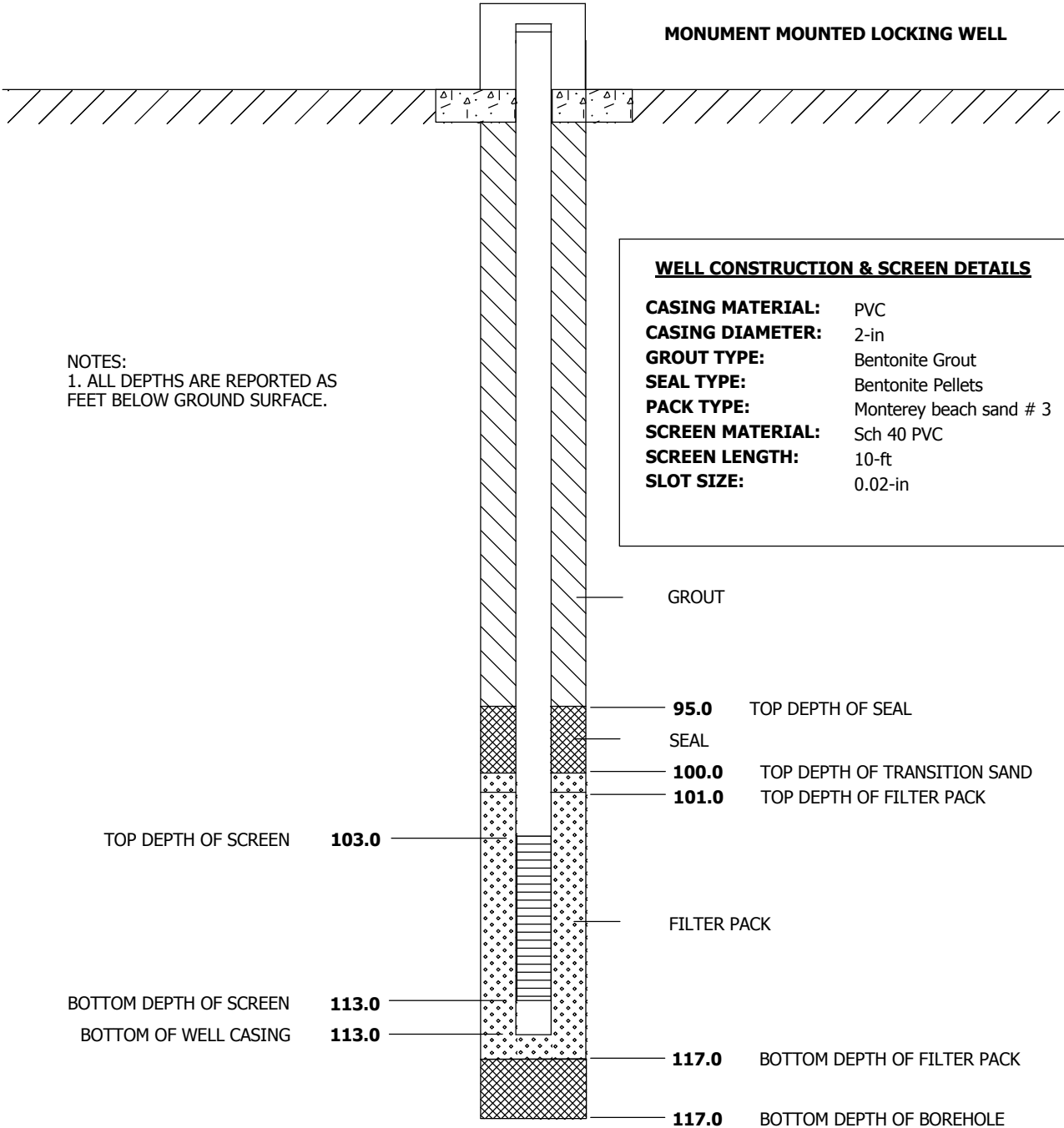


# WELL COMPLETION DIAGRAM

<b>PROJECT NO:</b> 326128.01.16.EN	<b>PROJECT:</b> IMPM Drill Program	<b>WELL NO:</b> <i><b>MW-44-115</b></i>
<b>LOCATION:</b> PG&E Compressor Station - Flood Plain, Topock, California		
<b>DRILLING CONTRACTOR:</b> Prosonic (Perry Hormann = Driller)	<b>DRILLING START DATE:</b> 3/7/2006	
<b>DRILLING METHOD:</b> Rotosonic	<b>DRILLING END DATE:</b> 3/10/2006	
<b>LOGGER:</b> Rob Tweidt, Kate Ebel	<b>WELL COMPLETION DATE:</b> 3/11/2006	
<b>TOP OF WELL CASING (NGVD 29):</b> 471.99	<b>NORTHING COORDINATE (CCS DAND 27, ZONE 5):</b> 2102723.85	
<b>GROUND SURFACE ELEVATION (NGVD 29):</b> 470.54	<b>EASTING COORDINATE (CCS NAD 27 ZONE 5):</b> 7616262.11	

## MONUMENT MOUNTED LOCKING WELL



### WELL CONSTRUCTION & SCREEN DETAILS

<b>CASING MATERIAL:</b>	PVC
<b>CASING DIAMETER:</b>	2-in
<b>GROUT TYPE:</b>	Bentonite Grout
<b>SEAL TYPE:</b>	Bentonite Pellets
<b>PACK TYPE:</b>	Monterey beach sand # 3
<b>SCREEN MATERIAL:</b>	Sch 40 PVC
<b>SCREEN LENGTH:</b>	10-ft
<b>SLOT SIZE:</b>	0.02-in

**NOTES:**  
1. ALL DEPTHS ARE REPORTED AS FEET BELOW GROUND SURFACE.

TOP DEPTH OF SCREEN      **103.0**

BOTTOM DEPTH OF SCREEN      **113.0**

BOTTOM OF WELL CASING      **113.0**

GROUT

**95.0**      TOP DEPTH OF SEAL

SEAL

**100.0**      TOP DEPTH OF TRANSITION SAND

**101.0**      TOP DEPTH OF FILTER PACK

FILTER PACK

