

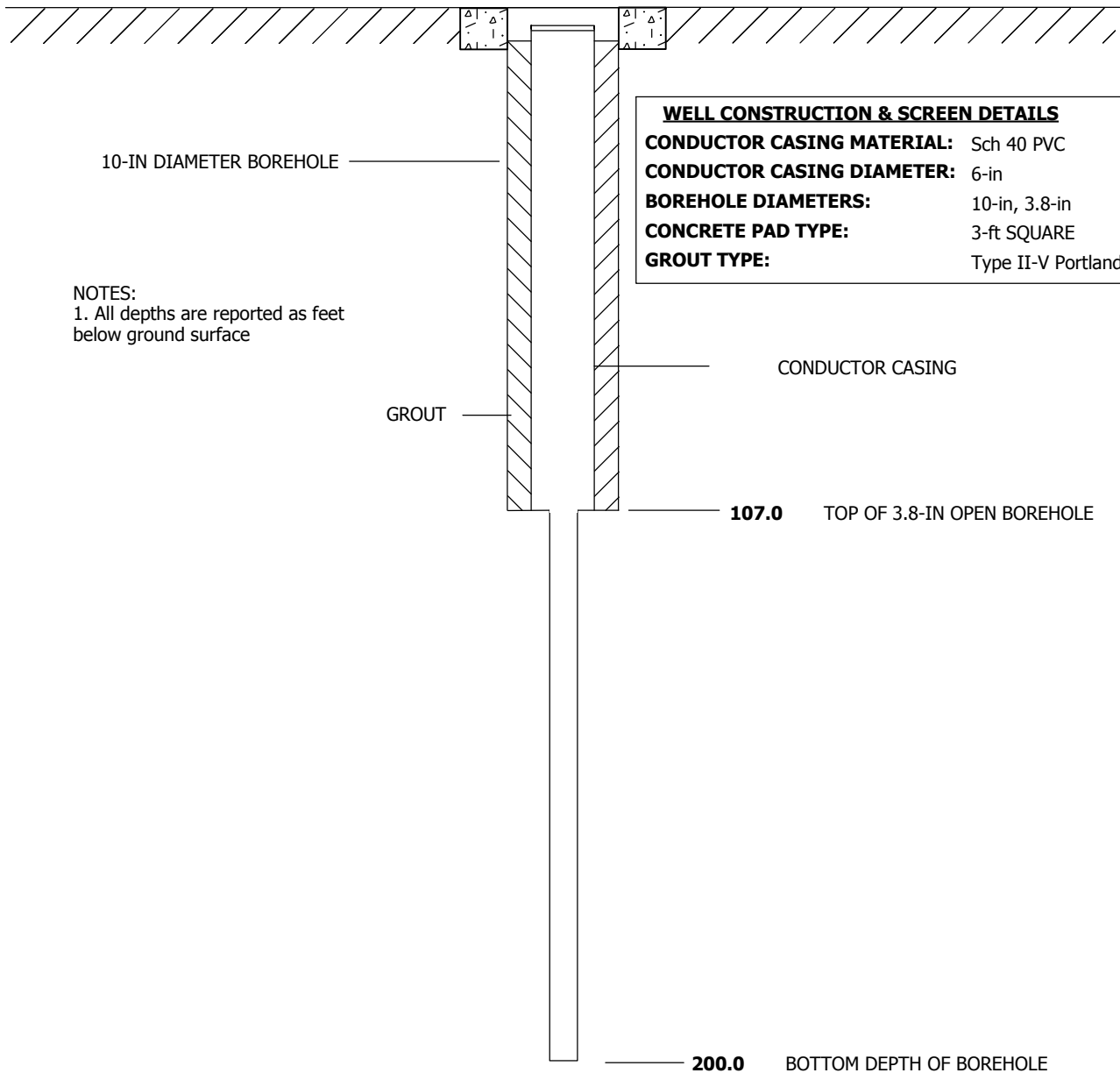
WELL COMPLETION DIAGRAM

PROJECT NO: 417981.ER.02.FW	PROJECT: ER-TCS Groundwater Investigation	WELL NO: <i>MW-72BR-200</i>
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LOCATION: Site K

