

STATE OF OREGON
WATER SUPPLY WELL REPORT

(as required by ORS 537.765 & OAR 690-205-0210)

WELL LABEL # L _____

START CARD # 209508

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

(1) LAND OWNER Owner Well I.D. _____
 First Name _____ Last Name _____
 Company Oregon - Dogami
 Address 1225 Ferry St U140
 City Salem State OR Zip 97301-4285

(2) TYPE OF WORK New Well Deepening Conversion
 Alteration (repair/recondition) Abandonment

(3) DRILL METHOD
 Rotary Air Rotary Mud Cable Auger Cable Mud
 Reverse Rotary Other _____

(4) PROPOSED USE Domestic Irrigation Community
 Industrial/Commercial Livestock Dewatering Injection
 Thermal Other _____

(5) BORE HOLE CONSTRUCTION Special Standard: Yes (attach copy)
 Depth of Completed Well 1000 ft.

BORE HOLE				SEAL			
Dia	From	To	Material	From	To	Amount	Scks/lbs
10 3/4	0	120	NEAT	0	120	5.548	143
6 7/8	120	1000	NEAT	0	1000		

How was seal placed: Method A B C D E
 Other _____

Backfill placed from _____ ft. to _____ ft. Material _____
 Filter pack from _____ ft. to _____ ft. Material _____ Size _____
 Explosives used: Yes Type _____ Amount _____

(6) CASING/LINER

Csng	Lnr	Dia	+	From	To	Gauge	Steel	Plastic	Welded	Thrd
2 3/8		2		1	1000		X			X

Shoe Inside Outside Other Location of shoe(s) _____
 Temporary casing Yes Diameter _____ From _____ To _____

(7) PERFORATIONS/SCREENS
 Perforations Method NONE
 Screens Type _____ Material _____

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

(8) WELL TESTS: Minimum testing time is 1 hour
 Pump Bailer Air Flowing Artesian

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
<u>NONE</u>			

Temperature _____ °F Lab analysis Yes By _____
 Water quality concerns? Yes (describe below)

From	To	Description	Amount	Units
		<u>NONE</u>		

(9) LOCATION OF WELL (legal description)
 County Malheur Twp 29 N or S Range 27 E or W.W.M.
 Sec 16 SE 1/4 of the NW 1/4 Tax Lot _____
 Tax Map Number _____ Lot _____
 Lat _____ " or _____ DMS or DD
 Long _____ " or _____ DMS or DD

Street Address of Well (or nearest address) Baker Pass / Crowley Rd

(10) STATIC WATER LEVEL

	Date	SWL (psi)	+	SWL (ft)
Existing Well/Predeepening	<u>4-20-13</u>			<u>26'</u>
Completed Well				

Flowing Artesian? Yes Dry Hole? Yes
 WATER BEARING ZONES Depth water was first found _____

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

(11) WELL LOG Ground Elevation _____

Material	From	To
<u>Clay, Brown Sands</u>	<u>0</u>	<u>124</u>
<u>Clay</u>	<u>124</u>	<u>135</u>
<u>Sands - gravels</u>	<u>135</u>	<u>244</u>
<u>gravels - lava rock</u>	<u>244</u>	<u>364</u>
<u>clay</u>	<u>364</u>	<u>394</u>
<u>Basalt - clay stringers</u>	<u>394</u>	<u>579</u>
		<u>1000</u>

Date Started 4-16-13 Completed 4-23-13

(unbonded) Water Well Constructor Certification
 I certify that the work I performed on the construction, deepening, 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.

RECEIVED BY OWRD
 License Number 1946 Date _____
 Signed MAY 28 2013

(bonded) Water Well Constructor Certification
 I accept responsibility for the construction, deepening, 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.

License Number 1946 Date MAY 10-13
 Signed [Signature]
 Contact Info. (optional) _____

BOREHOLE LOG

Borehole No.: <u>ARRA FF1</u>	Start and End Date: <u>4/16</u>
Location: <u>FOLLY FARM</u>	Contractor and Equipment: <u>WELSD</u>
Logged by: <u>WILEY</u>	Drillers: <u>TROY</u>
Sampling Method, Total Tests and Intervals SPT- Standard Penetration Test	Drilling Methods
	Auger interval _____ Coring interval _____ PVC Casing depth _____ Total Depth _____
Ground Water Table (ft)	