**117.0**      BOTTOM DEPTH OF FILTER PACK

**117.0**      BOTTOM DEPTH OF BOREHOLE

WELL DIAGRAM IS NOT TO SCALE

**SOIL BORING LOG**

<b>PROJECT NAME:</b> IMPM Drill Program		<b>HOLE DEPTH (ft):</b> 134.0	<b>DRILLING CONTRACTOR:</b> Prosonic Corp. Phoenix, AZ	
<b>SURFACE ELEVATION:</b> 470.8 ft. MSL	<b>NORTHING (CCS NAD 27 Z 5):</b> 2,102,729.79	<b>EASTING (CCS NAD 27 Z 5):</b> 7,616,251.64	<b>DATE STARTED:</b> 3/6/2006	<b>DATE COMPLETED:</b> 3/7/2006
<b>DRILLING METHOD:</b> Rotosonic			<b>DRILLING EQUIPMENT:</b> Track Mounted Rotosonic	
<b>LOCATION:</b> PG&E Compressor Station - Flood Plain, Topock, California			<b>LOGGED BY:</b> R. Tweidt	

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					<p><b>SAND (SP)</b> - brn (10YR4/3), 95% f sand, &lt;5% silt, 0% gravel, poorly sorted, non-plastic, wet, no odor</p>	<p>Hand augured to 5' bgs</p>
10						
15						
20						
25			7		<ul style="list-style-type: none"> <li>- color change to very dk brn (10YR2/2)</li> <li>- color change to very dk grayish brn (2.5YR3/2), fine silt layer (ML), 5% f sand, 95% silt, 0% gravel</li> <li>- &lt;2% organic specks</li> </ul>	<p>0' - 7' was drilled using a 1 3/4 - inch bit with air rotary</p>
30				SP		
35			10	<ul style="list-style-type: none"> <li>- 95% sand, &lt;5% silt, 0% gravel, &lt;2% black organic specks</li> </ul>	<p>Drill Rate = 10' / min</p>	

