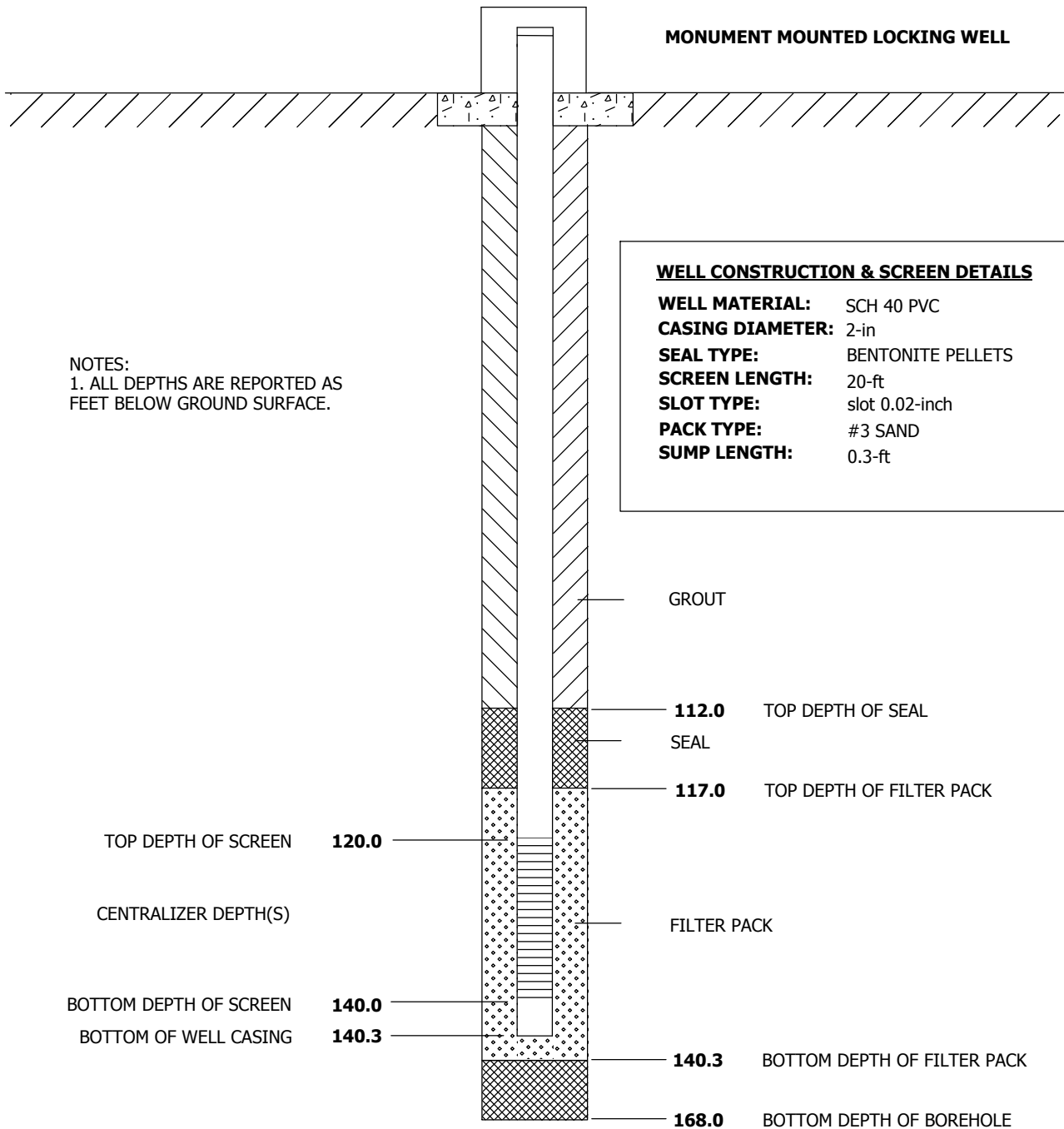


WELL COMPLETION DIAGRAM

PROJECT NO: 315024.IM.02	PROJECT: PG&E Topock IM Investigation (Phase 1 2004)	WELL NO: MW-35-135
LOCATION: Old Route 66 Topock, CA. - Along east side of old Route 66 at dirt road turn-off, approximately 1000' north of extraction well structures.		
DRILLING CONTRACTOR: WDC Exploration and Wells, Montclair, CA	DRILLING START DATE: 03/28/2004	
DRILLING METHOD: Rotosonic	DRILLING END DATE: 03/30/2004	
LOGGER: J. Piper	WELL COMPLETION DATE: 03/31/2004	
TOP OF WELL CASING (NGVD 29): 483.57	NORTHING COORDINATE (CCS DAND 27, ZONE 5): 2104045.82	
GROUND SURFACE ELEVATION (NGVD 29): 481.20	EASTING COORDINATE (CCS NAD 27 ZONE 5): 7615329.76	



WELL DIAGRAM IS NOT TO SCALE

SOIL BORING LOG

PROJECT NAME: PG&E Topock IM Investigation (Phase 1 2004)		HOLE DEPTH (ft): 168.0	DRILLING CONTRACTOR: WDC Exploration and Wells, Montclair, CA	
SURFACE ELEVATION: 481.2 ft. MSL	NORTHING (CCS NAD 27 Z 5): 2,104,045.82	EASTING (CCS NAD 27 Z 5): 7,615,329.76	DATE AND TIME STARTED: 03/28/2004	DATE AND TIME COMPLETED: 03/30/2004
DRILLING METHOD: Rotosonic		WATER LEVEL (ft): ---	DRILLING EQUIPMENT: Standard Access Rig with continuous 4 core, 6 casing	
LOCATION: Old Route 66 Topock, CA. - Along east side of old Route 66 at dirt road turn-off, approximately 1000' north of extraction well structures.			LOGGED BY: J. Piper	

DEPTH BGS (feet)	SAMPLE			USCS CODE	SOIL DESCRIPTION SOIL NAME, USCS SYMBOL, COLOR, PERCENT COMPOSITION, GRADING, GRAIN SHAPE, MINERALOGY, DENSITY/CONSISTENCY, STRUCTURE, MOISTURE.	COMMENTS DRILLING OBSERVATIONS AND OPERATIONS, DAILY START AND END TIMES, DRILL RATE, REFUSALS, SAMPLING AND TESTING NOTES.