Depth, ft.	Sample Number	Box Number	Blows/6 inches	Recovery	% Recovery	USCS	Graphic Log	Material Description: Color; Strength; Density; Plasticity; Organics; Weathering; Jointing; Other.	Geologic Unit	Comments
68 70	70							clay or weath vol (altered tuff?) yellow brown, mottled, peds CL, MED. PLASTICITY		
80	80							GRAVEL/SAND, vol. sand to 2mm yellow brown,		
90								DRILLER SAYS FORMATION FRACTURED, LOST RETURN		
100								DRILLER SAYS FORMATION FRACTURED, LOST RETURN		
110								LT BROWN CLAY w/ ROUNDED SAND (VOL), SANDY CLAY DRILLER SAYS FORMATION FRACTURED, LOST RETURN		SAND TO 3MM 7' 1" 16'
120								LT BROWN SANDY CLAY, CL, MED. PLASTICITY SAND IS FINE TO COARSE GRAINED, ANGULAR TO ROUNDED, VOLCANIC PROVENANCE MATRIX SUPPORTED AT LEAST IN PART, ALIGNED GRAINS (PARALLEL TO BEDDING?) IN FRESHLY BROKEN "PEDS"		DRILLER TO SET CASING
130								SAME		
135 136								SAND, MED SS w/ INTERVALS CS SAND AND GRIT TO 3mm, ANGULAR TO WELL ROUNDED, MANY VOL. LITHS AND XTALS		FIRST WATER 135

BOREHOLE LOG

Borehole No.: <u>ACRAFFI</u>	Start and End Date: <u>4/16</u>
Location: <u>FOLLY FARM</u>	Contractor and Equipment: <u>WELSCO</u>
Logged by: <u>WILEY</u>	Drillers: <u>TROY, HECTOR, JIM</u>
Sampling Method, Total Tests and Intervals SPT- Standard Penetration Test	Drilling Methods Auger interval _____ Coring interval _____ PVC Casing depth _____ Total Depth _____
Ground Water Table (ft)	

Depth, ft.	Sample Number	Box Number	Blows/6 inches	Recovery	% Recovery	USCS	Graphic Log	Material Description: Color; Strength; Density; Plasticity; Organics; Weathering; Jointing; Other.	Geologic Unit	Comments
204										
210							 	TAN FINE SANDSTONE, LOCALLY MEDIUM TO CS GRAINS, ^{POORLY} SORTED, GRAIN SUPPORTED, A FEW MAFIC PEBBLES	Q1	CASING DROPPED, FILLED ANNULUS W/ 1" MINUS FROM DRILL PAD AND CASING SEAL (REINFORCED) DRILL PAD LITH IS
220							 	BROWN FINE TO COARSE VOLCANIC SANDSTONE W/ PEBBLES 1-3 CM OF MAFIC VOLCANIC	Q1	CPX MICROPHYRIC BASALTIC ANDESITE ± W/ FINE GROUNDMASS, FEW TO NO VESICLES
230							 	SAME, SOME PEBBLES OF SS, THIN LAYERS OF SANDY SILTSTONE OR CLAYSTONE	Q1	SOME CHIPS MAY BE BACK FILL
240							 	SAME, SOME PEBBLES OF PLAGIOCLASE PHYRIC LAVA, SLIGHTLY COARSER THAN ABOVE, PEBS TO 2.5 CM		SWITCH TO ROTARY MUD
250							 	GRAVEL? SANDSTONE / VESICULAR LAVA W/ SS IN VESICLES / MAFIC LAVA W/ FINE GM, PLAG PHYRIC		
260							 	GRAVEL? SAME. ABUND GLASS SHAlds IN TUFFACEOUS SS, VES. LAVA, W/ SS FILLED VESICLES		
270								SAME, CHIPS OXIDIZED ~50%, MIXED WITH		

BOREHOLE LOG

Borehole No.: <u>ARRAF1</u>	Start and End Date: <u>4/16</u>
Location: <u>FOLLY FARM</u>	Contractor and Equipment: <u>WELSD</u>
Logged by: <u>WILEY</u>	Drillers: <u>JIM, TROY</u> <u>HECTOR</u>
Sampling Method, Total Tests and Intervals SPT- Standard Penetration Test	Drilling Methods <u>ROTARY MUD</u> Auger interval _____ Coring interval _____ PVC Casing depth _____ Total Depth _____
Ground Water Table (ft) <u>135</u>	

