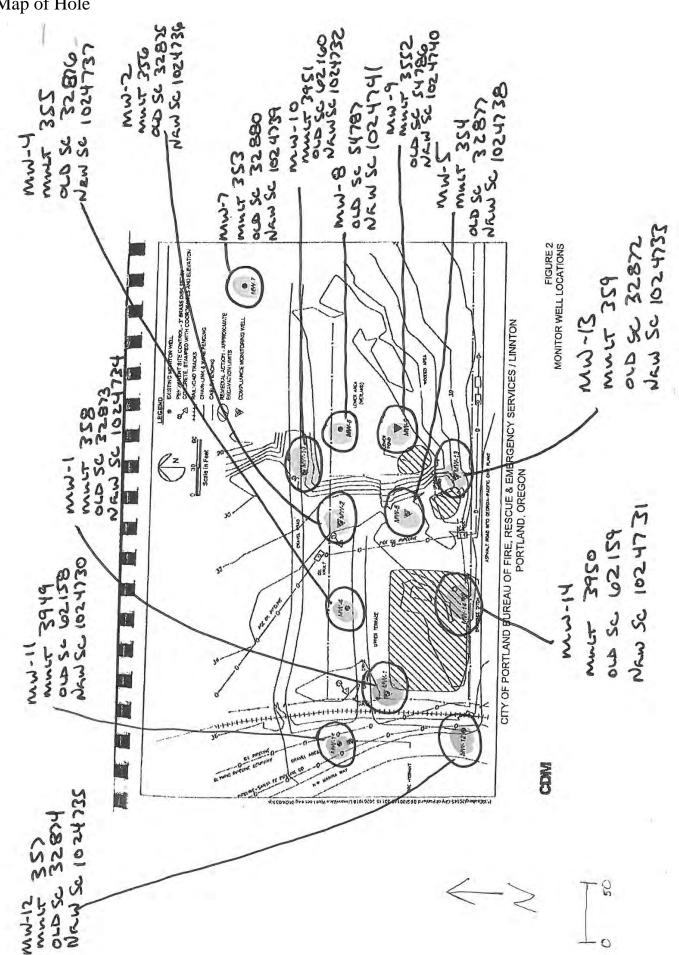
Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
1			

#### **Water Quality Concerns**

From	То	Description	Amount	Units

Remove Monument. Grout in place well from 2'-24'. Restore Surface with
Concrete 0-2' As Per Final Order.
Original Start#-32872
Original Well Tag-Unavailable





#### 12/15/2014

# Map of Hole



Water Resources Department

North Mall Office Building 725 Summer St NE, Suite A Salem, OR 97301 Phone (503) 986-0900 Fax (503) 986-0904 www.wrd.state.or.us

December 10, 2014

RYAN GALBRETH MWC #10443 CASCADE DRILLING INC 13600 SE AMBLER ROAD CLACKAMAS OREGON 97015

#### FINAL ORDER

Dear Mr. Galbreth:

The Special Standards Request Form you submitted for owner, City of Portland, Start Card Numbers: 1024733 (MW-13), 1024740 (MW-9) and 1024741 (MW-8) are hereby is hereby approved for the following: You may abandon these monitoring wells utilizing the method described in OAR 690-240-0510(2). If you are going to use bentonite grout to abandon the wells, then it may only be used to abandon the portion of the monitoring wells that are below the static water level. Above the static water level another approved sealing material must be used.

The Special Standards Request Form submitted for Start Card Numbers: 10244730 (MW-11), 1024731 (MW-14), 1024732 (MW-10), 1024734 (MW-1), 1024736 (MW-2), 1024737 (MW-4), 1024738 (MW-5) and 1024739 (MW-7), are unfortunately denied due to the documented presence of groundwater contamination. All casing, screen, annular sealing material, drill cuttings, debris and filter pack must be removed prior to sealing. This abandonment method will help prevent the vertical migration of contaminants. A copy of your Special Standards Request Form is enclosed. All other standards must be adhered to.

Verbal approval for this Special Standards Request was provided on November 3, 2014.

The Well Construction Standards serve to protect ground water resources. By approving and issuing this special construction standard the Oregon Water Resources Department is not representing that a well, constructed in accordance with this condition will maintain structural integrity or that it meets engineering standards. The well constructor/or landowner is responsible for ensuring that a well is constructed in a manner that protects ground water resources as required under Oregon Administrative Rules 690-200 through 690-240.

If you have any questions regarding this letter, I may be contacted at (503) 986-0852, or by e-mail at Joel.W.Jeffery@wrd.state.or.us.

Sincerely

Joel Jeffery, Coordinator Well Construction Program

Well Construction and Compliance Section

enclosure;

cc: NW Region Well Inspector

File

This is a final order in other than a contested case. This order is subject to judicial review under ORS 183.484. Any petition for judicial review must be filed within the 60 day time period specified by ORS 183.484(2). Pursuant to ORS 536.075 and OAR 137-004-0080 you may either petition for judicial review or petition the Director for reconsideration of this order. A petition for reconsideration may be granted or denied by the director, and if no action is taken within 60 days following the date the petition was filed, the petition shall be deemed denied.

