APPENDIX A CITY OF PASADENA WELL PERMIT PACKAGE



APPLICATION FOR CONSTRUCTION PLAN / HEALTH DEPARTMENT

SUBMITTAL REQUIREMENTS 1	TWO (2) SETS OF PLANS.	
Punissa Harris NASA		
4800 Oak Gro	ve Drive	Pasadena Pasadena
CA 25 91109		
Same as	s above	
Hulling Address:		
Snik: Zik WDC Explora		
5566 Arrow H	ighway	_ Montclair
Architect / Engineer Battell		тыкрысык [800] 974-2769
505 King Aver		_ Columbus
State: OH Zpx 43201 Constant Partners David Clex		Geologist 1614 1 424-7723 476-9144 1600 1 1600 1600 1600 1600 1600 1600
Hastraum auniter of employees includ	ing covered any given time;	Alcoholic leverage served on premited
Seating Capacity: Squar	re Rootage:	
Food Market Retail 10-5,999 Sq.Ft 4,800 + Sq.Ft Food Processor	Restaurents II - 48 seets II - 19 seets Hinor Remodel	Wells gDrilling Destraction Convenies
□ 1 - 5,999 Sq.R. □ 6,800 + Sq.Ft Misc. Food Storage	□ less than 200 Sq.R. Swimming Pools/Spas □	Payment is formation Date:
☐ Food Sahager ☐ Food Whitcle/Cart	Sewinge Disposed New System Hodily Estating System	Check No:
I sude rate of that the present of the fer incorrect, I suderate of that the plan wi	e paid to based on my declaration ill not be approved.	of the business classification of the plans submitted. If this declaration is
понатича:		Date:
PLEMEEPPROVED BY		Dutin 1

Note: Hechanical, Plenning and Electrical permits may be required as a result of this permit. For specifical in regards to filling out this form, please contact the Health Department at (\$26) 744 - 6804

NON-PRODUCTION WELLS WELL PERMIT APPLICATION WATER & SEWAGE / MOUNTAIN & RURAL PROGRAMS - ENVIRONMENTAL HEALTH DIVISION DATE 5050 COMMERCE DRIVE, BALDWIN PARK, CA 91706 (626) 430-5380 FAX (626) 813-3016 X MONITORING NEW WELL CONSTRUCTION HEAT EXCHANGE RECONSTRUCTION OR RENOVATION CATHODIC OTHER (Specify): DECOMMISSIONING INJECTION OTHER: EXTRACTION SITE ADDRESS 225 - 349 W Mountain St. **ZIP CODE** 91103 Pasadena Range Section Map Book Page/ Grid 565/G2 Township NO. OF WELLS IN EACH PARCEL: Attach site map with well locations Battelle 4" diameter low-carbon steel Type and Size of Company Production Casing **David Clexton** Contact Person Sanitary / Annular Volclay grout or equivalent 505 King Avenue Sealing Material Address Columbus, OH 43201 Depth of Sanitary / City, State Zip To be determined in the field Annular Seal 760-476-9144 Telephone Conductor Casing Volclay grout or equivalent IF WELL AND GEOLOGIC CONDITIONS ENCOUNTERED IN THE FIELD ARE FOUND TO DIFFER FROM THE SCOPE OF WORK PRESENTED TO THIS OFFICE. NASA Well Owner WORK PLAN MODIFICATIONS MAY BE REQUIRED 4800 Oak Grove Drive Address DISPOSITION OF PERMIT (Department Use Only) THIS PERMIT IS CONSIDERED COMPLETE WHEN THE WORK PLAN IS Pasadena, CA 91109 City / Zip Code APPROVED AND WHEN THE WELL COMPLETION LOG IS RECEIVED. NO WELL 818-393-6683 CONSTRUCTION OR DECOMMISSIONING CAN BE INITIATED WITHOUT THE Telephone WORK PLAN APPROVAL FROM THIS DEPARTMENT. WDC Exploration and Wells Well Driller WORK PLAN APPROVAL This Approval is Valid for 180 Days 5566 Arrow Highway Address Date Montclair, CA 91763 City / Zip Code 283326 C-57 License No Conditions 800-974-2769 Telephone Well Depth

I hereby agree to comply in every respect with all the regulations of the County Environmental Health Division and with all ordinances and laws of the County of Los Angeles and the State of California pertaining to well construction, reconstruction and decommissioning. Upon completion of the well and within thirty days thereafter, I will furnish the Environmental Health office with a completion log of the well giving date drilled, depth of the well, perforations in the casing, and any other data deemed necessary by County Environmental Health Division.

Not Applicable

Applicant's Signature

Applicant Name: (PRINT) Telephone:

log / records

Method of Well
Assessment

Depth and Number of
Perforations

Type of Perforator
Size of Perforations

Type and Amount of
Sealant

Method of Upper Seal Pressure Application

FINAL INSPECTION

Date REHS

PERMIT ISSUED

The well log must be submitted to this Department prior to issuance of the final approval

