APPENDIX B

MW-26 BORING/WELL CONSTRUCTION LOG AND MP CASING CONSTRUCTION DETAILS

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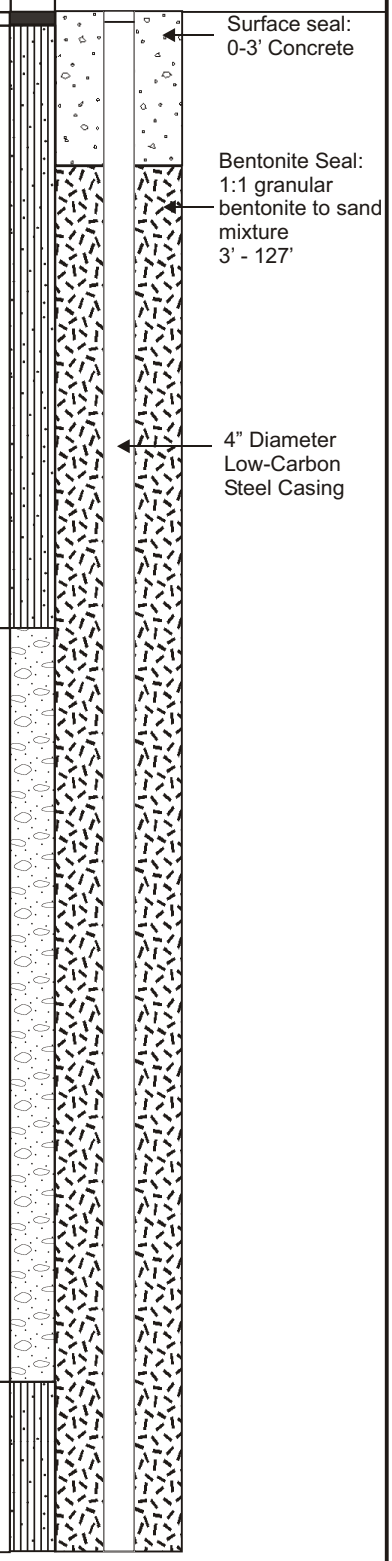
NASA/JPL
BORING LOG – JPL-MW-26

Borehole Location: JPL-MW-26 Project Location: NASA Jet Propulsion Lab Project #: G486111-T3 Geologist: David Conner Drilling Contractor: WDC Exploration & Wells Driller: Alberto Vega Reviewed by: David Clexton R.G. #7350	Sampler Type: Grab Sample from Shaker Screen Boring Diameter: 12 1/4” Drilling Method: Mud Rotary Drill Rig: Speedstar 50K Hammer Type: Casing Hammer Date: 04/07/05 - 04/12/04 Total Depth: 313.0’ bgs	Coordinates (NAD 83/NAVD 88) Northing: 1,887,624.430 Surface Elevation: 1059.08 Easting: 6,511,824.030 Borehole Abandoned: Monitoring Device Installed: Yes No X Yes X No Method: Type: Westbay Multi-Port Monitoring System	

Depth (feet bgs)	USCS symbols	Sample description	Comments
0		Asphalt Surface (4 inches thick). Gravel base for pavement.	
	SM	SILTY SAND: olive brown, 80% fine- to medium-grained, some coarse-grained, slightly damp.	
5		As above.	
10		Increase in coarse-grained, some gravel up to 2” to 3” long, some rock.	Rig bounce.
15		Cobbles and rock granodioritic in composition.	
20		Silty SAND: yellow brown, 85% fine- to medium-grained, 15% coarse-grained, some cobbles and gravel.	
25	GM	COBBLES with silty SAND: orange brown with some black and gray, 60% fine gravel (quartz and feldspar - granodioritic composition), 20% fine- to medium-grained SAND, 20% coarse-grained SAND.	
30		Very rocky. COBBLES.	Heavy rig chatter.
35		COBBLES with silty SAND: 75% fine-gravel, 15% medium- to coarse-grained, 10% fine-grained.	Heavy rig chatter.
40		As above.	
45		As above.	
50		As above.	
55	SM	Silty SAND: orange yellow brown, 80% fine- to medium-grained, 20% coarse-grained. Silt orange yellow in color.	
60			