#### STATE OF OREGON MONITORING WELL REPORT

(as required by ORS 537.765 & OAR 690-240-0395)

WI	ELL I.D. LABEL# L	
	START CARD#	1024731

(1) LAND OWNER Owner Well I.D. MW-14	(6) LOCATION OF WELL (legal description)
First Name Last Name	County MULTNOMAH Twp 2.00 N N/S Range 1.00 W E/W WM
Company CITY OF PORTLAND	Sec 34 NE 1/4 of the NE 1/4 Tax Lot 1700
Address 1120 SW 5TH AVE STE. 100	Tax Map Number Lot
City PORTLAND State OR Zip 97204	Lat° ' ' or DMS or DD
(2) TYPE OF WORK New Deepening Conversion	Long ODMS or DD
Alteration (repair/recondition) X Abandonment	Street address of well • Nearest address
	NW 125TH AND NW MARINA WAY
(3) DRILL METHOD	PORTLAND, OR 97231
Rotary Air Rotary Mud Cable Hollow Stem Auger Cable Mud	(7) STATIC WATER LEVEL
Reverse Rotary Other	Date SWL(psi) + SWL(ft)
(4) CONSTRUCTION Piezometer Well	Existing Well / Predeepening 11/11/2014 5
Depth of Completed Well 25.00 ft. Special Standard	Completed Well  Flowing Artesian?  Dry Hole?
Depth of completed Well 23,000	WATER BEARING ZONES  Depth water was first found
MONUMENT/VAULT Above Ground	SWL Date From To Est Flow SWL(psi) + SWL(ft)
From <u>0</u> To <u>2</u>	SWE Date From 10 Est Frow SWE(psi)   SWE(it)
BORE HOLE	
Diameter 10 From 0 To 25	
CASING	
Dia. From To	(8) WELL LOG  Ground Elevation
	Material From To
Gauge Wld Thrd	Restore Surface 0 3
Material Steel Plastic	Overdrill and backfill 3 25
LINER	
DiaFromTo	
Gauge Wld Thrd	
Material Steel Plastic	
and a	
SEAL	
From <u>0</u> To <u>3</u>	
Material Concrete	
Amount 6 Sacks Grout weight	
SCREEN	
Casing/Liner Material	
Diameter From To	
Slot Size	
Siot Size	Date Started <u>11/11/2014</u> Completed <u>11/11/2014</u>
FILTER	(unbonded) Monitor Well Constructor Certification
From To Material Size of pack	I certify that the work I performed on the construction, deepening, alteration, or
	abandonment of this well is in compliance with Oregon monitoring well
(5) WELL TESTS	construction standards. Materials used and information reported above are true to the best of my knowledge and belief.
Pump Bailer Air Flowing Artesian	
Yield gal/min Drawdown Drill stem/Pump depth Duration (hr)	License Number 10609 Date 12/10/2014
	Password : (if filing electronically) Signed JEFF JONES (E-filed)
	(bonded) Monitor Well Constructor Certification  I accept responsibility for the construction, deepening, alteration, or abandonment
Temperature 56 °F Lab analysis Yes By	work performed on this well during the construction dates reported above. All
Supervising Geologist/Engineer	work performed during this time is in compliance with Oregon monitoring well
Water quality concerns? Yes (describe below)	construction standards. This report is true to the best of my knowledge and belief.
From To Description Amount Units	License Number 10443 Date 12/10/2014
	Password : (if filing electronically)
	Signed RYAN R GALBRETH (E-filed)
ODICINAL WATER DESCRIPCI	Contact Info (optional) Cascade Drilling LP

START CARD # 1024731

								,_,
(4) CC	NSTRU	UCTION	1					
В	ORE HO	LE	FI	LTER PA	ACK			
Dia	From	To	Fron	n To	) M	aterial	Si	ze
			SEAL			sacks/	grout	
	Mater	ial	From	To	Amt	lbs	weight	
	Bentonit	e Grout	3	20	3	S		
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## CASING/LINER

Casing Liner	Dia +	From	То	Gauge	Stl I	Plstc Wld	Thrd
						$\Box$	
					$\bigcap$	$\exists \sqcap$	
					$\bigcap$	$\Box$	
					Ŏ	$\Box$	
					$\bigcirc$	$\Box$	
ŎŎ					$\bigcirc$	$\Box$	
						$\Box$	
					$\bigcirc$	$\Box$	

#### **SCREENS**

Perf/	Casing/	Screen			Scrn size/	Slot	# of	Tele/
Screen	Liner	Dia	From	To	slot width	length	slots	pipe size

#### (5) WELL TESTS

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)

#### **Water Quality Concerns**

From	To	Description Amount U		

# (7) STATIC WATER LEVEL

**Water Bearing Zones** 

SWL Date	From	То	Est Flow	SWL(psi)	+ SWL(ft)

#### (8) WELL LOG

Material	From	To
		-

# Comments/Remarks

Remove Monument. Pull Well and overdrill 0-25'. Backfill with bentonite
Grout 3'-25'. Restore Surface with Concrete 0-3'.
Original Start#-62159
Original Well Tag-Unavailable