Depth, ft.	Sample Number	Box Number	Blows/6 inches	Recovery	% Recovery	USCS	Graphic Log	Material Description: Color; Strength; Density; Plasticity; Organics; Weathering; Jointing; Other.	Geologic Unit	Comments
272								(GRAVEL CONT'D)		
280								MIXED LITHS. (CONT'D); 50% MAFIC, FRESH, APHYRIC FINE (MASS) VESICLES; 35% SOFT SS W/ CS SAND IN QUARTZ MATRIX; 15% ASSORTED LITHS, A FEW CRYSTALS PLAG.		
290								SAME		
300								^{VESICULAR & MASSIVE} SAME; LAVA, APHYRIC & PLAG PHYRIC; 5% OXIDIZED		
310								SAME; SOME OLIVINE PHYRIC BASALT;		
320								SAME		
330								SAME; FINER SAMPLE		
340								SAME; ABUNDANT CRYSTALS PLAG (RTZ, SAN?) IN MEDIUM SAND FRACTION, OXIDIZED RIMS SUGGEST PEBBLES ~ 2 INCH DIA		

BOREHOLE LOG

Borehole No.: <u>ARRA FE 1</u>	Start and End Date: <u>4/16</u>
Location: <u>FOLLY FARM</u>	Contractor and Equipment: <u>WELSCO</u>
Logged by: <u>WUKEY</u>	Drillers: <u>JIM TROY</u> <u>HECTOR</u>
Sampling Method, Total Tests and Intervals SPT- Standard Penetration Test	Drilling Methods
	Rotary Mud Auger interval _____ _____ Coring interval _____ _____ PVC Casing depth _____ _____ Total Depth _____
Ground Water Table (ft) <u>135</u>	

Depth, ft.	Sample Number	Box Number	Blows/6 inches	Recovery	% Recovery	USCS	Graphic Log	Material Description: Color; Strength; Density; Plasticity; Organics; Weathering; Jointing; Other.	Geologic Unit	Comments
340								GRAVEL, CONT'D		
350								SAME; GRAINS IN MATRIX ARE ANGULAR TO SUBROUNDED, MATRIX OF SOFT CLAYEY SAND(STONE) IS LOW % OF RETURNS		
360								SAME;		NO DIRTY PEBBLES YET
370								CLAYEY SAND W/ PEBBLES, GRAIN SUPPORTED MEDIUM BROWN, POORLY SORTED TO MODERATELY SORTED, DISORGANIZED, ANGULAR TO WELL ROUNDED, FINE TO COARSE SAND W/ CLAY MATRIX/CEMENT		SCARCITY / ABSENCE OF MATRIX DUE TO TOO ENTHUSIASTIC SAMPLE PREPARATION / PROBABLY CLAYEY SAND W/ PEBBLES SINCE FIRST "GRAVEL" CALL
380								SAME		
390								SAME:		
400								SAME		

BOREHOLE LOG

Borehole No.: <u>ARRAFFI</u>	Start and End Date: <u>4/16</u>	<u>(4/20)</u>
Location: <u>FOLLY FARM</u>	Contractor and Equipment: <u>WELSCO</u>	
Logged by: <u>WILEY</u>	Drillers: <u>JIM, TROY</u>	
Sampling Method, Total Tests and Intervals SPT- Standard Penetration Test	<u>MUD ROTARY</u>	Drilling Methods Auger interval _____ Coring interval _____ PVC Casing depth _____ Total Depth _____
Ground Water Table (ft) <u>135</u>		

Depth, ft.	Sample Number	Box Number	Blows/6 inches	Recovery	% Recovery	USCS	Graphic Log	Material Description: Color; Strength; Density; Plasticity; Organics; Weathering; Jointing; Other.	Geologic Unit	Comments
476										DRILLING SLOWED AT 475' DRILLER SAYS "BASALT"
480								INCREASE IN COARSELY PLAGIOCLASE PHYRIC MAFIC LAVA, FEWER OTHER LITHS, VERY LITTLE MATRIX		
490								SAME		
500								LESS COARSELY PLAG PHYRIC, 3% INCREASE IN APHYRIC FINE GM, MAFIC, MASSIVE; VERY LITTLE CLAYEY SAND		
510								SAME, INCREASE CLAYEY SAND		DRILLING SLOWED TO CRAWL AT ~510'
520								PLOGIOCLASE PHYRIC BASALT OR BASALTIC AND LITTLE ELSE,		ANDRESITE
								NOT SAMPLED APHYRIC BAS, MASSIVE, MEDIUM G.M.		APHYRIC BASALT, MASSIVE
530							VERY	APHYRIC BAS, MASSIVE, MED GRAINED G.M. DARK GRAY		
540								SAME, PLUS A LITTLE CLAYEY SAND AND A FEW 1cm PEBBLES, TRANSLUCENT GRAY BASALT W/SLIGHTLY COARSER MED. G.M.		