DRILLING CONTRACTOR: Boart Longyear (B. Bradford)	DRILLING START: 6/20/2012
DRILLING METHOD: Rotosonic/Wireline Rotary Core	DRILLING END: 6/27/2012
LOGGER: A. Brewster (Northstar)	WELL COMPLETION DATE: 6/27/2012
GROUND SURFACE ELEVATION (NAVD 88): 513.5 ft AMSL (Approx.)	GENERAL REMARKS: Open 3.8" diameter borehole from 107 to 200 feet bgs. Location survey for this well is not complete. Located approximately 15 feet west of MW-72-80.
NORTHING (CCS NAD 83 Z 5): --- EASTING (CCS NAD 83 Z 5): ---	

12-in DIAMETER WELL VAULT (FLUSH WITH GRADE)



WELL DIAGRAM IS NOT TO SCALE



PROJECT NUMBER: 417981.ER.02.FW	BORING NUMBER: BH-72	SHEET 1 OF 10
ROCK CORE LOG		

PROJECT : PG&E Topock, ER-TCS Investigation LOCATION : Site K (2100674.4 N, 7617083.4 E)
 ELEVATION : 513.5 ft DRILLING CONTRACTOR : Boart Longyear (B. Bradford)
 CORING EQUIPMENT AND METHOD : HQ Wire-Line Rotary ORIENTATION : Vertical
 WATER LEVELS : Approx. 58 ft BGS START : 6/26/2012 END : 6/27/2012 LOGGER : A. Brewster (Northstar)

DEPTH BELOW SURFACE (ft)	CORE RUN LENGTH AND RECOVERY (%)	DISCONTINUITIES		SYMBOLIC LOG	LITHOLOGY	COMMENTS	
		RQD (%)	FRACTURES PER FOOT				DESCRIPTION
							DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS
5					<p>Silty Sand (SM) 0-4.0' - brown, (10YR 5/3), dry, metadioritic gravel, no odor.</p>	Hand augered to 2'.	
10					<p>Well Graded Sand (SW) 4.0-13.0' - light brownish gray (10YR 6/2), silty sand with metadiorite and granitic gravel and cobble (50/30/20), dry, poorly sorted, no odor, gravel is subangular to angular, maximum diameter of 6 cm.</p>		
15					<p>Metadiorite Bedrock (pTbr) 13.0-80.0' - dusky yellow green, (5GY 5/2), non-foliated, uniform, slightly decomposed to fresh, slightly fractured, competent, phaneritic.</p>	13.0-17.0': drilled with 4-inch sonic. Logging based on broken fragments generated from drilling process.	
17.0							
20	R1 3 ft 96%	63	3 2 2			R1 Drill rate=0.1 ft/min	
20.0							



PROJECT NUMBER: 417981.ER.02.FW	BORING NUMBER: BH-72	SHEET 2 OF 10
ROCK CORE LOG		

PROJECT : PG&E Topock, ER-TCS Investigation LOCATION : Site K (2100674.4 N, 7617083.4 E)
 ELEVATION : 513.5 ft DRILLING CONTRACTOR : Boart Longyear (B. Bradford)
 CORING EQUIPMENT AND METHOD : HQ Wire-Line Rotary ORIENTATION : Vertical
 WATER LEVELS : Approx. 58 ft BGS START : 6/26/2012 END : 6/27/2012 LOGGER : A. Brewster (Northstar)

DEPTH BELOW SURFACE (ft)	CORE RUN LENGTH AND RECOVERY (%)	DISCONTINUITIES			SYMBOLIC LOG	LITHOLOGY	COMMENTS
		R O D (%)	FRACTURES PER FOOT	DESCRIPTION			
				DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS			
25	R2 5 ft 100%	100	1	<p>28.25-29.0' - Healed fractures at 85 degrees from horizontal. Calcite cement.</p> <p>32.8' - Fracture 80 degrees from horizontal. Black manganese mineralization on fracture surface.</p> <p>36.6' - Joint, 60 deg, rough, undulating, <1mm calcite infilling, iron staining, narrow.</p> <p>37.6' - Mechanical break at 50 degree dip.</p> <p>38.4, 38.6, 38.7, 38.8' - Joint (4), 30, 60, 80, and 60 deg, rough, undulating, iron staining, no infill, narrow aperture.</p>		<p>Metadiorite Bedrock (pTbr) 13.0-80.0' - dusky yellow green, (5GY 5/2), non-foliated, uniform, slightly decomposed to fresh, slightly fractured, competent, phaneritic.</p> <p>27.0-29.5' - Quartz-rich interval, nonfoliated, uniform.</p> <p>38.5-40.0' - Highly fractured and healed with chlorite.</p>	<p>R2 Drill rate=0.08 ft/min</p> <p>R3 Drill rate=0.06 ft/min</p> <p>R4 Drill rate=0.07 ft/min</p> <p>R5 Drill rate=0.08 ft/min</p> <p>Resume 08/26/2011 at 0800 R6 Drill rate=0.30 ft/min</p>
			1				
			0				
			1				
			1				
28.0	R3 3 ft 93%	87	0				
			1				
			1				
30	R4 2 ft 100%	80	1				
			2				
35	R5 5 ft 98%	96	1				
			0				
			1				
			1				
			0				
40	R6 5 ft 100%	92	0				
			1				
			1				
			4				
			0				