	INTERVAL	TYPE/NUMBER	RECOVERY (ft)			
5						0-8' cobbles, boulders, hand dug 20min and set conductor casing
10		CC33	10		WELL GRADED SAND WITH SILT AND GRAVEL (SW/SM) - gray 7.5YR4/2, f-c sand and gravel, subang, loose, moist. - cemented zone - 50% gravel, loose, dry	
15						
20				SM/GM		- few cobbles
25						- zones of weak cement, ang to subang clasts
30						- 7.5YR4/2, some clay, silty, weakly cemented
35		CC34	10			13:05-13:20 - hard drilling at 30', drill pipe broke trying 12' run. - 7.5YR5/3, ang to subang, qtz and mm sand and clasts, slightly moist

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LOCATION: Old Route 66 Topock, CA. - Along east side of old Route 66 at dirt road turn-off, approximately 1000' north of extraction well structures.			LOGGED BY: J. Piper	

DEPTH BGS (feet)	SAMPLE			USCS CODE	SOIL DESCRIPTION	COMMENTS
	INTERVAL	TYPE/NUMBER	RECOVERY (ft)			
40		CC35	10	SM/GM	<p>WELL GRADED SAND WITH SILT AND GRAVEL (SW/SM) - gray 7.5YR4/2, f-c sand and gravel, subang, loose, moist.</p> <ul style="list-style-type: none"> - silty sand with gravel, little clay - 7.5YR5/2, vf sand, increasing clay at depth, increasing gravel at depth, weakly cemented, moist 	water rises, flows from drill pipe >~35'
45						
50						
55		CC36	10			
60				GW/GM	<p>WELL GRADED GRAVEL WITH SILT (GW/GM) - 7.5YR4/3, silty coarse sand and gravel, wet.</p>	
65		CC37	10			
70						