Date REHS

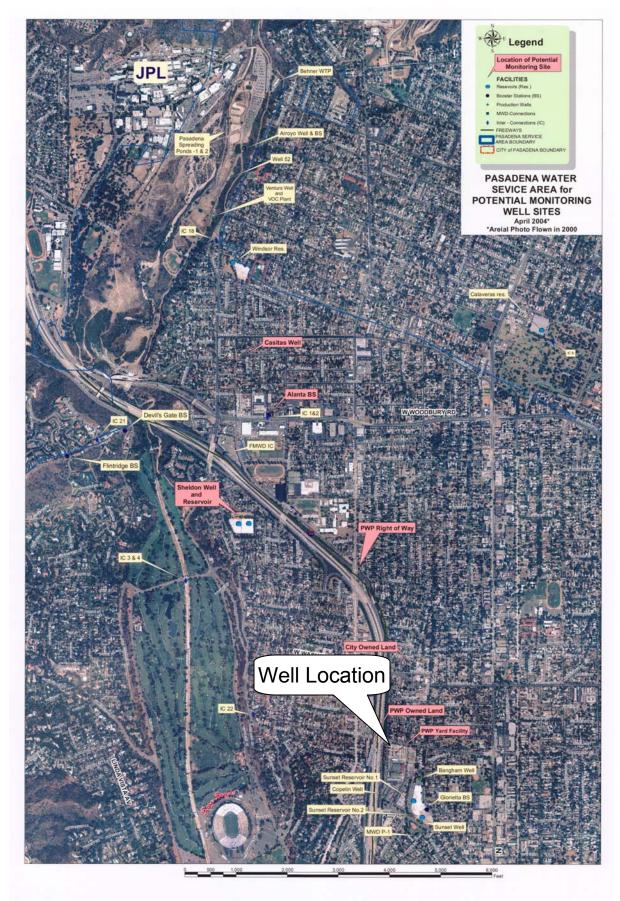
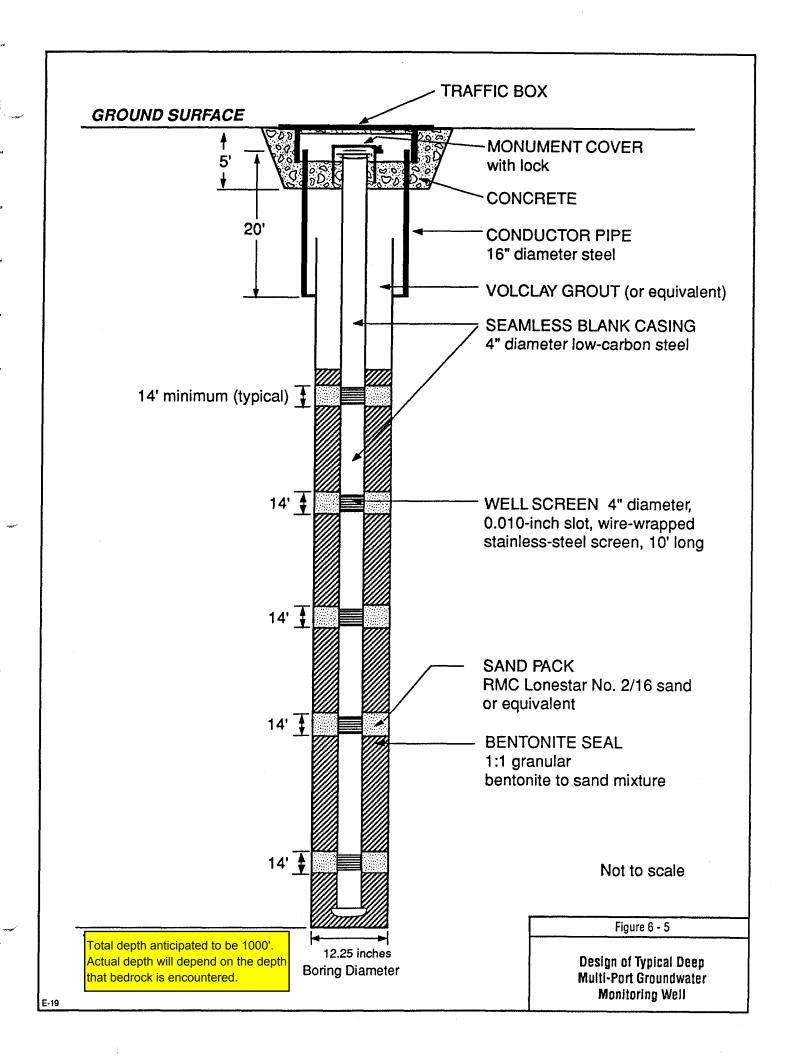
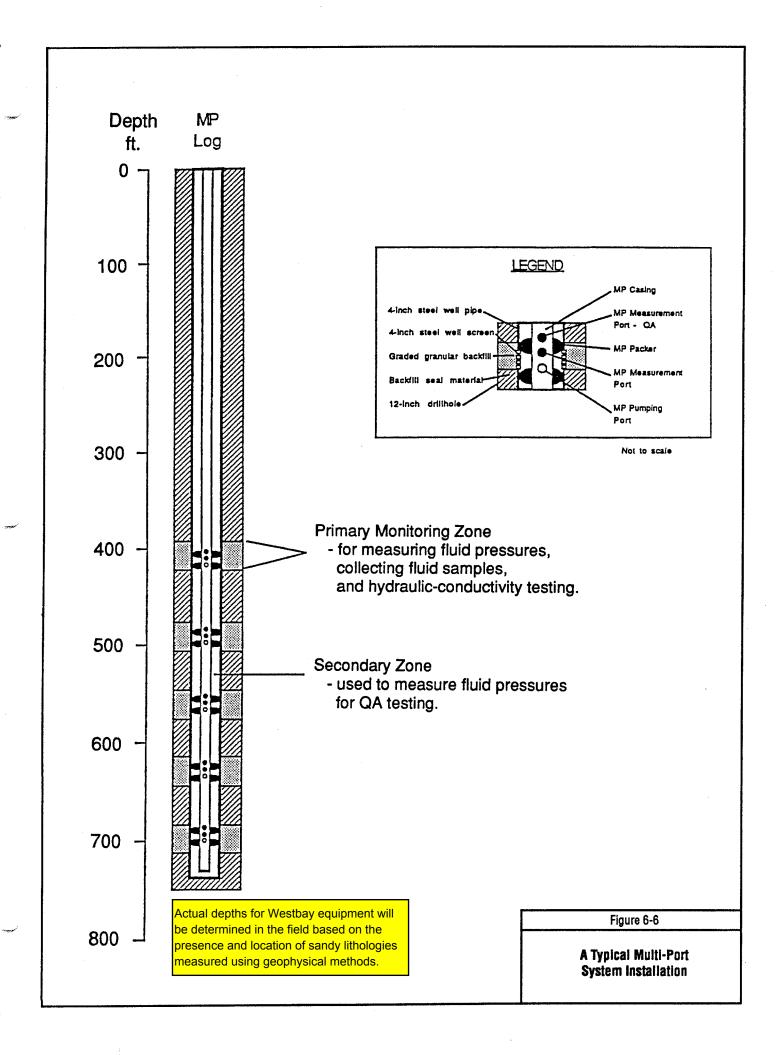


Figure 4-1. Proposed Monitoring Well Location





APPENDIX B

MW-25 BORING/WELL CONSTRUCTION LOG AND MP CASING CONSTRUCTION DETAILS



Borehole Location: JPL-MW-25
Project Location: NASA Jet Propulsion Lab
Project #: G486048
Geologist: D. Conner
Drilling Contractor: WDC Exploration & Wells
Driller: Alberto Vega
Reviewed by: David Cleyton 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: 09/20/04 - 09/24/04

Coordinates (NAD 83/NAVD 88) Northing: 1,882,639.52
Surface Elevation: Easting: 6,514,027.89
Borehole Abandoned: Monitoring Device Installed: Yes No X Yes X No
Method: N/A Type: Vest bay Multi-Port

		rto Vega /: David Clexton R.G. #7350	Date: 09/20/04 - 09/24/04 Total Depth: 815' bgs	Method: N/A		Type: We Monitorin	stbay Multi-Port g System
Depth (feet bgs)	symbols	Sample descr	ption	Comments	Mell Completion		
0		Asphalt Surface (4 inches thick).				Surface seal: 0-3' bgs Concrete
s	SM	Silty SAND: reddish brown, dry, dense, fine- to medium-grained grained SAND, some gravel, so	SAND, some coarse-				Bentonite Seal: 1:1 granular — bentonite to sand
10		As above.					mixture 3 - 335' bgs
- 15		As above.					Well Casing: 4" Diameter
20		As above.					Low-Carbon Steel Casing 0 - 355' bgs
-25		75% medium-grained, 25% fine-coarse-grained SAND.	grained, trace				
_ ₃₀ G	M	COBBLES with SAND: 70% me coarse-grained SAND, trace silt	dium-grained SAND, 30% 29-46' bgs (cobbles).	Moderate rig chatter.			
35		60% medium-grained, some co fine gravel up to 10mm long, tra		Heavy rig chatter.			
40		80% coarse-grained SAND, 20% subangular to angular, grains up	% fine-grained SAND to 5mm long, trace silt.				
45		Silty SAND: coarse- to medium-	grained CAND, angular to	Barrage in in dath	111	图 图	
S	M	angular, some cobbles.	granieu saiyu, angulat to	Decrease in rig chatter.		經經	
50		Fine- to medium-grained SAND, grained.	some coarse-	Low rig chatter; easier drilling.			
-55		As above.					
60		Occassional cobbles.		Increase in rig chatter (59 - 61' bgs).			
- 00							



Borehole Location: JPL-MW-25 Project Location: NASA Jet Propulsion Lab Project #: G486048 Geologist: D. 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: 09/20/04 - 09/24/04 Total Depth: 815' bgs

Surface Elevation: Borehole Abandoned: Yes No X Method: N/A

<u>Coordinates (NAD 83/NAVD 88)</u> Northing: 1,882,639.52 Easting: 6,514,027.89 Monitoring Device Installed: Yes X No Type: Westbay Multi-Port Monitoring System

		y: David Clexton R.G. #7350	Total Depth: 815' bgs				Monitorin	g System
Depth (feet bgs)	Symbols	Sample descri	ption	Comm	ents	Lithology	,	Well Completion
60	SM	Silty SAND: coarse- to medium-c subangular, some cobbles.	-	Low rig ch	natter and easier I - 66' bgs).		※ ※	
65		Some fine-grained SAND, trace of						
70	GM	COBBLES with Silty SAND: fine- coarse-grained SAND, some gra Some gravel and cobbles.	· to medium-grained, some vel.	Increased	rig chatter at 66' bgs.			Bentonite Seal: 1:1 granular bentonite to sand mixture 3 - 335' bgs
75		70% coarse-grained SAND, 20% fine-grained, angular to subangu gravel.	s medium-grained, 10% lar, some cobbles and	Heavy rig	chatter.			4" Diameter Low-Carbon
s	SM	Silty SAND: 60% fine- to medium some coarse-grained.	n-grained SAND,	Viscosity: Weight: 8 Sand: 0.8	41seconds 9 lbs/ft³ %			Steel Casing 0 - 355' bgs
85 85	ЭM	Gravel with Silty SAND: coarse-q medium-grained SAND, angular		Moderate	rig chatter.			
		60% medium-to coarse-grained	SAND, some gravel.	Increase i	n rig chatter at 86' bgs			
90		As above.						
- 95 - - 95 - 		70% medium- to coarse-grained grained SAND and some silt.	SAND, 30% fine-					
-100 -		Gravel up to 15mm long.		Moderate	rig chatter.			
		As above.					经交换	
-110-		As above.		Increased	rig chatter.			
115		As above.						
120				•				