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Depth (feet bgs)	USCS symbols	Sample description	Comments	Lithology	Well Completion
60	SM	Silty SAND: orange yellow brown, 80% fine- to medium-grained, 20% coarse-grained. Silt orange yellow in color. Sporadic cobbles at 60’ bgs.			
65					Bentonite Seal: 1:1 granular bentonite to sand mixture 3’ - 127’
70	GM	COBBLES with silty SAND: yellow orange brown, 60% fine gravel, 25% coarse-grained, 15% fine-grained, gravel angular to subangular.			
75		COBBLES.	Heavy rig chatter.		4” Diameter Low-Carbon Steel Casing
80		As above.			
85		As above.			
90		As above.			
95		As above.	Very heavy rig chatter.		
100		As above.			
105		As above.			
110		As above.			
115		Increase in cobbles.	Increased rig chatter.		
120					

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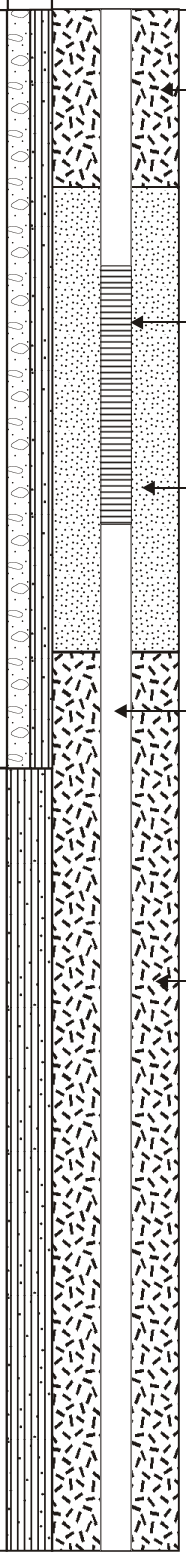
Depth (feet bgs)	USCS symbols	Sample description	Comments
120	GM/SM	COBBLES with silty SAND: yellow orange brown, 60% fine gravel, 25% coarse-grained, 15% fine-grained, gravel angular to subangular.	
125		As above.	
130		As above.	
135		Increase in cobbles.	Heavy rig chatter.
140		Decrease in cobbles.	Low rig chatter and smoother drilling 140 - 144’ bgs.
145	GM	COBBLES with silty SAND: yellowish brown, 75% fine gravel, 15% fine- to medium grained, 10% coarse-grained, angular to subangular.	
150	SM	Silty SAND: light brown, fine-grained, well sorted, trace coarse-grained.	
155		As above.	
160		As above.	
165		As above.	
170		As above.	
175		As above.	
180			