544

BOREHOLE LOG

Borehole No.: <u>ARRAFFE 1</u>	Start and End Date: <u>4/16</u> (<u>4/20-4/21</u>)
Location: <u>FOLLY FARM</u>	Contractor and Equipment: <u>WELSCO</u>
Logged by: <u>WILEY</u>	Drillers: <u>TROY SIM</u> <u>HECTOR CADE</u>
Sampling Method, Total Tests and Intervals SPT- Standard Penetration Test	Drilling Methods
	Auger interval _____ Coring interval _____ PVC Casing depth _____ Total Depth _____
Ground Water Table (ft) <u>135</u>	

Depth, ft.	Sample Number	Box Number	Blows/6 inches	Recovery	% Recovery	USCS	Graphic Log	Material Description: Color; Strength; Density; Plasticity; Organics; Weathering; Jointing; Other.	Geologic Unit	Comments
544										
550							(100%)	DARK GRAY MAFIC LAVA, APHYRIC, MASSIVE; OTHER VOL LITHS; CLAYEY SAND (STONE) THAT IS HARDER THAN ABOVE, ORANGE TAN TO TAN, SAND FRACTION WELL TO POORLY SORTED, ANGULAR TO SUB-ROUNDED, POSSIBLY BAKED BY OVERLYING SAME; A LITTLE SANDIER; 1% CHALCOPHYTES; GREEN TO WHITE;		LAVA FLOW
560										
570							(100%)	PINKISH GRAY, APHYRIC TO SPARSELY PLAG. APHYRIC BASALT W/ GRANULAR MEDIUM GROUND MASS; OLIVINE MIKROPHENOS, ABUN FELT/OXIDES (EQUANT) 10% SOFT CLAYEY SAND (FROM ABOVE?)		
580								SAME; W/ A FEW OTHER VOL. LITHS DRILLER PROVIDES SECOND 580' SAMPLE AFTER DRILLING >10', LUCKILY IT'S THE SAME STUFF		
590							(100%)	BRIGHT ORANGE-BROWN/ ORANGE CLAYEY SAND W/ CHIPS OF MIXED VOL. LITHS SAND IS POORLY SORTED, CS TO FN; LOCALLY MOTTLED ORANGE-BROWN TO TAN, SANDS?		MUD RETURNS ~350'/MINUTE
600							(100%)	MEDIUM GRAY PYROXENE BASALT WITH MEDIUM TO COARSE GROUND MASS; BLACK BLOCKY TWINNED CPX > 1mm; elongate Felt/Oxides; A LITTLE BAKED SS; GM OLIVINE; LOCALLY STAINED OR CLEAR BOTRYOIDAL MINERAL		~ RIG JUMPING, BOULDER FRACT FLOW TOP ~ 598
610							(100%)	SAME; PLAGIOCLASE PHENOCRYSTS TO 2mm		BLEACHED

612




BOREHOLE LOG

Borehole No.: <u>ARRA FE1</u>	Start and End Date: <u>4/16</u>	<u>(4/21)</u>
Location: <u>FOLLY FARM</u>	Contractor and Equipment: <u>WELSCO</u>	
Logged by: <u>WILEY</u>	Drillers: <u>TROY, JIM</u> <u>HECTOR, CADE</u>	
Sampling Method, Total Tests and Intervals SPT- Standard Penetration Test <u>CUTTINGS</u>	Drilling Methods	
	<u>MUD ROTARY</u>	Auger interval _____ Coring interval _____ PVC Casing depth <u>140</u> Total Depth _____
Ground Water Table (ft) <u>135</u>		