Borehole Location: JPL-MW-25 Project Location: NASA Jet Propulsion Lab Project #: G486048 Geologist: D. 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: 09/20/04 - 09/24/04 Total Depth: 815' bgs

<u>Coordinates (NAD 83/NAVD 88)</u> Northing: 1,882,639.52 Surface Elevation: Borehole Abandoned: Yes No X

Method: N/A

Easting: 6,514,027.89 Monitoring Device Installed: Yes X No Type: Westbay Multi-Port

Review	ed by	y: David Clexton R.G. #7350	Total Depth: 815' bgs		Wictiod: 14/7			g System
Depth (feet bgs)	USCS	Sample descr	iption	Comments	;	Lithology	,	Well Completion
<u>–120 –</u>	GM	COBBLES with Silty SAND: 80% SAND, 20% fine-grained SAND.	6 medium- to coarse-grained		to moderately heavy	1111	经	
		SAND, 20 % line-grained SAND.		rig chatter	-		缀 磁	
125		As above.					经法线	
120						11111	经经验	Bentonite Seal: 1:1 granular
							松水水	bentonite to sand mixture
130		Gravel and sparse cobbles.		Less rig c	hatter.			3 - 335' bgs
						Ш	於外後	
		Gravelly SAND: 60% coarse-gra	ained SAND, 40% fine-				缀 綴	
135		to medium-grained SAND.				<u> </u>	松 松	
	SM	Silty SAND: fine- to medium-grain some coarse-grained SAND, we	ined SAND, Il graded.					4" Diameter
		some grains 5-6mm long.	9				際。際	Low-Carbon Steel Casing
140		As above.					於於於	0 - 355' bgs
							经经济	
145		60% medium- to coarse-grained					经经验	
		grained SAND; angular to subar	iguiar.				经产级	
							经	
150		As above.		Low to m	oderate rig chatter.		図 図	
							经 股	
<u> </u>							经认约	
-155-		As above.					经经验	
├ -							长条条件	
F =		75% medium- to coarse-grained	SAND. 25% fine-				次次次	
160 <i></i>		grained SAND, well graded.						
L =	GM	COBBLES with Silty SAND: 80% SAND, 20% fine-grained SAND.	medium- to coarse-grained	Increase i shaking.	n rig chatter and rig	HH	图 刻	
L.,-		A series of		Ü				
-165 		As above.					松松	
<u> </u>						<u> </u>	松 松	
L		COBBLES and BOULDERS; cur	ttings: 70% fine-grained	lla a				
-170-		SAND, 30% coarse-grained SAN	ND.	advancing	chatter, drill bit g slowly through rock.		经经验	
							经经验	
175		60% coarse-grained SAND, 40%	6 fine- to				经经验	
173		medium-grained SAND, angular	to subangular.			排	於於該	
							松 网	
180						<u> </u>	图图	
1								



Borehole Location: JPL-MW-25
Project Location: NASA Jet Propulsion Lab
Project #: G486048
Geologist: D. Conner
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Driller: Alberto Vega
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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: 09/20/04 - 09/24/04 Total Depth: 815' bgs

Surface Elevation: Borehole Abandoned: No \underline{X} Yes Method: N/A

<u>Coordinates (NAD 83/NAVD 88)</u> Northing: 1,882,639.52 Easting: 6,514,027.89 Monitoring Device Installed: Yes X No Type: Westbay Multi-Port Monitoring System

		Jotal Depth: 815 bgs		T -	Monitoring System
Depth (feet bgs)	USCS	Sample description	Comments	Lithology	Well Completion
-185	GM	COBBLES and BOULDERS: 60% coarse-grained SAND, 40% fine- to medium-grained SAND; angular to subangular. As above.	Increased rig chatter (187'bgs).		Bentonite Seal: 1:1 granular bentonite to sand
190		As above.	increased fig challer (107 bgs).		mixture 3 - 335' bgs
195		As above.			4" Diameter Low-Carbon
-200		As above.	Attempted split spoon sample (300lb. slide hammer), 100 blows, no recovery.		Steel Casing 0 - 355' bgs
205		As above.			
210		As above.			
 -215- 		As above.			
		As above.			
 -225- 		As above.			
-230-		As above.			
235 240		Less cobbles.			
240					JPL-MW-25.CDR
					3F L-WW-23.CDR



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		y: David Clexton R.G. #7350	Total Depth: 815' bgs				Monitorin	g System
Depth (feet bgs)	USCS symbols	Sample descripti	on	Comments		Lithology	V	Well Completion
	SM	Silty SAND: fine- to medium-graine some sporadic COBBLES.	ed; angular to subangular,				※ ※ ※	
245		As above.						Bentonite Seal: 1:1 granular bentonite to sand mixture
250	GM	COBBLES with silty SAND: 70% m grained SAND, 30% fine-grained S subangular.	SAND; angular to	Moderate	rig chatter.			3 - 335' bgs
255 		80% medium- to coarse-grained S. 20% fine-grained SAND. 60% coarse-grained SAND, 30% fi	ne gravel, 10%					4" Diameter Low-Carbon Steel Casing 0 - 355' bgs
265		fine-grained SAND; angular to sub gravel. As above.	angular					
270		As above.		Moderate	rig chatter.			
	SM	Silty SAND: 70% coarse-grained S medium-grained SAND, angular to no gravel.		Low to mo	derate rig chatter.			
		As above.						
 _285 		As above.						
		Trace fine gravel.						
295	GM	As above. COBBLES with Silty SAND: 70% c	oarse-grained SAND,	sample (3	l split spoon 00lb. slide 100 blows, 2"	[+}		
300		30% fine- to medium-grained SANI trace gravel. Increase in cobbles.	D; angular to subangular,				図図	
								IDI ANNOS ODD



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	-	7: David Clexton R.G. #7350	Total Depth: 815' bgs	_			Monitoring	g System
Depth (feet bgs)	symbols	Sample descri		Comments		Lithology	V	Vell Completion
-300 Gi	М	COBBLES with Silty SAND: 70% 30% fine- to medium-grained SA trace gravel. Increase in cobble As above.	ND; angular to subangular,	Driller say drill bit bin	s it's very rocky, ding.			Bentonite Seal: 1:1 granular
310		As above.						— bentonite to sar mixture 3 - 335' bgs
315		As above. Decrease in cobbles.		Drill hit hir	nding, rig chatter.			4" Diameter Low-Carbon Steel Casing 0 - 355' bgs
320		Increase in cobbles. As above.		טווו טונ טוו	iding, ng challer.			
330 s	м	Gravelly SAND: tan to reddish by to coarse-grained SAND, 30% fir angular to subangular, trace fine	ne-grained SAND;	Easier dril	ling.			
-335-		As above.						_Filter Pack: Lonestar No. 2/16 sand:
- 340 GI	М	COBBLES with Silty SAND: tan medium- to coarse-grained SAN SAND; angular to subangular.	to reddish brown, 70% D, 30% fine-grained					335 - 368' bgs
-345— - — - — -350—		Increase in cobbles. As above.		Some bit b	pindina.			
355		Trace gravel.		Some bit t				Well Screen #1 355 - 365' bgs,
360								4" Diameter — 0.010-inch slot wire-wrapped stainless-steel screen