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DEPTH BGS (feet)	SAMPLE			USCS CODE	SOIL DESCRIPTION	COMMENTS
	INTERVAL	TYPE/NUMBER	RECOVERY (ft)			
40			10		<p><b>SAND (SP)</b> - brn (10YR4/3), 95% f sand, &lt;5% silt, 0% gravel, poorly sorted, non-plastic, wet, no odor</p> <p>- 95% sand, &lt;5% silt, 0% gravel, &lt;2% black organic specks, gravel up to 2 cm</p> <p>- 95% sand, &lt;5% silt, &lt;5% gravel, &lt;2% black organic specks, gravel up to 2 cm, subrnd to rnd, chert &amp; other sed rks present</p> <p>- sand coarsening downward, mostly m sand</p> <p>- local mottled black organic strings</p>	Drill Rate = 10' / min
45			10		<p>- 95% sand, &lt;5% silt, &lt;5% gravel, &lt;2% black organic specks, &lt;2% coarse sand</p>	Drill Rate = 10' / min
50			10		<p>- sand coarsening downward, mostly m to c sand</p>	
55			10	GW	<p><b>SANDY GRAVEL (GW)</b> - dk yellowish brn (10YR4/4), 35% sand, &lt;5% silt, 60% gravel, well graded, subrnd to rnd up to 10 cm, wet, no odor, mostly sed with minor mm gravel</p> <p><b>GRAVELLY SAND(SW)</b> - dk yellowish brn (10YR4/4), 70% sand, &lt;5% silt, 30% gravel, well grd, subrnd to rnd up to 9 cm, wet, no odor</p>	
60			10		<p>- gravelly lens, 35% sand, &lt;5% silt, 60% gravel</p> <p>- 70% sand, &lt;5% silt, 25% gravel, max dia 7 cm, trace black organic specks</p> <p>- 55% sand, &lt;5% silt, 40% gravel, trace black organic specks</p> <p>- 85% sand, &lt;5% silt, 10% gravel, gravel fining downward, max dia 5 cm, mostly sed</p>	
65			10	SW	<p>- 85% sand, &lt;5% silt, 10% gravel</p> <p>- 60% sand, &lt;5% silt, 35% gravel, increased gravel, max dia 7 cm</p> <p>- clayey silt layer, brn (7.5YR4/3), low plasticity, slow dilatancy, soft</p>	Drill Rate = 10' / min
70			10			

**SOIL BORING LOG**

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<b>SURFACE ELEVATION:</b> 470.8 ft. MSL	<b>NORTHING (CCS NAD 27 Z 5):</b> 2,102,729.79	<b>EASTING (CCS NAD 27 Z 5):</b> 7,616,251.64	<b>DATE STARTED:</b> 3/6/2006	<b>DATE COMPLETED:</b> 3/7/2006
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<b>LOCATION:</b> PG&E Compressor Station - Flood Plain, Topock, California			<b>LOGGED BY:</b> R. Tweidt	