PROJECT NUMBER: 417981.ER.02.FW	BORING NUMBER: BH-72	SHEET 3 OF 10
ROCK CORE LOG		

PROJECT : PG&E Topock, ER-TCS Investigation LOCATION : Site K (2100674.4 N, 7617083.4 E)
 ELEVATION : 513.5 ft DRILLING CONTRACTOR : Boart Longyear (B. Bradford)
 CORING EQUIPMENT AND METHOD : HQ Wire-Line Rotary ORIENTATION : Vertical
 WATER LEVELS : Approx. 58 ft BGS START : 6/26/2012 END : 6/27/2012 LOGGER : A. Brewster (Northstar)

DEPTH BELOW SURFACE (ft)	CORE RUN LENGTH AND RECOVERY (%)	DISCONTINUITIES			SYMBOLIC LOG	LITHOLOGY	COMMENTS	
		R Q D (%)	FRACTURES PER FOOT	DESCRIPTION				
				DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS				
45	R7 5 ft 100%	100	2	40.5' - Joint, 60 deg, rough, undulating, <1mm calcite infilling, manganese staining, narrow, aperture. 40.6' - Mechanical break.	Metadiorite (pTbr) 13.0-80.0' - dusky yellow green, (5GY 5/2), non-foliated, uniform, slightly decomposed to fresh, slightly fractured, phaneritic, strong.	R7=0.37 FPM		
			0	42.4' - Mechanical break.				
			1	43.2, 43.4, 43.7' - Mechanical breaks. 43.5' - Joint, 60 deg, smooth, undulating, manganese staining, no infill, tight.				
			4	44.7' - Joint, 60 deg, rough, undulating, iron staining, no infill, narrow aperture.				
			2	45' - Mechanical break. 45.4, 45.5' - Mechanical breaks. 46' - Mechanical break.				
45	R8 5 ft 100%	80	2	46.6' - Joint, 30 deg, rough, undulating, manganese staining, no infill, tight.			47.0-48.0' - Foliated	R8=0.50 FPM
			2	47.5' - Mechanical break.				
			1	48.5' - Joint, 80 deg, rough, undulating, manganese staining, no infill, narrow aperture.				
			0	51.5' - Joint, 30 deg				
50	R9 5 ft 100%	97	0	53.3' - Joint, 70 deg, rough, undulating, dendritic manganese staining, no infill, tight aperture.			51.5-53.5' - Increased quartz content.	R9=0.28 FPM
			1	54.1' - Joint, 50 deg, rough, undulating, <1mm calcite infilling, manganese staining, tight aperture.				
			0	56.0-57.0' - Multiple fractures, no infill, manganese and iron staining.				
			>10	57' - Joint, 80 deg, rough, undulating, manganese and iron staining, no infill, narrow aperture.				
			1	58.0-60.0' - Multiple fractures, no infill, manganese and iron staining.				
55	R10 5 ft 100%	26	0		56.0-58.0' - Increased quartz content. 58.0-60.0' - Moderately weathered.	R10=0.17 FPM		
			>10					
			>10					
			>10					
60								



PROJECT NUMBER: 417981.ER.02.FW	BORING NUMBER: BH-72	SHEET 4 OF 10
ROCK CORE LOG		

PROJECT : PG&E Topock, ER-TCS Investigation LOCATION : Site K (2100674.4 N, 7617083.4 E)
 ELEVATION : 513.5 ft DRILLING CONTRACTOR : Boart Longyear (B. Bradford)
 CORING EQUIPMENT AND METHOD : HQ Wire-Line Rotary ORIENTATION : Vertical
 WATER LEVELS : Approx. 58 ft BGS START : 6/26/2012 END : 6/27/2012 LOGGER : A. Brewster (Northstar)