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Surface Elevation: Borehole Abandoned: No \underline{X} Yes Method: N/A

<u>Coordinates (NAD 83/NAVD 88)</u> Northing: 1,882,639.52 Easting: 6,514,027.89 Monitoring Device Installed: Yes X No Type: Westbay Multi-Port Monitoring System

Depth (feet bgs) Some Sample description Comments GM COBBLES with Silty SAND: 70% medium- to coarse-grained SAND, 30% fine-grained SAND; angular to subangular, Bit binding.	Well Completion Well Screen #1:
GM COBBLES with Silty SAND: 70% medium- to coarse-grained SAND, 30% fine-grained SAND; angular to subangular, Bit binding.	
trace gravel.	355 - 365' bgs, 4" Diameter 0.010-inch slot,
As above. Viscosity: 40 seconds. Weight: 9.0lbs/ft³ SAND: 0.75%	wire-wrapped stainless-steel screen Filter Pack: Lonestar No.
As above.	2/16 sand: 335 - 368' bgs
375 60% coarse-grained SAND, 40% fine- to medium-grained SAND; angular. Cuttings are finer grained than above due to the bit grinding through dense material. Driller comments that material is competent.	4" Diameter Low-Carbon Steel Casing 365 - 420' bgs
70% coarse-grained SAND, 30% fine- to medium-grained SAND; angular to subangular, well graded.	Bentonite Seal: 1:1 granular bentonite to sand mixture
As above.	368 - 407' bgs
390 As above.	
395 As above.	
SM Silty SAND: 70% medium- to coarse-grained SAND, 30% fine-grained SAND.	
405 Gravels (406 - 414' bgs).	
As above. Moderate rig chatter. Driller says hard material.	Filter Pack: Lonestar No. 2/16 sand: 407 - 435'
415 As above. 420	
	JPL-MW-25.CDR



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Easting: 6,514,027.89 Monitoring Device Installed: Yes X No Type: Westbay Multi-Port Monitoring System

		y: David Clexton R.G. #7350	Total Depth: 815' bgs				Monitoring	y System
Depth eet bgs)	USCS	Sample descrip	otion	Comments		Lithology	V	Vell Completion
420		Silty SAND: 70% medium- to coa 30% fine-grained SAND.	rse-grained SAND,					Filter Pack: Lonestar No. 2/16sand: 407 - 435' bgs
425	SM/ GM	Silty SAND with COBBLES: 60% SAND, 20% fine-grained SAND,	medium- to coarse-grained 20% COBBLES.					Well Screen # 420 - 430' bgs 4" Diameter 0.010-inch slo wire-wrapped
430		As above.						stainless-stee screen
435		As above.					577 775	4" Diameter
440	SM	Silty SAND: tan with some reddis 70% medium- to coarse-grained; graded, some grains up to 2-3mr	angular to subangular, well					Low-Carbon Steel Casing 435 - 500' bgs Bentonite Seal 1:1 granular bentonite to sa mixture
445 450		As above.		Viscosity: 3 Weight: 9.4 SAND: 1.5	39 seconds. 4 lbs/ft³. 9%			435 - 490' bgs
	SM/ GM	Silty SAND with COBBLES: 60% SAND, 20% fine-grained SAND, 2	medium- to coarse-grained 20% COBBLES.			200		
460	SM	Silty SAND: tan with red-orange amedium-grained SAND, 30% fine 10% coarse-grained, maximum s	grained SAND					
465		Finer grained than above, trace g	rains 2mm in length.				※ ※ ※ ※ ※ ※ ※ ※ ※ ※ ※ ※ ※ ※ ※ ※ ※ ※ ※	
170		Tan, 50% medium grained SAND SAND, 10% coarse-grained SAN		Viscosity: 4 Weight: 9ll Sand: 1%	40 seconds os/ft³			
475		As above.		Low rig ch no cobbles speed of d	atter, softer material, s and higher rotational Irilling rod and bit.		然	



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			otal Depth: 815' bgs				Monitoring	System
Depth (feet bgs)	USCS symbols	Sample descriptio	n	Comments		Lithology	W	/ell Completion
485	ML	Sandy SILT: orange brown, damp, m some fine-grained SAND, trace med coarse-grained SAND (logged from As above.	lium and trace					Bentonite Seal: 1:1 granular bentonite to sand mixture 1001
-490		As above.		Attempted	split spoon			435 - 490' bgs 4" Diameter Low-Carbon Steel Casing 435 - 500' bgs
495		As above.			00 lb. Slide 100 blows, 6"			_ <u>Filter Pack</u> : Lonestar No. 2/16 sand: 490 - 518' bgs
-500	GM	COBBLES with Silty SAND: 70% mosAND, 30% fine-grained SAND; and trace gravel. As above.						Well Screen #3: 500 - 510' bgs,
-505		As above.						4" Diameter 0.010-inch slot, wire-wrapped stainless-steel screen
510	SM	Silty SAND: fine- to medium-grained subangular, some coarse (up to 2-3						
	GM	COBBLES with Silty SAND: 70% me SAND, 30% fine-grained SAND; ang trace gravel, grains up to 3mm, mod	gular to subangular,				<u> </u>	Bentonite Seal:
-520- -525-	SM	Silty SAND: fine- to medium-grained coarse (up to 2-3mm); angular to su						1:1 granular - bentonite to sand mixture 518 - 617' bgs
		As above.						4" Diameter Low-Carbon Steel Casing 510 - 630' bgs
535	GM	COBBLES with Silty SAND: 70% m SAND, 30% fine-grained SAND; and trace gravel, grains up to 3mm, mod	gular to subangular,				· · · · · · · · · · · · · · · · · · ·	
340 4								JPL-MW-25.CDR



Borehole Location: JPL-MW-25
Project Location: NASA Jet Propulsion Lab
Project #: G486048
Geologist: D. 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: 09/20/04 - 09/24/04 Total Depth: 815' bgs

<u>Coordinates (NAD 83/NAVD 88)</u> Northing: 1,882,639.52 Surface Elevation: Borehole Abandoned: Yes No X Method: N/A

Easting: 6,514,027.89 Monitoring Device Installed: Yes X No Type: Westbay Multi-Port Monitoring System

	-	r: David Clexton R.G. #7350	Total Depth: 815' bgs				Monitorin	g System
Depth (feet bgs) g	symbols	Sample descri	ption	Comments		Lithology	\	Well Completion
	M	COBBLES with Silty SAND: 70% SAND, 30% fine-grained SAND; trace gravel. As above.	medium- to coarse-grained angular to subangular,					Bentonite Seal: 1:1 granular - bentonite to sand mixture
	SM/ SM	Poorly graded SAND with silt and grained SAND, 15% COBBLES,	d gravel: 75% fine- to coarse- 10% silt.	Increase in	n rig chatter.	1111		518 - 617' bgs
555		As above.		New shake	er screen.			4" Diameter Low-Carbon Steel Casing
560 s		As above. Silty SAND: tan brown, fine- to m SAND, some coarse-grained up angular to subangular, moderate	to 1mm in size;					510 - 630' bgs
565		As above.					添添	
570		As above.					淡淡	
-575-		Increase in coarse-grained SAN SAND.	D and medium-grained					
580 G	M	COBBLES with Silty SAND: 70% SAND, 30% fine-grained SAND; trace gravel.	medium- to coarse-grained angular to subangular,					
 _585 		As above.						
		As above.						
595		As above.						
								IDL MIN OF ODD



Borehole Location: JPL-MW-25
Project Location: NASA Jet Propulsion Lab
Project #: G486048
Geologist: D. 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: 09/20/04 - 09/24/04 Total Depth: 815' bgs

Coordinates (NAD 83/NAVD 88) Northing: 1,882,639.52
Surface Elevation: Easting: 6,514,027.89
Borehole Abandoned: Monitoring Device Installed: Yes No X Yes X No
Method: N/A Type: Westbay Multi-Port Monitoring System