Depth, ft.	Sample Number	Box Number	Blows/6 inches	Recovery	% Recovery	USCS	Graphic Log	Material Description: Color; Strength; Density; Plasticity; Organics; Weathering; Jointing; Other.	Geologic Unit	Comments
612										
620								SAME; NO SANDSTONE; <1% GREEN CHALCOPHYTES		
630								PLAGIOCLASE PINK MEDIUM GRAY APHYRIC BASALT WITH GRANULAR FINE TO MEDIUM GROUNDMASS; EQUANT Fe/Ti OXIDES PLAGIOCLASE AMBER TO 2MM		
640								SAME		
								SAME		RIG SHAKES
650								SAME, 1% CHIPS TRACHYTIC; A LITTLE CLAY 1% CHIPS w/ ELONGATE Fe/Ti OXIDES		
660								INTERFLOW ZONE? OXIDIZED (RED) MIXED LITHS; A LITTLE CLAY; 5% CHIPS VESICULAR		
670								APHYRIC DARK TWO MAFIC LITHS; ONE FINE GM; ONE MEDIUM GM AND SIMILAR TO FLOW ABOVE, PLAG. TO 2MM X 0.5mm; ~4% OXIDIZED		2 FEET IN Z:50 SAMPLE 11 FEET BELOW TABLE
680								MEDIUM GRAY APHYRIC BAS(?) w/ MED. GM.; Fe/Ti OXIDES EQUANT TO IRREGULAR, LARGER AND MORE WIDELY SPACED THAN ABOVE		

BOREHOLE LOG

Borehole No.: ARRAFFI	Start and End Date: 4/16/13 (4/21-22)
Location: FOLLY FARM	Contractor and Equipment: WELSCO
Logged by: WILEY	Drillers: TROY, JIM HECTOR, CADE
Sampling Method, Total Tests and Intervals SPT- Standard Penetration Test CUTTINGS	Drilling Methods Auger interval _____ Coring interval _____ PVC Casing depth 140' Total Depth _____
Ground Water Table (ft) 135	

Depth, ft.	Sample Number	Box Number	Blows/6 inches	Recovery	% Recovery	USCS	Graphic Log	Material Description: Color; Strength; Density; Plasticity; Organics; Weathering; Jointing; Other.	Geologic Unit	Comments
748										
750								BROWN CLAY AND MASSIVE TO VESICULAR BASALT CHIPS, SOME OXIDIZED; TRACHYTIC GROUNDMASS, SOME GRANULAR GROUNDMASS EQUANT Ti/Fe OXIDES ~3%		
760								DARK GRAY BASALT AND TAN (FELIC) TUFF/ASH BASALT HAS MEDIUM GROUNDMASS W/ CLOTS OF OLIVINE, PLAGIOCLASE, CPX MICROPHENOS FORMING ~1-2 mm BLOWN CRYSTALS, EQUANT TO ELONGATE FE/Ti OXIDES ~2%	5125T	2%
770								BASALT, SAME AS ABOVE, SOME VESICULAR W/ HALOS/LININGS, PLOTTAXITIC		
780								BASALT + CLAY; BASALT IS LIGHT AND DARK GRAY; EQUANT COARSE AND FINE GROUNDMASS, RESPECTIVELY; COARSE HAS OLIV. AND CPX MICROPHENOS AND PLAGIOCLASE PHENOCRYSTS; ZEOLITE(?) AND VEIN MATERIAL		LAST SAMPLE 4/21/13
790								WHITE TO TAN TUFFACEOUS SS/ASH/SANDY CLAYST BETTER INDURATED (AS CHIPS); SAND FRACTION IS LOCALLY WELL SORTED, MEDIUM GRAINED W/A FEW OUTSIZED GRAINS; ALL ANGULAR TO ROUNDED; POSSIBLE SMOKEY QTZ GRAINS; ALSO GREASE CLAY, AND BASALT TOTALING 30%		
800								BASALT W/ A FEW CHIPS OF OVERLYING SS(?) AND A LITTLE CLAY; BAS. IS BROWN (WEATH?) TO GRAY MED. TO CS. GROUNDMASS, PLAGIOCLASE PHENOCRYST > 2mm CPX, OL MICROPHENOS + GROUNDMASS		CHIPS MAY LINE FRACTURES? FRESH;
810								CLAY, TAN/LIGHT BROWN, WITH ROUNDED (SAND) GRAINS OF BASALT LIKE THAT ABOVE; WILL FORM WORMS MEDIUM		NOT
816	815 →						→	WHITE TO RED TUFFACEOUS SS, CLAYEY SS OR TUFF POLYMICRITIC GRAIN ASSEMBLAGE; ALSO BASALT AS ABOVE, SOME OXIDIZED RED; A FEW OTHER LITHS (GRIT/PEBS?)		