DEPTH BELOW SURFACE (ft)	CORE RUN LENGTH AND RECOVERY (%)	DISCONTINUITIES			SYMBOLIC LOG	LITHOLOGY	COMMENTS
		RQD (%)	FRACTURES PER FOOT	DESCRIPTION			
				DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS			
65	R11 5 ft 100%	38	2	60.2, 60.7' - Joint, 60 deg, rough, undulating, <1mm calcite infilling, manganese staining, narrow aperture.	Metadiorite (pTbr) 13.0-80.0' - dusky yellow green, (5GY 5/2), non-foliated, uniform, slightly decomposed to fresh, slightly fractured, phaneritic, strong. 60.0-64.0' - Vuggy with coarse nodular calcite growth, brecciated. 64.5-66.0' - Increase in chlorite content. 67.7' - Shear zone with offset of 25mm. 71.0-72.5' - Increase in quartz content.	R11=0.23 FPM	
			1	61.4' - Joint, 80 deg, rough, undulating, <10mm calcite infilling, manganese staining, moderately narrow aperture.			
			0	63.2' - Joint, 80 deg, rough, undulating, <10mm calcite infilling, manganese staining, moderately narrow aperture.			
			1	65' - Joint, 60 deg, rough, undulating, <1mm calcite infilling, manganese staining, tight aperture.			
			0	66.0-67.0' - Multiple fractures, some calcite infill (<1mm), manganese and iron staining.			
69.0	R12 4 ft 100%	78	>10				
			0	67.7' - Shear zone with offset of 25mm.			
70	R13 5 ft 100%	84	0	70.7, 70.9' - Joint (2), 60 deg, rough, undulating, <1mm calcite infilling, manganese and iron staining, tight aperture.			
			2				
			0				
			0				
74.0			1	73.8' - Joint, 70 deg, rough, undulating, <1mm calcite infilling, manganese and iron staining, narrow aperture.			
75	R14 5 ft 100%	50	0	75' - Joint, 40 deg, rough, undulating, <1mm calcite infilling, iron staining, tight aperture.			
			1				
			0				
			>10	77.0-79.0' - Multiple fractures, no infill, manganese staining.			
79.0			>10				
80	R15 1 ft 100%	20	2				



PROJECT NUMBER: 417981.ER.02.FW	BORING NUMBER: BH-72	SHEET 5 OF 10
ROCK CORE LOG		

PROJECT : PG&E Topock, ER-TCS Investigation LOCATION : Site K (2100674.4 N, 7617083.4 E)
 ELEVATION : 513.5 ft DRILLING CONTRACTOR : Boart Longyear (B. Bradford)
 CORING EQUIPMENT AND METHOD : HQ Wire-Line Rotary ORIENTATION : Vertical
 WATER LEVELS : Approx. 58 ft BGS START : 6/26/2012 END : 6/27/2012 LOGGER : A. Brewster (Northstar)

DEPTH BELOW SURFACE (ft)	CORE RUN LENGTH AND RECOVERY (%)	DISCONTINUITIES		SYMBOLIC LOG	LITHOLOGY	COMMENTS	
		R Q D (%)	FRACTURES PER FOOT		DESCRIPTION	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, HARDNESS, WEATHERING, AND ROCK MASS CHARACTERISTICS	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
					DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS		
85							
90							
95							
100							



PROJECT NUMBER: 417981.ER.02.FW	BORING NUMBER: BH-72	SHEET 6 OF 10
ROCK CORE LOG		

PROJECT : PG&E Topock, ER-TCS Investigation LOCATION : Site K (2100674.4 N, 7617083.4 E)
 ELEVATION : 513.5 ft DRILLING CONTRACTOR : Boart Longyear (B. Bradford)
 CORING EQUIPMENT AND METHOD : HQ Wire-Line Rotary ORIENTATION : Vertical
 WATER LEVELS : Approx. 58 ft BGS START : 6/26/2012 END : 6/27/2012 LOGGER : A. Brewster (Northstar)