	'					
epth sogue	Sample description	Comments		Lithology		Well Completion
05 10	Silty SAND: tan brown, medium- to coarse-grained SAND, with some fine-grained SAND; angular to subangular, moderately graded. As above.	Rig chatter Viscosity: Weight: 9. Sand: 1%	41 seconds	Karkarkarkark		Bentonite Sea 1:1 granular bentonite to sa mixture 518 - 617' bgs 4" Diameter Low-Carbon
15	Poorly graded SAND.			2000	が必然が	Steel Casing 510 - 630' bo
20	As above.					<u>Filter Pack</u> : Lonestar No. 2/16 sand:
25	As above.					617 - 643' bgs
30	As above.					Well Screen
35	As above.	Attempt sp sample (30 hammer), no recover	00lb. slide 100 blows,			630 - 640' bç 4" Diameter
40	Increase in coarse-grained SAND.	TIO TECOVET	y.			
45	As above.		(0.10075))	XXXXXX	が必然	Bentonite Sea 1:1 granular bentonite to sa mixture
50	Fine- to medium-grained SAND; subangular, some cobbles, moderate grading.	Rig chatter	· (648 - 650').	XXXXX		643 - 707' bgs 4" Diameter
55	As above.			\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		Low-Carbon Steel Casing 640 - 710' bg



Borehole Location: JPL-MW-25
Project Location: NASA Jet Propulsion Lab
Project #: G486048
Geologist: D. 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: 09/20/04 - 09/24/04 Total Depth: 815' bgs

<u>Coordinates (NAD 83/NAVD 88)</u> Northing: 1,882,639.52 Surface Elevation: Easting: 6,514,027.89 Borehole Abandoned: Monitoring Device Installed: Yes X No Yes No X Type: Westbay Multi-Port Method: N/A

Reviewe	d by	7: David Clexton R.G. #7350 Total Dep	oth: 815' bgs		Monitorin	g System
Depth get bgs)	symbols	Sample description	Comme	nts	No.	Vell Completion
665		COBBLES with Silty SAND: 70% medium- t SAND, 30% fine-grained SAND; angular to trace gravel. As above.	to coarse-grained subangular,			Bentonite Seal: 1:1 granular bentonite to sand mixture 643 - 707' bgs
675	SM	As above. Silty SAND: fine- to medium-grained, some (2-3mm), moderately graded, subangular.	e cobbles			ole ver age
680		As above.				4" Diameter Low-Carbon Steel Casing 640 - 710' bgs
685		As above.	Viscosit Weight: Sand: 1	y: 39 seconds 9.2lbs/ft³		
690 		As above.				
	GΜ	COBBLES with Silty SAND: 60% fine to me coarse-grained SAND; angular to subangula length, some silt. As above.				_ <u>Filter Pack</u> :
715		As above.	Heavy r	g chatter.		Lonestar No. 2/16 sand: 707 - 724' bgs Well Screen #5: 710 - 720' bgs, 4" Diameter — 0.010-inch slot, wire-wrapped stainless-steel screen
720 L			I	111		JPL-MW-25.CDR



Borehole Location: JPL-MW-25
Project Location: NASA Jet Propulsion Lab
Project #: G486048
Geologist: D. 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: 09/20/04 - 09/24/04 Total Depth: 815' bgs

<u>Coordinates (NAD 83/NAVD 88)</u> Northing: 1,882,639.52 Surface Elevation: Easting: 6,514,027.89 Borehole Abandoned: Monitoring Device Installed: Yes X No Type: Westbay Multi-Port Yes No X Method: N/A Monitoring System

		y: David Clexton R.G. #7350	Total Depth: 815' bgs				Wonitorin	g System
Depth feet bgs)	USCS	Sample descri	otion	Comments		Lithology	,	Well Completion
	SM	Silty SAND: 50% fine- to mediun coarse-grained SAND; angular to 4 mm in length. As above.	n-grained, 50% o subangular, grains up to	Increase in	n rig chatter (722').			Filter Pack: Lonestar No. 2/16 sand: 707 - 724' bgs
730	GM	SAND with COBBLES: 70% fine coarse-grained.	to medium-grained, 30%	Heavy rig of and bit bin (competen	chatter (COBBLES), ding. Very hard t)			
735		As above.						4" Diameter Low-Carbon Steel Casing
740		As above.		Increased More comp	rig chatter (741'). petent (742').		が必然	720 - 740' bgs Bentonite Seal: 1:1 granular bentonite to sand
745		As above.						mixture 740 - 815' bgs
750 -755 -755 -760		As above.						
765		BEDROCK: buff to tannish pink, SAND; angular, some granodiori biotite). As above.	medium- to coarse-grained e grains (light colored with	bit binding	in rig chatter and , consistent rotational pressure indicating			
770-		As above.	4 DEDDOOK	Facier drill	ing (775 - 780')			
775 780		Possible fractured and weathere	I BEDRUCK.	possibly du weathered	ue to fractured or zone in bedrock.			



Borehole Location: JPL-MW-25
Project Location: NASA Jet Propulsion Lab
Project #: G486048
Geologist: D. 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: 09/20/04 - 09/24/04 Total Depth: 815' bgs

Coordinates (NAD 83/NAVD 88) Northing: 1,882,639.52
Surface Elevation: Easting: 6,514,027.89
Borehole Abandoned: Monitoring Device Installed: Yes No X Yes X No
Method: N/A Type: Westbay Multi-Port Monitoring System

		10 to 10 t			
Depth (feet bgs)	USCS symbols	Sample description	Comments	Lithology	Well Completion
-785		BEDROCK: buff to tannish pink, medium- to coarse-grained SAND, angular, some granodiorite grains (light colored with biotite). As above.	Rig chatter and bouncing (782') indicating possibly fractured bedrock.		Bentonite Seal: 1:1 granular bentonite to sand mixture 740 - 815' bgs
790		As above.			
795		As above.	Drill rod and bit rotating at constant speed, slower advancement.		
-800		As above.			
		As above.			
- 810- - 810- 		As above.			
- -815-		As above.		: :::	以 次公公公
1 0.0		T.D.: 815' bas.			

T.D.: 815' bgs.

APPENDIX C IDW AND SAMPLE ANALYSIS DOCUMENTATION

Analytical Results from IDW Samples (Laboratory Reports Available on CD, by Request)