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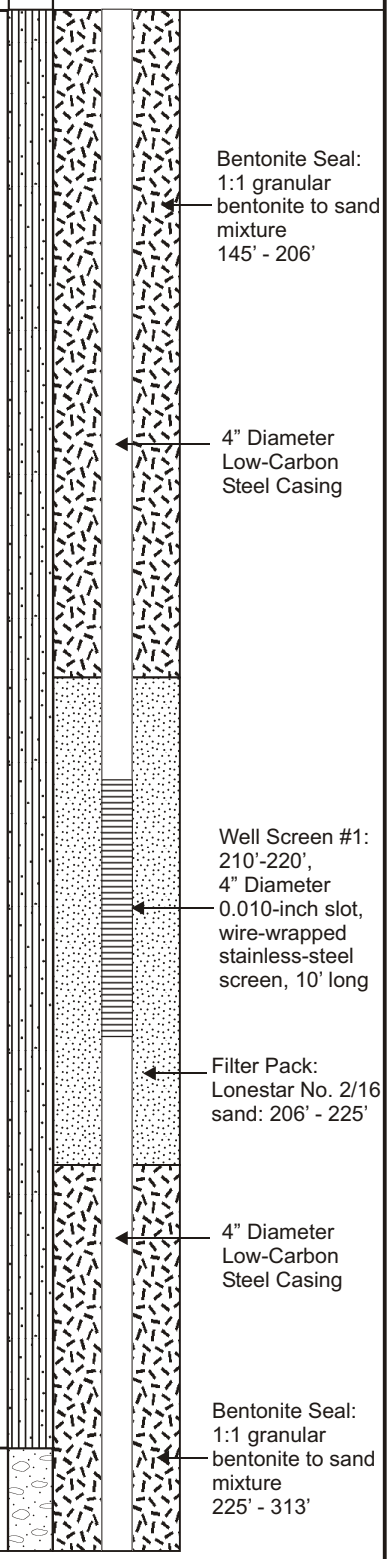
Depth (feet bgs)	USCS symbols	Sample description	Comments
180	SM	Silty SAND: light brown, fine-grained, well sorted, trace coarse-grained. Increase in medium- to coarse-grained, 40% coarse-grained, angular. Cobbles and gravel at 182’ bgs.	Increased rig chatter.
185		Gravel with silty SAND: 60% fine- to medium-grained, 40% coarse-grained, poorly sorted, trace fine gravel.	
190		As above.	
195		As above.	
200		50% fine- to medium-grained, 30% coarse-grained, 20% fine gravel (8-15mm in length), angular to subangular.	
205		As above.	
210		As above.	
215		60% coarse-grained, 50% fine- to medium-grained, trace fine gravel.	Moderate rig chatter.
220		As above.	
225		As above.	
230		80% fine- to medium-grained, 20% coarse-grained, trace fine-gravel, increase in silt content, moderate sorting.	
235		Increase in coarse-grained sand (40%).	
240	GM	Boulders and Cobbles with silty SAND: 60% fine- to medium-grained, 40% coarse-grained, trace fine gravel.	Moderate rig chatter.



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Depth (feet bgs)	USCS symbols	Sample description	Comments	Lithology	Well Completion
240	GM	Boulders and Cobbles with silty SAND: 60% fine- to medium-grained, 40% coarse-grained, trace fine gravel.			
245		As above.	Increase in rig chatter.		Bentonite Seal: 1:1 granular bentonite to sand mixture 206’ - 313’
250		Bedrock:buff to tannish pink, medium- to coarse-grained SAND, angular, some granodiorite grains (light colored with biotite).	Lower rig chatter. Very dense material. Slow and steady drilling; approx. 12” of depth every 10 minutes.		
255		As above.			
260		As above.			
265		As above.			
270		As above.			
275		As above.			
280		As above.			
285		As above.			
290		As above.			
295		As above.			
300		As above.			