DEPTH BELOW SURFACE (ft)	CORE RUN LENGTH AND RECOVERY (%)	DISCONTINUITIES				SYMBOLIC LOG	LITHOLOGY	COMMENTS
		R Q D (%)	FRACTURES PER FOOT	DESCRIPTION				
				DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS				
105								
107.0	R1 3 ft 100%	50	2	107.7, 107.9, 108.7, 109.0, 109.1' - Joint (6), 50, 30, 30, 50, 50, and 60 deg, rough, undulating, <1mm calcite infilling, iron and manganese staining, very narrow apertures		 Metadiorite dusky yellow green, (5GY 5/2), medium foliation, uniform, slightly weathered, strong, phaneritic, slightly fractured, and healed with chlorite cement.	Run 1: drill rate = 0.5 feet per minute (ft/min)	
110	R2 2.5 ft 100%	14	1	110.4, 110.8, 111.2, 111.5, 111.6' - Joint (5), 60, 30, 20, 40, and 40 deg, rough, undulating, <1mm calcite infilling, manganese staining, very narrow apertures			Run 2: drill rate = 0.6 ft/min	
112.5			3	112.5-113.5' - Highly fractured			Run 3: drill rate = 0.7 ft/min	
115	R3 5.5 ft 100%	53	>10	114.2, 114.6, 114.7, 115.5, 116.2, 116.8, 117.0, 117.6, 117.7, 117.9' - Joint (10), 30, 20, 30, 30, 20, 20, 30, 40, 60, and 60 deg, rough, undulating to stepped, <1mm calcite infilling, manganese staining, very narrow to narrow apertures		114.3' - Change to aphanitic, non-foliated. 115.5' - Change to phaneritic		
118.0			>10					
120	R4 2 ft 100%	78	2	118.2, 118.4, 119.8' - Joint (3), 30, 30, and 40 deg, rough, undulating, <1mm calcite infilling, some manganese staining, narrow aperture			Run 4: drill rate = 0.5 ft/min	
120.0			1					



PROJECT NUMBER: 417981.ER.02.FW	BORING NUMBER: BH-72	SHEET 7 OF 10
ROCK CORE LOG		

PROJECT : PG&E Topock, ER-TCS Investigation LOCATION : Site K (2100674.4 N, 7617083.4 E)
 ELEVATION : 513.5 ft DRILLING CONTRACTOR : Boart Longyear (B. Bradford)
 CORING EQUIPMENT AND METHOD : HQ Wire-Line Rotary ORIENTATION : Vertical
 WATER LEVELS : Approx. 58 ft BGS START : 6/26/2012 END : 6/27/2012 LOGGER : A. Brewster (Northstar)

DEPTH BELOW SURFACE (ft)	CORE RUN LENGTH AND RECOVERY (%)	DISCONTINUITIES			SYMBOLIC LOG	LITHOLOGY	COMMENTS
		R Q D (%)	FRACTURES PER FOOT	DESCRIPTION			
				DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS			
125	R5 5 ft 100%	95	0	121.0, 121.6, 123.0, 123.7' - Joint (4), 30, 60, 40, and 30 deg, rough, undulating, <1mm calcite infilling, no staining, tight		Metadiorite dusky yellow green, (5GY 5/2), non-foliated, uniform, slightly weathered, strong, phaneritic, slightly fractured, and healed with chlorite cement	Run 5: drill rate = 0.6 ft/min
			2				
			0				
			2				
			0				
130	R6 1 ft 100%	35	2	125.6, 125.7' - Joint (2), 60 and 30 deg, rough, undulating, <1mm calcite infilling, iron staining, narrow aperture 126.4, 126.7, 126.9, 127.8, 128.4, 128.9, 129.1, 129.5, 129.7' - Joint, 60, 40, 20, 30, 50, 50, 50, 20, and 60 deg, rough, undulating, <1mm calcite infilling, heavy manganese staining, smooth and undulating at 128.9 and 129.1, tight to very narrow aperture			Run 6: drill rate = 0.3 ft/min Run 7: drill rate = 0.5 ft/min
			3				
			1				
			2				
135	R7 4 ft 100%	82	3	130.8' - Change to aphanitic			Run 8: drill rate = 0.5 ft/min
			0				
			0				
140	R8 5 ft 100%	30	>10	132.0-135.0' - Highly fractured, calcite infill (<1mm), iron and manganese staining.	Run 9: drill rate = 0.5 ft/min		
			>10				
			>10				
			>10				
140	R9 3 ft 100%	0	>10	135.0-138.0' - Highly fractured, calcite infill (<1mm), manganese staining	Run 10: drill rate = 0.6 ft/min		
			>10				
			>10				
140			>10	138.0-138.5' - Highly fractured, calcite infill (<1mm),			
			0				