														Water														
Tank ID	Sample ID	Sample Date	Volatile Organic Compounds EPA 8260B	Semivolatile Organic Compounds EPA 8270C						Title 26 I	Metals plu	ıs Hexava	alent Chr	omium a	nd Stron	tium (mş	g/L) EPA	6010/7000)					Perchlorate EPA 314.0 (μg/L)	Cyanide EPA 4500 CN (mg/L)	TPH-E (Diesel) EPA 8015B	TPH-E (Jet Fuel) EPA 8015B (mg/L)	TPH-E (Oil) EPA 8015B
			(μg/L)	(µg/L)	Sb	As	Ba	Be	Cd	Cr	Cr(VI)	Cu	Co	Pb	Mo	Hg	Ni	Se	Ag	Sr	Tl	V	Zn			(mg/L)		(mg/L)
BT-1517	BT1517- 102604	10/26/2004	ND	ND	<0.0050	< 0.0050	0.046	<0.0040	<0.0050	<0.0050	< 0.001	<0.010	< 0.005	< 0.005	0.01	<0.0010	<0.0050	< 0.0050	< 0.0050	0.49	0.0081	< 0.0050	< 0.10	12	< 0.005	< 0.050	< 0.050	<0.5
BT1717N	BT717N- 102804	10/28/2004	ND	ND	<0.0050	<0.0050	0.073	<0.0040	<0.0050	0.0052	< 0.001	< 0.010	< 0.005	< 0.005	0.0062	<0.0010	0.0051	<0.0050	<0.0050	0.58	0.0029	0.0075	0.22	12	< 0.005	< 0.050	< 0.050	<0.5
BT576D	576D- 112204	11/22/2004	ND	ND	<0.0050	<0.0050	0.047	<0.0040	<0.0050	<0.0050	< 0.001	< 0.010	<0.0050	< 0.0050	0.0078	<0.0010	0.0068	< 0.0050	<0.0050	0.55	< 0.0050	<0.0050	<0.10	13	< 0.005	< 0.050	< 0.050	<0.5
										Soil																		
Bin ID	Sample ID	Sample Date	Volatile Organic Compounds EPA 8260B (µg/kg)	Semivolatile Organic Compounds EPA 8270C (µg/kg)	Title 26 Metals plus Hexavalent Chromium and Strontium (mg/kg) EPA 6010/7000 Cyanide EPA (Diesel) (Jet (Oil) Fuel) EPA (CN 8015B 8015B 8015B																							
			(μg/kg)	0270C (μg/kg)	Sb	As	Be	Cd	Cr	Cr(VI)	Cu	Pb	Hg	Ni	Se	Ag	Sr	Tl	Zn	(mg/kg)	(mg/kg)	δυ15Β (mg/kg)	(mg/kg)					
Bin 1 - R18116RT	BIN 1	9/28/2004	ND	ND	<1.0	1.5	<1.0	<1.0	8.3	<0.10	6.5	3.0	< 0.20	4.2	<1.0	<1.0	22	<1.0	26	<0.5	<5.0	<5.0	<10					
Bin 2 - R18099RT	BIN 2	9/28/2004	ND	ND	<1.0	<1.0	<1.0	<1.0	4.9	<0.10	5.9	2.2	< 0.20	2.7	<1.0	<1.0	17	<1.0	24	<0.5	<5.0	<5.0	<10					
Bin 3 - Black EFR	BIN 3	9/28/2004	ND	ND	<1.0	<1.0	<1.0	<1.0	5.7	<0.10	7.5	3.1	< 0.20	3.5	<1.0	<1.0	24	<1.0	30	<0.5	<5.0	<5.0	<10					
Bin 4 - R2037RT	BIN 4	10/26/2004	ND	ND	<1.0	3.2	<1.0	<1.0	7.5	<0.01	9.9	18	0.85	5.7	<1.0	<1.0	35	<1.0	87	<0.5	<5.0	<5.0	<10					
Bin 5 - R2135	BIN 5	10/26/2004	ND	ND	<1.0	2.8	<1.0	<1.0	180	< 0.01	9.3	24	0.80	330	<1.0	<1.0	<10	<1.0	48	<0.5	<5.0	<5.0	<10					
Bin 6 - Blue EFR	BIN 6	10/26/2004	ND	ND	<1.0	4.2	<1.0	<1.0	11	< 0.01	14	11	0.86	8.2	<1.0	<1.0	<10	<1.0	51	<0.5	<5.0	<5.0	<10					
Bin 7 - 1992RT	BIN 7	10/26/2004	ND	ND	<1.0	<1.0	<1.0	<1.0	<1.0	< 0.01	<2.0	7.4	0.68	1.8	<1.0	<1.0	<10	<1.0	<20	<0.5	<5.0	<5.0	<10					

Initial Sampling Analytical Results (Laboratory Reports Available on CD, by Request)

Sample Location	Sample ID	Sample Date	Volatile Organic Compounds EPA 524.2 (µg/L)	314.0	EPA	Metal	ls		(mg/L)		EPA	A 200.8	Cr VI EPA 7196A/7199 (µg/L)	Anions	300.0/905e (mg/L)	EPA 6	1,2,3-Trichloropropane CA DHS µg/L)	1,4 Dioxane EPA 8260B (µg/L)	Nitrosamines EPA 8270C (µg/L)	TDS EPA 160.1 (mg/L)	Alkalinity (as CaCO3) EPA 310.1
			((μg/L)		Na	Mg	K	Ca	Cr	As	Pb	Cr(VI)	Cl	NO ₃	SO_4	(,		(mg/L)
City of Pasadena Fire Hydrant (Source Water)	CPHYDRANT-92204	9/22/2004	Chloroform = $11^{(3)}$ Bromodichloromethane = $15^{(3)}$ Dibromochloromethane = $16^{(3)}$ Bromoform = $4.2^{(3)}$	<2.0																	
MW25 Zone 1 (355'-365')	MW25-355-365	11/4/2004	<0.500 (Chloroform = 0.720)	13		31	22	2.6	74	<0.005	<0.005	<0.005	<20	42	11	77	<0.005	<3.0	<50 ⁽²⁾	440	200
MW 23 Zone 1 (333-303)	MW25-355-365	12/21/2004	<0.500	8.1		81	7.9	2.6	26	<0.005	<0.005	<0.005	<1.0 (1)(2)	22	<0.25 (2)	84	<0.005	<3.0	<50	330	150
MW25 Zone 2 (420'-430')	MW25-420-430	11/4/2004	<0.500 (Chloroform = 0.790)	13		31	22	2.3	72	<0.005	<0.005	<0.005	<20	43	10	80	<0.005	<3.0	<50 ⁽²⁾	450	200
M w 25 Zone 2 (420 -450)	MW25-420-430	12/21/2004	<0.500	12		56	20	3	65	<0.005	<0.005	<0.005	<1.0 (1)(2)	31	5.5 (2)	66	<0.005	<3.0	<50	410	210
MW25 Zone 3 (500'-510')	MW25-500-510	11/5/2004	<0.500 (Chloroform = 0.850)	13		31	21	2.4	74	<0.005	<0.005	<0.005	<20 ⁽²⁾	42	10 ⁽²⁾	76	0.0055	<3.0	<50 ⁽²⁾	440	210
WW 23 Zone 3 (300-310)	MW25-500-510	12/21/2004	<0.500 (Chloroform = 0.650)	8.7		49	23	3.5	54	<0.005	<0.005	<0.005	<1.0 (1)(2)	30	9.4 (2)	61	<0.005	<3.0	<50	380	170
MW25 72mg 4 (620) 6400	MW25-630-640	11/5/2004	<0.500 (Chloroform = 0.860)	13		32	23	2.5	77	<0.005	<0.005	<0.005	<20 ⁽²⁾	44	10 ⁽²⁾	79	<0.005	<3.0	<50 ⁽²⁾	450	210
MW25 Zone 4 (630'-640')	MW25-630-640	12/20/2004	<0.500	8.1		77	22	3.2	26	<0.005	<0.005	<0.005	<1.0 ⁽¹⁾⁽²⁾	34	5.4 ⁽²⁾	98	<0.005	<3.0	<50	360	90
MW25 Zone 5 (710'-720')	MW25-710-720	11/8/2004	<0.500 (Chloroform = 0.920)	13		30	21	2.4	70	<0.005	<0.005	<0.005	<20	39	9.6	76	<0.005	<3.0	<50	440	200
wiw 25 Zone 3 (710-720)	MW25-710-720	12/20/2004	<0.500	<2.0		32	32	2.9	100	0.016	<0.005	<0.005	<1.0 ⁽¹⁾⁽²⁾	68	12 (2)	130	<0.005	<3.0	<50	550	160

Detections are in bold.

NA = Not analyzed or list not reported. VOCs include Carbon Tetrachloride at <0.500 μ g/L.