SOIL BORING LOG

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DRILLING METHOD: Rotosonic		WATER LEVEL (ft): ---	DRILLING EQUIPMENT: Standard Access Rig with continuous 4 core, 6 casing	
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	INTERVAL	TYPE/NUMBER	RECOVERY (ft)			
75		CC38	10	GW/GM	WELL GRADED GRAVEL WITH SILT (GW/GM) - 7.5YR4/3, silty coarse sand and gravel, wet.	
80				GC	CLAYEY GRAVEL (GC) - 7.5YR4/3, wet. - moist - 7.5YR7/1, dry, gray	much drier than 68-76 wet core
85				GW/GM	WELL GRADED GRAVEL WITH SILT (GW/GM) - well graded sand and pebbles with silt.	
90		CC39	20	GC	CLAYEY GRAVEL WITH SAND (GC) - clasts up to 3, ang, metamorphic. - subang to ang clasts, slight plasticity - 10YR4/3 - subround qtz and mm sand	
95					WELL GRADED GRAVEL WITH SILT AND SAND (GW/GM) - f-c sand, silt, wet.	
100				GW/GM	- c sand	
105						

SOIL BORING LOG

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SURFACE ELEVATION: 481.2 ft. MSL	NORTHING (CCS NAD 27 Z 5): 2,104,045.82	EASTING (CCS NAD 27 Z 5): 7,615,329.76	DATE AND TIME STARTED: 03/28/2004	DATE AND TIME COMPLETED: 03/30/2004
DRILLING METHOD: Rotasonic		WATER LEVEL (ft): ---	DRILLING EQUIPMENT: Standard Access Rig with continuous 4 core, 6 casing	
LOCATION: Old Route 66 Topock, CA. - Along east side of old Route 66 at dirt road turn-off, approximately 1000' north of extraction well structures.			LOGGED BY: J. Piper	

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	INTERVAL	TYPE/NUMBER	RECOVERY (ft)			
110		CC40	20	GW/GM	WELL GRADED GRAVEL WITH SILT AND SAND (GW/GM) - f-c sand, silt, wet.	
115				GW/GC	WELL GRADED GRAVEL WITH CLAY AND SAND (GW/GC) - silty zone, ang, qtz and mm clasts, caliche cemented, moist - strong smell	
120					WELL GRADED SAND WITH SILT (SW/SM) - 7.5YR5/3, well graded gravel and sand, ang MM clasts.	wet core
125		CC41	12	SW/SM	- more silt and clay - some gravel	
130					- reddish brn matrix 5YR4/4, weathered mm clasts	very dense>130'
135		CC42	5	GC	CLAYEY GRAVEL WITH SAND (GC) - well graded gravel, f-c sand with silt, subang mm clasts, grading to sand.	
140				SW/SM	WELL GRADED SAND WITH SILT (SW/SM) - 7.5YR4/2, some f pebbles.	
				SC	CLAYEY SAND (SC) - f-m sand with clay, pebbles, reddish brn.	

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	INTERVAL	TYPE/NUMBER	RECOVERY (ft)			
145				SC	CLAYEY SAND (SC) - f-m sand with clay, pebbles, brn.	vet core
150		CC43	20	GC	CLAYEY GRAVEL (GC) - 7.5YR4/2, increasing gravel, more dense. - some f-c sand and clay	angled bedding planes seen at 159,161 (photos), 163, 167 (dip ~20-30 at 159,163)
155					- 5YR4/2, angled bedding planes	
160		CC44	10			
165						
Boring Terminated at 168 ft						
ABBREVIATIONS cc = continuous core run brn = brown lt = light dk = dark vf = very fine-grained f = fine-grained m = medium-grained						

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	INTERVAL	TYPE/ NUMBER	RECOVERY (ft)			
					c = coarse-grained vc = very coarse-grained ang = angular subang = subangular subrnd = subrounded rnd = rounded br = bedrock formation ss = sandstone conglom = conglomerate comptd = compacted qtz = quartz	20' blank casing sump, sump 136-156