PROJECT NUMBER: 417981.ER.02.FW	BORING NUMBER: BH-72	SHEET 8 OF 10
ROCK CORE LOG		

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DEPTH BELOW SURFACE (ft)	CORE RUN LENGTH AND RECOVERY (%)	DISCONTINUITIES			SYMBOLIC LOG	LITHOLOGY	COMMENTS
		RQD (%)	FRACTURES PER FOOT	DESCRIPTION			
				DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS			
145	R10 5.5 ft 100%	63	0	141.0-141.6' - Highly fractured, calcite infill (<1mm), manganese staining.		Metadiorite dusky yellow green, (5GY 5/2), non-foliated, uniform, slightly weathered, strong, aphanitic, slightly fractured, and healed with chlorite cement 142.5' - Change to phaneritic 142.8' - Change to foliated Change to non-foliated	Run 11: drill rate = 0.5 ft/min
			>10				
	R11 5 ft 100%	34	0	142.5' - Mechanical fracture			
			1	144.6' - Joint, 70 deg, rough, undulating, <1mm calcite infilling, iron and manganese staining, narrow aperture			
			>10	145.3-145.5' - Highly fractured, calcite infill (<1mm), iron staining			
			>10	145.6, 145.7' - Joint, 30 deg, rough, undulating, no infill, iron staining, tight			
			1	146.4-146.8' - Highly fractured			
			1	147.7' - Joint, 70 deg, <1mm calcite infilling, heavy iron staining, tight			
			1	148.7, 149.6, 151.0' - Joint, 60, 60, and 30 deg, rough, undulating, some iron staining, narrow aperture			
			1	150-150.6' - Increase in chlorite content			
155	R12 5 ft 100%	45	>10	151.2-152.0' - Highly fractured, calcite infill (<3mm), no staining	151.2-152.0' - Highly weathered	Run 12: drill rate = 0.5 ft/min Run 13: drill rate = 0.3 ft/min	
			0	154.7, 154.9' - Joint, 30 and 40 deg, rough, stepped, <2mm iron staining, moderately narrow aperture	155.3-155.6' - Increase in non-feldspar content		
			2				
			0	156.0-157.0' - Highly fractured, heavy manganese staining, some iron staining	157.6-157.8' - Increase in non-feldspar content		
			>10				158' - Change to foliated
			1	157.3' - Joint, 70 deg, rough, undulating, manganese staining, narrow aperture	159.3' - Change to non-foliated		
0							
160			0			Run 14: drill rate = 0.1 ft/min	



PROJECT NUMBER: 417981.ER.02.FW	BORING NUMBER: BH-72	SHEET 9 OF 10
ROCK CORE LOG		

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 ELEVATION : 513.5 ft DRILLING CONTRACTOR : Boart Longyear (B. Bradford)
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 WATER LEVELS : Approx. 58 ft BGS START : 6/26/2012 END : 6/27/2012 LOGGER : A. Brewster (Northstar)