⁽¹⁾ Sample was analyzed by EPA Method 7199(2) Sample was analyzed outside of the holding time.(3) Sample was analyzed by EPA Method 8260B

APPENDIX D DOWNHOLE GEOPHYSICAL LOG

PACIFIC SURVEYS

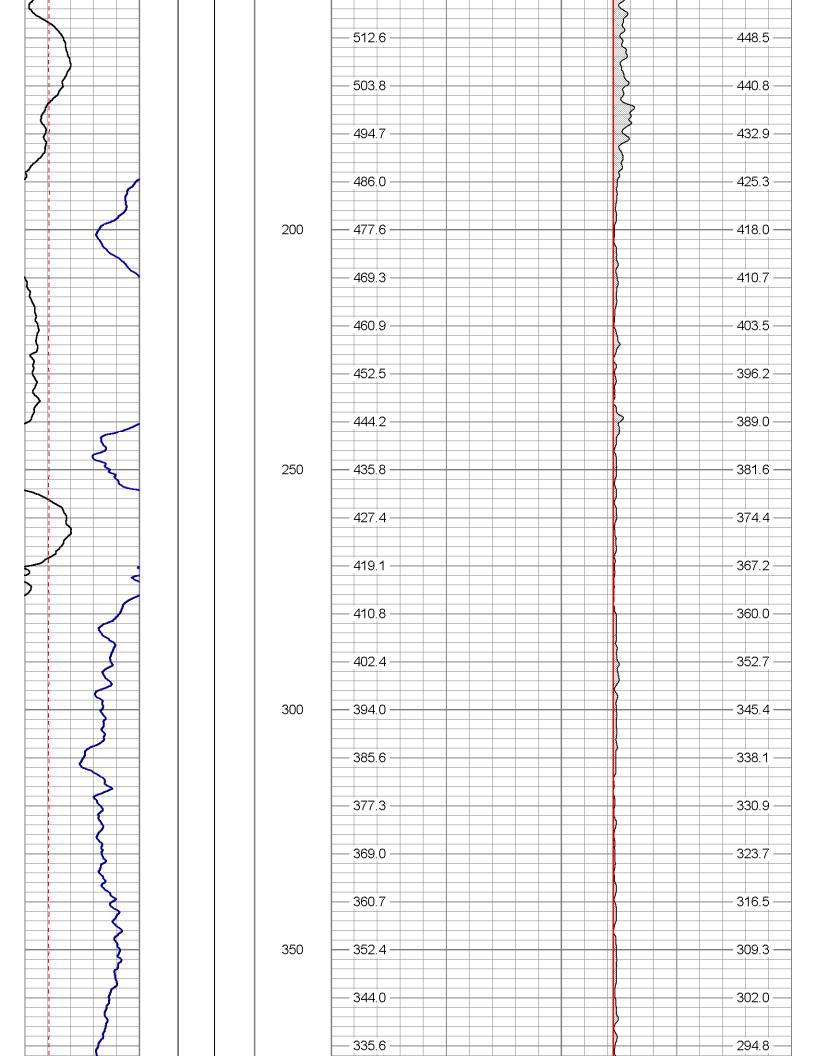
CALIPER BOREHOLE VOLUMES

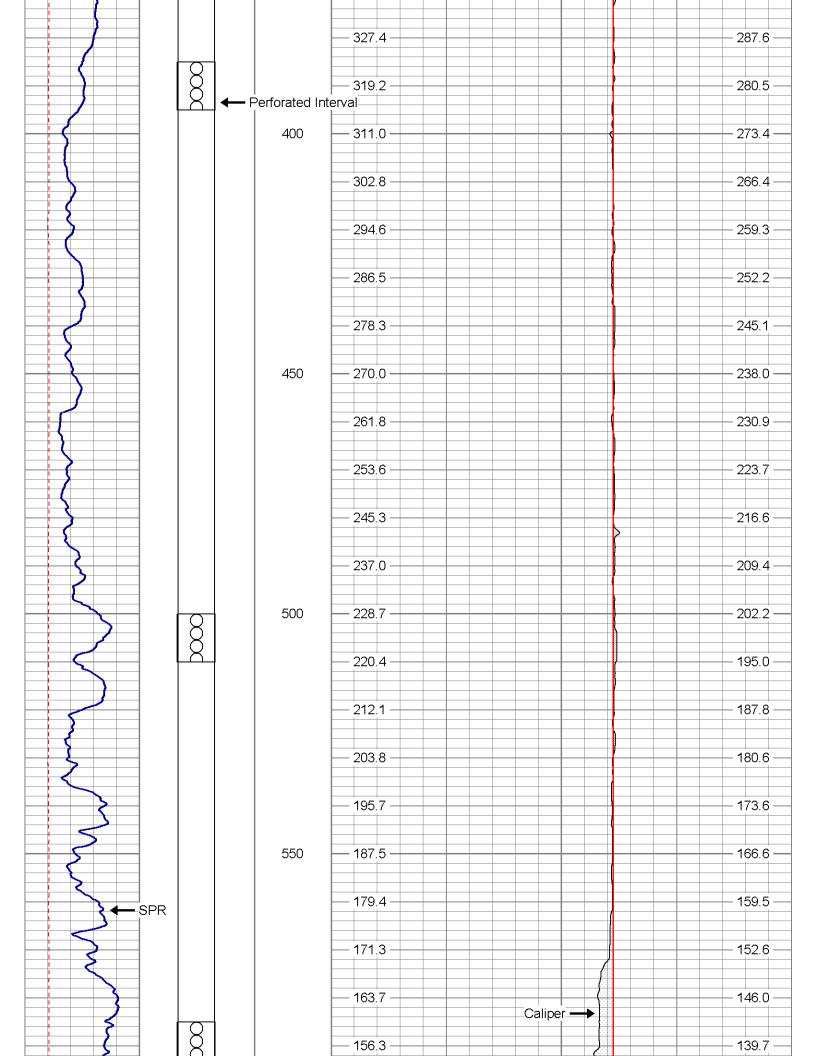
Job No.						
11604	Company	WDC	EXPLORA	ATION & WE	ELLS	
	Well	MW-2	5			
Ella Nia	Field	PASA	DENA			
File No.	County	LOS A	ANGELES	State	CA	
Location:					Other Ser	vices:
PASADENA CI	TY YARDS				ELOG/GR SONIC/VE	
Sec.	Twp.		Rge.			
Permanent Datu Log Measured F Drilling Measure	From GF	ROUND I ROUND I ROUND I	_EVEL	Elevation above perm. da	atum	Elevation K.B. D.F. G.L.
Date		09-27	-2004			'
Run Number		ONE				
Depth Driller		815'				
Depth Logger		814'				
Bottom Logged	Interval	814'				
Top Log Interva	I	10'				
Casing Driller		20'				
Casing Logger		20'				
Bit Size		12.25	ı			
Type Fluid in Ho		BENT	ONITE			
Density / Viscos	ity	N/A				
pH / Fluid Loss		N/A				
Source of Samp		PIT				
Rm @ Meas. T		9.5 @				
Rmf @ Meas. T	•	8.5 @	75 F			
Rmc @ Meas. T	emp	N/A				
Source of Rmf	/ Rmc	N/A				
Rm @ BHT		N/A				
Time Circulation		10:00				
Time Logger on		14:00				
Max. Recorded	•	N/A				
Equipment Num	nber	PS-1				
Location		LA				
Recorded By		T. HO	WARD	RIDDER		
Witnessed By		D. CL	EXTON			