BOREHOLE LOG

Borehole No.: <u>ARRAFF1</u>	Start and End Date: <u>4/16/13</u> (4/)
Location: <u>FOLLY FARM</u>	Contractor and Equipment: <u>WELSCO</u>
Logged by: <u>WILEY</u>	Drillers: <u>TROY, JIM</u> <u>HECTOR, CADE</u>
Sampling Method, Total Tests and Intervals SPT- Standard Penetration Test <u>CUTTINGS</u>	Drilling Methods MUD ROTARY Auger interval _____ Coring interval _____ PVC Casing depth <u>140'</u> Total Depth _____
Ground Water Table (ft) <u>135</u>	

Depth, ft.	Sample Number	Box Number	Blows/6 inches	Recovery	% Recovery	USCS	Graphic Log	Material Description: Color; Strength; Density; Plasticity; Organics; Weathering; Jointing; Other.	Geologic Unit	Comments
816										
820								TUFFACEOUS SAND CONT'D		
830								RED OXIDIZED, PLAGIOCLASE PHENOCRYST BASALT W/ MEDIUM TO COARSE GROUND MASS; PLAG. CLEAR TO 2mm+; A LITTLE TUFFACEOUS SS, REDDISH CLAY. A LITTLE GREASE		
840								SAME, RED TO GOLD, COARSE GM, PLAG. TO 3MM		
850								SAME, PLUS RED, MASSIVE TO VESICULAR TO AMYGDALOIDAL, BASALT/BASALTIC AND/AND; PLAG. PHENOCRYST, 3mm+; ZEOLITE?		
860								SAME; OLIV PHENOCRYSTS EUBHEDRAL, ~1mm, in BASALT W/ COARSE GM. FRACTURES LINED WITH CHALCEDONY/WHITE ZEOLITE		
870							??	INTER FLOW ZONE? MIXED LITHS, AS ABOVE PLUS ALTERED GOLD-COLORED, PLAG AND OLIVINE PHENOCRYST, BASALT W/ PLAG LATH IN GOLD (GLASS?) MATRIX; OLIVINE EUBHEDRAL TO 2mm, PLAG AS ABOVE; A LITTLE BROWN/REDDISH BROWN CLAY		
880								BASALT; BLUE-GRAY AMYGDULES ~3%; PLAGIOCLASE PHENOCRYST TO 3mm+; 5-7%; MEDIUM GROUND MASS W/ YELLOW OLIVINE GIVES A GOLDEN LOOK; A FEW CHIP SS?		
884								AMYGDALOIDAL OLIVINE BASALT WITH MEDIUM TO FINE GM, PLAGIOCLASE PHENOCRYST, ~3%, < 3mm+; OLIVINE FRESH TO ALTERED, SUBHEDRAL TO EUBHEDRAL; <1%, < 2mm AMYGDULES ZEOLITE WHITE TO TAN, CLEAR, BLUE-GRAY (BOTRYOIDAL); A FEW OTHER LITHS FROM ABOVE		

BOREHOLE LOG

Borehole No.: <u>ARRA FFI</u>	Start and End Date: <u>4/16/13</u> <u>(4/22-23)</u>
Location: <u>FOLLY FARM</u>	Contractor and Equipment: <u>WELSCO</u>
Logged by: <u>WILEY</u>	Drillers: <u>JIM TROY</u> <u>HECTOR, CADE</u>
Sampling Method, Total Tests and Intervals SPT- Standard Penetration Test <u>CUTTINGS</u>	Drilling Methods MUD ROTARY Auger interval _____ Coring interval _____ PVC Casing depth <u>140'</u> Total Depth _____
Ground Water Table (ft) <u>135</u>	