DEPTH BELOW SURFACE (ft)	CORE RUN LENGTH AND RECOVERY (%)	DISCONTINUITIES		SYMBOLIC LOG	LITHOLOGY	COMMENTS		
		R Q D (%)	FRACTURES PER FOOT				DESCRIPTION	
							DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS	
165	R14 2.5 ft 100%	40	2	<p>Metadiorite dusky yellow green, (5GY 5/2), non-foliated, uniform, slightly weathered, strong, phaneritic, slightly fractured, and healed with chlorite cement</p>		<p>SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.</p>		
	161.5		>10				160.5, 160.7' - Joint, 30 deg, rough, undulating to stepped, manganese staining, narrow aperture 161.0-161.3' - Highly fractured, manganese and iron staining	Run 15: drill rate = 0.2 ft/min
	R15 3.5 ft 100%	0	>10				162.5' - Joint, 70 deg, rough, undulating, <1mm manganese staining, tight 162.6-163.5' - Highly fractured, manganese staining	Run 16: drill rate = 0.3 ft/min
			>10				164' - Joint, 70 deg, rough, undulating, <1mm calcite infilling, iron and manganese staining, tight 164.3-165.0' - Highly fractured	
			1				165.6, 169.7' - Joint, 70 and 10 deg, rough, undulating, <1mm calcite infilling, iron staining, very narrow aperture	
			0					
	R16 5 ft 100%	38	>10				167.7-168.4' - Highly fractured, manganese staining	Run 17: drill rate = 0.1 ft/min
			>10					
			1					
170	R17 1.5 ft 100%	100	0		Run 18: drill rate = 0.1 ft/min			
	171.5		0					
	R18 2 ft 100%	38	>10			172.6, 172.7, 172.8' - Joint, 30, 20, and 40 deg, rough, undulating, manganese staining, narrow aperture 172.8-173.0' - Highly fractured	Run 19: drill rate = 0.8 ft/min	
	173.5		5					
175	R19 1.5 ft 100%	57	0		Run 20: drill rate = 0.9 ft/min			
	175.0							
	R20 5 ft 100%	15	1			175.8, 176.2, 177.1, 177.2, 178.2' - Joint, 30, 30, 70, 80, and 60 deg, rough, undulating to stepped, iron and manganese staining, narrow aperture 176.5-177.0, 177.4-178.0, 178.4-180' - Highly fractured, no infill, iron staining		
			>10					
>10								
180	180.0		>10					



PROJECT NUMBER: 417981.ER.02.FW	BORING NUMBER: BH-72	SHEET 10 OF 10
ROCK CORE LOG		

PROJECT : PG&E Topock, ER-TCS Investigation LOCATION : Site K (2100674.4 N, 7617083.4 E)
 ELEVATION : 513.5 ft DRILLING CONTRACTOR : Boart Longyear (B. Bradford)
 CORING EQUIPMENT AND METHOD : HQ Wire-Line Rotary ORIENTATION : Vertical
 WATER LEVELS : Approx. 58 ft BGS START : 6/26/2012 END : 6/27/2012 LOGGER : A. Brewster (Northstar)

DEPTH BELOW SURFACE (ft)	CORE RUN LENGTH AND RECOVERY (%)	DISCONTINUITIES			SYMBOLIC LOG	LITHOLOGY	COMMENTS
		R Q D (%)	FRACTURES PER FOOT	DESCRIPTION			
				DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS			
185	R21 5 ft 100%	0	>10 >10 >10 >10 >10	180-185.0' - Highly fractured, calcite infill (<5mm), heavy iron staining 182.2' - Joint, 80 deg, rough, undulating, <5mm calcite infilling, heavy iron staining, narrow aperture	Metadiorite dusky yellow green, (5GY 5/2), non-foliated, uniform, slightly weathered, strong, phaneritic, slightly fractured, and healed with chlorite cement 182.5-182.8' - Change to highly weathered	Run 21: drill rate = 0.9 ft/min	
190	R22 5 ft 100%	66	2 0 0 >10 1	185.1, 185.6, 188.6, 189.7' - Joint, 60, 30, 50, and 40 deg, rough, undulating to stepped, heavy iron staining, moderately narrow apertures 188.3-188.5' - Highly fractured		Run 22: drill rate = 0.8 ft/min	
195	R23 5 ft 100%	27	2 >10 0 2	190.7, 190.9, 191.5, 191.6, 194.4, 195.0' - Joint, 30, 60, 40, 60, 40 and 40 deg, rough, undulating, <1mm some iron and manganese staining, tight to narrow apertures 192.0-193.0' - Highly fractured, heavy iron staining	191.0-192.0' - Increase in chlorite content 192.0-193.0' - Change to very highly weathered	Run 23: drill rate = 0.8 ft/min	
200	R24 5 ft 100%	55	1 0 0 0 >10	195.9, 199.5' - Joint, 30 and 80 deg, rough, undulating, some iron and manganese staining, narrow apertures 199.0-200.0' - Highly fractured, calcite infill (<1mm)	196.6-198.0' - Change to aphanitic	Run 24: drill rate = 0.7 ft/min	
					End Drilling on 6/27/2012 Total Borehole Depth: 200.0 ft bgs	This borehole was converted into the following monitoring well(s): MW-72-80 and MW-72BR-200	