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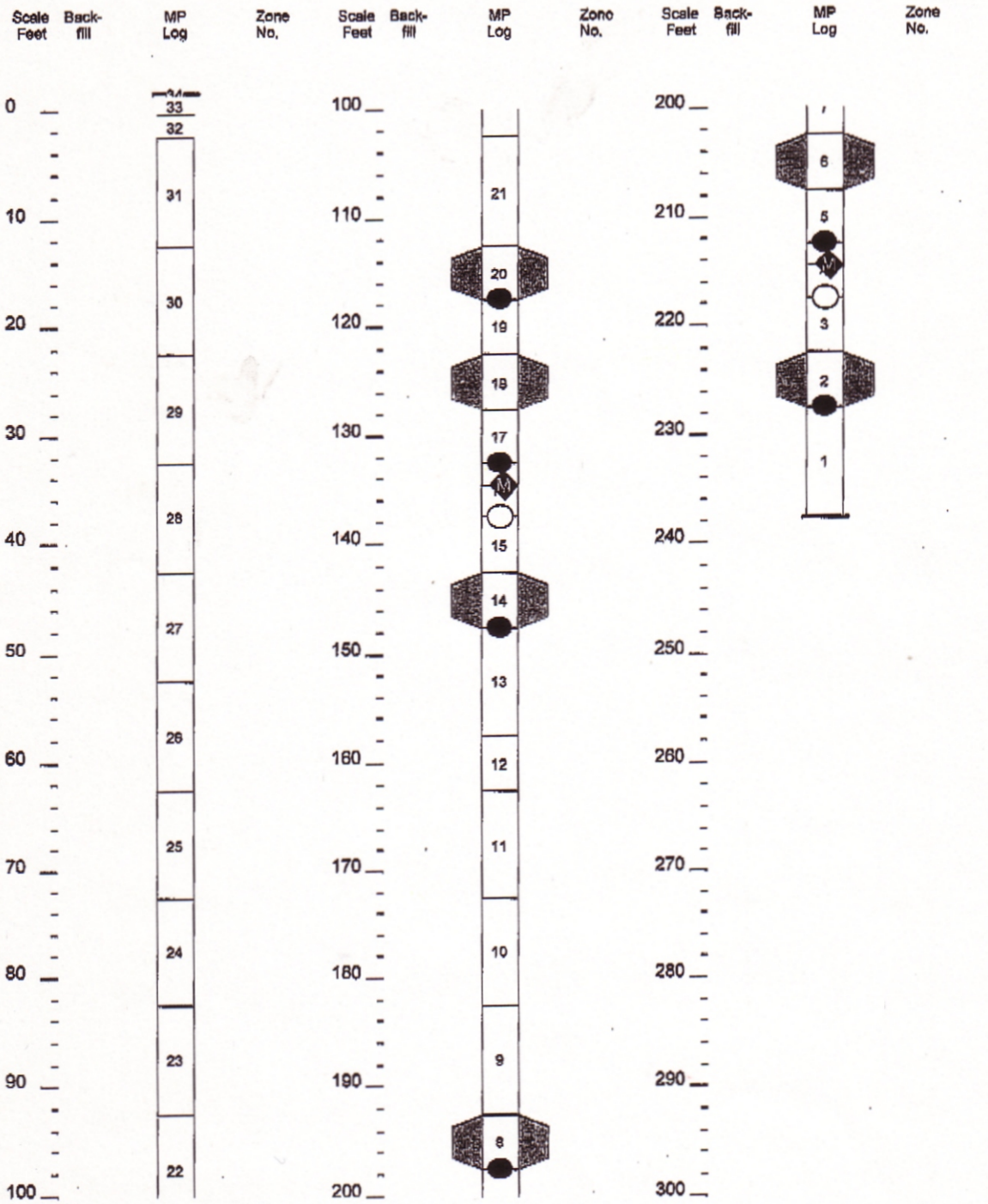
Depth (feet bgs)	USCS symbols	Sample description	Comments	Lithology	Well Completion
300		Leucocratic Grandodiorite (gl): plagioclase, 60% to 75%, potassium-feldspar, 5% to 15%; quartz, 10% to 15%; biotite, 2% to 10%, and a trace of magnetite. Interbedded Biotite-hornblende Diorite (bhd): Medium to dark gray, medium grained diorite, friable. Leucocratic Grandodiorite (gl): plagioclase, 60% to 75%, potassium-feldspar, 5% to 15%; quartz, 10% to 15%; biotite, 2% to 10%, and a trace of magnetite. As above.	Core bedrock with 94mm core barrel. Bedrock matches outcrop located adjacent to Devils Gate Damn.		Bentonite Seal: 1:1 granular bentonite to sand mixture 206’ - 313’
305					
310					
		Total Depth=313’			
315					
320					
325					
330					
335					
340					
345					
350					
355					
360					

JPL-MW-26.CDR

Summary Casing Log
WDC Exploration Inc.

Job No: 650
Well: MW 26



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