Depth, ft.	Sample Number	Box Number	Blows/6 inches	Recovery	% Recovery	USCS	Graphic Log	Material Description: Color; Strength; Density; Plasticity; Organics; Weathering; Jointing; Other.	Geologic Unit	Comments
884										
890								SAME		THIS SAMPLE MAY NOT BE RIGHT AT 890
900								SAME, w/ BROWN CLAY		THIS SAMPLE MAY NOT BE RIGHT AT 900
910								SAME, TAN CLAY; FEW/NO OLIVINE PHENOM CRYSTS IN BASALT		LOST CIRCULATION
920								BROWNISH DARK GRAY OLIVINE TRACHYTIC GROUNDMASS; OLIVINE IS EHDREDAL, ALTERED, DARK GREEN, <1% <1.5mm; PLAGIOCLASE PLAGIC, CLEAR, ~2%?, <3mm; ALSO ZEOLITE, TUFACEOUS SS, GREASE.	REDDISH WHERES GM OLIVINE ALTERED MASSIVE VESICULAR LITHS	WHEN PULLED UP BIT HAD TUFACEOUS SILTSTONE AND SANDSTONE AND BASALT
930								SAME MAIN LITH,		
940								SAME; WITH ASSORTED LITHS AND BAKED(?) WELL SORTED, ANGULARS WELL ROUNDED, POLYMICT FINE-GRAINED SANDSTONE, GRAINS MAINLY PLAGIOCLASE; VEM FLUNGE		GRAIN SUPPORTED
950								MIXED MAFIC, MASSIVE + VESICULAR LITHS w/ SANDSTONE AS ABOVE; VEM FILLINGS		

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BOREHOLE LOG

Borehole No.: <u>ARRAF1</u>	Start and End Date: <u>4/16</u> (<u>4/23</u>)
Location: <u>FOLLY FARM</u>	Contractor and Equipment: <u>WELSLD</u>
Logged by: <u>WILEY</u>	Drillers: <u>JIM TROY</u> <u>HECTOR CAPE</u>
Sampling Method, Total Tests and Intervals SPT- Standard Penetration Test <u>3mm CUTTINGS</u>	Drilling Methods MWD ROTARY
	Auger interval _____ Coring interval _____ PVC Casing depth <u>140</u> Total Depth _____
Ground Water Table (ft) <u>135</u>	

Depth, ft.	Sample Number	Box Number	Blows/6 inches	Recovery	% Recovery	USCS	Graphic Log	Material Description: Color; Strength; Density; Plasticity; Organics; Weathering; Jointing; Other.	Geologic Unit	Comments
952										
960								<p>BASALT; MEDIUM GRAY OLIV-CPX BASALT WITH TRACHYTIC TO PILOTAXITIC GROUNDMASS OLIVINE IS ^{PERIDOT} GREEN, $\leq 2\text{mm}$, $< 1\%$, SUBHEDRAL WITH OPAQUE INCLUSIONS; CLIND PYROXENE IS BLACK, $\sim 1\text{mm}$, $1-3\%$, EUBHEDRAL TO SUBHEDRAL; PLAGIOCLASE IS CLEAR TO $\leq 3\text{mm}^+$; A FEW OTHER LITHS INCLUDING SS AS ABOVE</p>		
970								<p>BASALT AS ABOVE WITH ^{AMYGDALOIDAL} VESICULAR, OXIDIZED (RED TO GOLD) GREENISH TO BROWNISH GRAY DEVITRIFIED HYALOCRYSTALLINE DACITE(?)</p>		
980								<p>DACITE(?) AS ABOVE AND OLIVINE BASALT WITH MEDIUM WELL-ROUNDED SAND AND ARUNDANT ^{FREE ANGLAR} CLEAR QUARTZ TO 3mm^+; BASALT AMYGDALOIDAL, PLAG. TO 3mm^+, OLIVINE TO 2^+mm; A LITTLE CLAY, A LITTLE OBSIDIAN!</p>		
990								<p>DARK GRAY TO REDDISH GRAY (OXIDIZED) PLAGIOCLASE PHYRIC BASALT WITH OL + CPX MICROPHENOCRYSTS IN FINE TO MEDIUM GRANULAR / TRACHYTIC / OR PILOTAXITIC GROUNDMASS; PLAG TO 3mm, 1%; FRACTURES & VEIN MATERIAL</p>		
1000								<p>REDDISH GRAY TO DARK GRAY OLIVINE BASALT WITH GRANULAR TO TRACHYTIC MEDIUM GROUNDMASS. OLIVINE IS MEDIUM GREEN, GRANULAR + ANHEDRAL TO MASSIVE \leq SUBHEDRAL $\sim 2\text{mm}$, $< 1\%$; PLAGIOCLASE $> 3\text{mm}$, $1-3\%$; CPX MICROPHENOCRYSTS BLACK TO 1mm;</p>		
								TD 1000 FT		