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)			
75			10	ML	<b>GRAVELLY SAND(SW)</b> - dk yellowish brn (10YR4/4), 70% sand, <5% silt, 30% gravel, well grd, subrnd to rnd up to 9 cm, wet, no odor - 75% f to m grd sand, 10% silt, 15% gravel up to 7 cm - 10% sand, 75% silt, 15% gravel, iron-oxide layering	Drill Rate = 10' / min
					<b>SILT (ML)</b> - dk yellowish brn (10YR4/4), 5% f sand, 95% silt, 5% gravel, gravel very ang to subang up to 4 cm, stiff, very moist to wet alluvial unit with fluvial package - mostly clay lenses with black organic material - 15% sand, 85% silt, <5% gravel, increased f sand, decreased gravel, strong Fe-ox	Drill Rate = 3.3' / min
80			10	SP	<b>SAND (SP)</b> yellowish brn (10YR5/4), 70% m sand, <2% silt, 30% gravel, poorly graded, subrnd to rnd up to 8 cm, wet, no odor, distal rock suite assemblage  - 65% sand, <5% silt, 30% gravel, rnd to subrnd, max dia 11 cm  - 90% sand, <5% silt, 10% gravel, max dia for gravel 8 cm	
85					- 55% m sand, 5% silt, 40% gravel, subrnd to well rnd with max dia 9 cm  - Distal Derived Rock Assemblage	
90			10	GW	<b>SANDY GRAVEL (GW)</b> - brn (10YR4/3), 35% sand, <5% silt, 60% gravel, well graded, subrnd to well rnd up to 12 cm, wet, no odor, mostly sed to met  - 20% sand, 0% silt, 80% gravel, max dia 11 cm	
95					<b>SILTY GRAVELLY SAND (SM)</b> - dk brn (7.5YR3/4), 70% sand, 15% silt, 15% gravel, well graded, subang to subrnd up to 3cm, wet, no odor, mostly met gravel  - 40% sand, 25% silt, 15% gravel, subang to subrnd, max dia 3 cm, met gravel	
100						
105						

**SOIL BORING LOG**

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	INTERVAL	TYPE/NUMBER	RECOVERY (ft)			
110			20	SM	<p><b>SILTY GRAVELLY SAND (SM)</b> - dk brn (7.5YR3/4), 70% sand, 15% silt, 15% gravel, well graded, subang to subrnd up to 3cm, wet, no odor, mostly met gravel</p> <p>- 50% sand, 20% silt, 30% gravel, subang to subrnd, max dia 4 cm, met gravel</p> <p>- 65% sand, 15% silt, 20% gravel, subang to subrnd, max dia 3 cm, met gravel</p> <p>- very dk gray (7.5YR3/1), 55% sand, 25% silt, 20% gravel, max dia 2 cm, slightly musty-sulphur odor, appears to contain organic material</p> <p>- dk brn (7.5YR3/3), 30% sand, 20% silt, 50% gravel, subang to subrnd, max dia 4 cm, highly weathered met gravel</p>	Top of Reworked Bedrock (?)
115						
120				ML	<b>GRAVELLY SILT WITH SAND (ML)</b> - dr reddish brn (5YR3/4), 25% sand, 45% silt, 30% gravel up to 8 cm, well graded, subang to subrnd up to 2 cm, wet, no odor, decomposed	
				SM	<b>SILTY SAND (SM)</b> - dr reddish brn (5YR3/4), 75% sand, 15% silt, 10% gravel, well graded, subang to subrnd up to 2 cm, wet, no odor	
125				BR	<b>MIOCENE CONGLOMERATE (BR)</b> - reddish brn (5YR4/4), 65% sand, 25% silt, 10% gravel, hard, clasts up to 10 cm, dry	
130						
Boring Terminated at 134 ft						
<p><b>ABBREVIATIONS</b></p> <p>cc = continuous core run</p> <p>brn = brown</p> <p>lt = light</p> <p>dk = dark</p> <p>vf = very fine-grained</p>						

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	INTERVAL	TYPE/ NUMBER	RECOVERY (ft)			
					<i>f = fine-grained</i> <i>m = medium-grained</i> <i>c = coarse-grained</i> <i>vc = very coarse-grained</i> <i>ang = angular</i> <i>subang = subangular</i> <i>subrnd = subrounded</i> <i>rnd = rounded</i> <i>br = bedrock formation</i> <i>ss = sandstone</i> <i>conglom = conglomerate</i> <i>comptd = compacted</i> <i>qtz = quartz</i>	