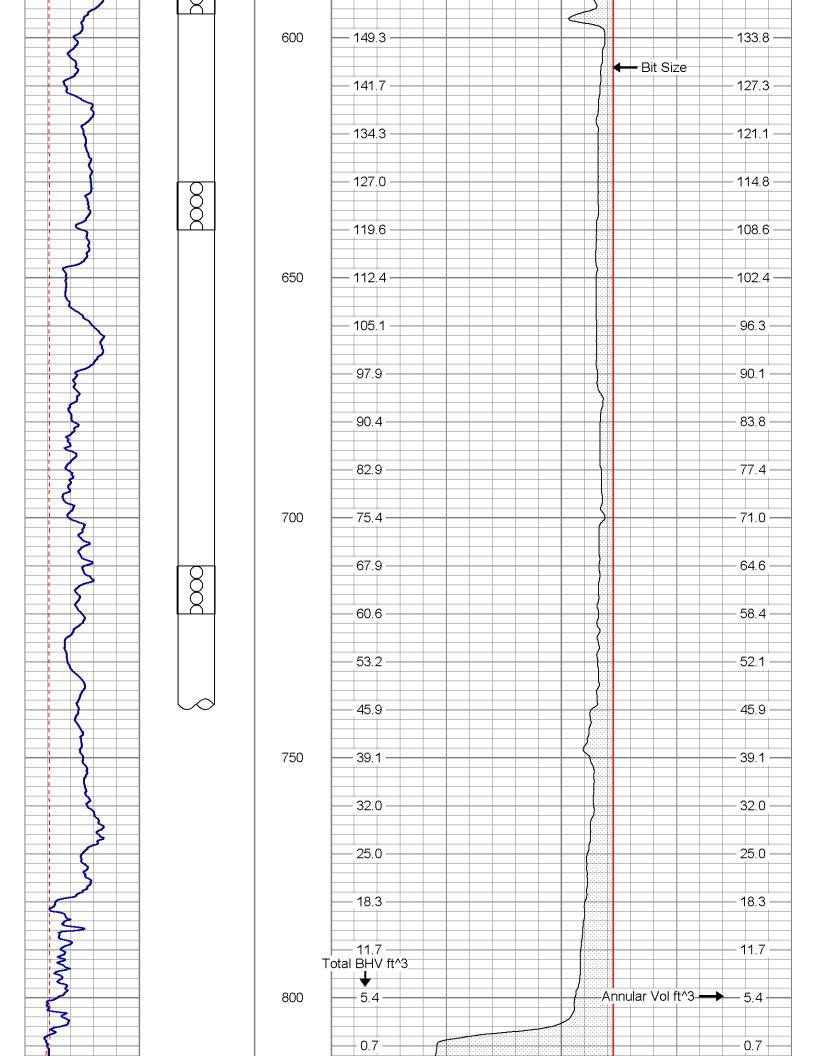
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

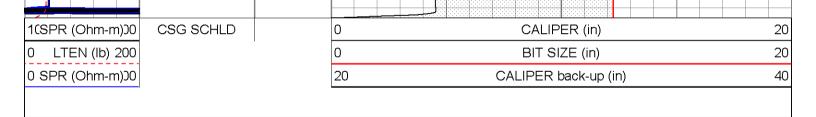
Comprobe Thu Sep 09 15:12:51 2004 Caliper Calibration Report Comments Short 4 2 Serial Number: Tool Model: Small Ring: Performed:

Large King. X Caliper Y Caliper Reading with Small Ring: 199.6 199.6 cps Reading with Large Ring: 517.9 517.9 cps 0.0314169 0.0314169 Gain: Offset: -1.27081 -1.27081 Database File: 11604.db Dataset Pathname: WDC/City_yard/run1/Cal.1 Presentation Format: xyc2 Mon Sep 27 14:36:52 2004 by Calc 6.2_B4 Dataset Creation: Depth in Feet scaled 1:240 Charted by: 1(SPR (Ohm-m))0 CSG SCHLD 20 CALIPER (in) 20 LTEN (lb) 200 0 BIT SIZE (in) 0 SPR (Ohm-m))0 20 CALIPER back-up (in) 40 Surface Casing Annular Vol ft^3---664.1 583.5 Total BHV ft^3 575.6 655.1 642.3 563.9 552.9 630.3 -50 618.6 -542.4 608.2 -533.1 597.3 -523.3 515.0 587.8 506.8 578.6 100 569.7 -499.0 489.3 558.8 548.1 -479.6 538.9 -471.6 530.2 463.9 150 521.4 -456.2









PACIFIC SURVEYS

ELECTRIC LOG GAMMA RAY

Job No.	_						
11604	Company	WDC	EXPLORA	TION & WE	ELLS		
	Well	MW-2	5				
File No.	Field	PASA	DENA				
THE NO.	County	LOS A	ANGELES	State	CA		
Location:					Other Sen	vices:	
PASADENA CI	TY YARDS				CALIPER SONIC/VE	DL	
Sec.	Twp.		Rge.				
Permanent Datu Log Measured F Drilling Measure	From GF	ROUND I ROUND I ROUND I	LEVEL	Elevation above perm. da	atum	Elevation K.B. D.F. G.L.	
Date		09-27	-2004			1	
Run Number		ONE					
Depth Driller		815'					
Depth Logger		814'					
Bottom Logged	Interval	814'					
Top Log Interva	ıl	20'					
Casing Driller		20'					
Casing Logger		20'					
Bit Size		12.25	ı				
Type Fluid in Ho	ole	BENT	ONITE				
Density / Viscos	sity	N/A					
pH / Fluid Loss		N/A					
Source of Samp	ole	PIT	·				
Rm @ Meas. T		9.5 @					
Rmf @ Meas. T	•	8.5 @	75 F				
Rmc @ Meas. 1	Гетр	N/A					
Source of Rmf	/Rmc	N/A					
Rm @ BHT		N/A					
Time Circulation		10:00					ŷ
Time Logger or	Bottom	14:00					<<< Fold Here >>>
Max. Recorded	Temperature	N/A					\ <u>₽</u>
Equipment Num	nber	PS-1] <u>ş</u>
Location		LA					
Recorded By		T. HO	WARD	RIDDER]
Witnessed By		D. CLI	EXTON				

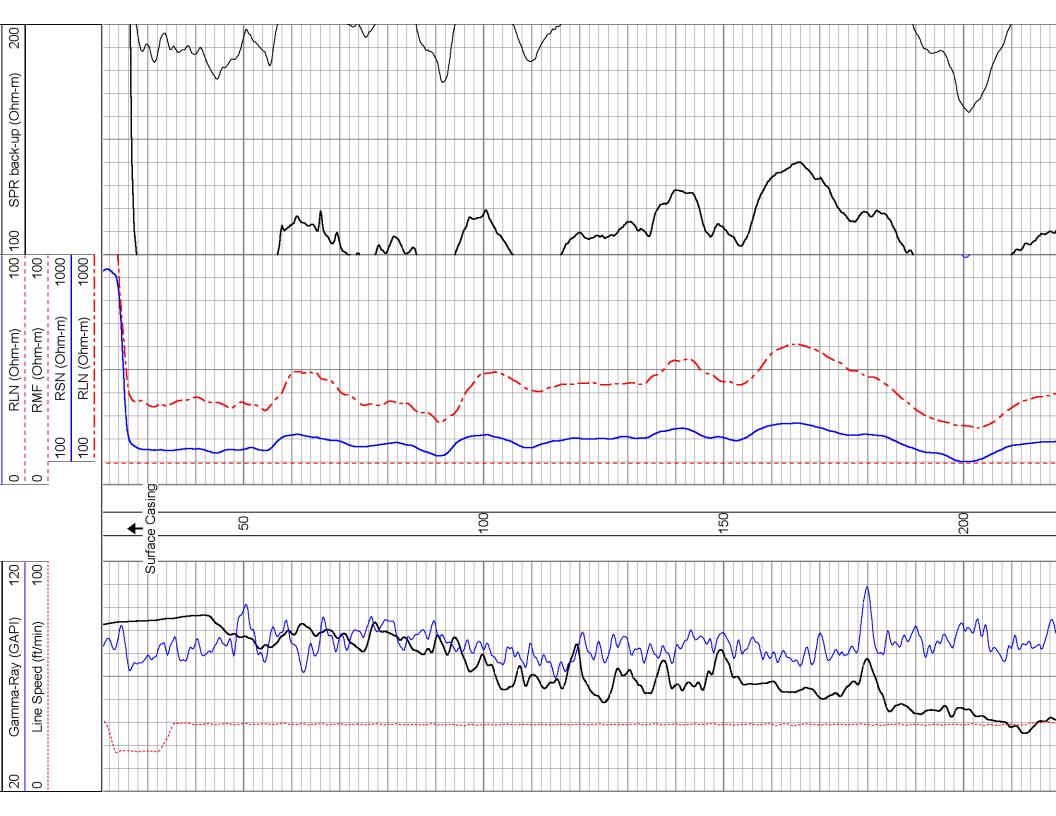
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

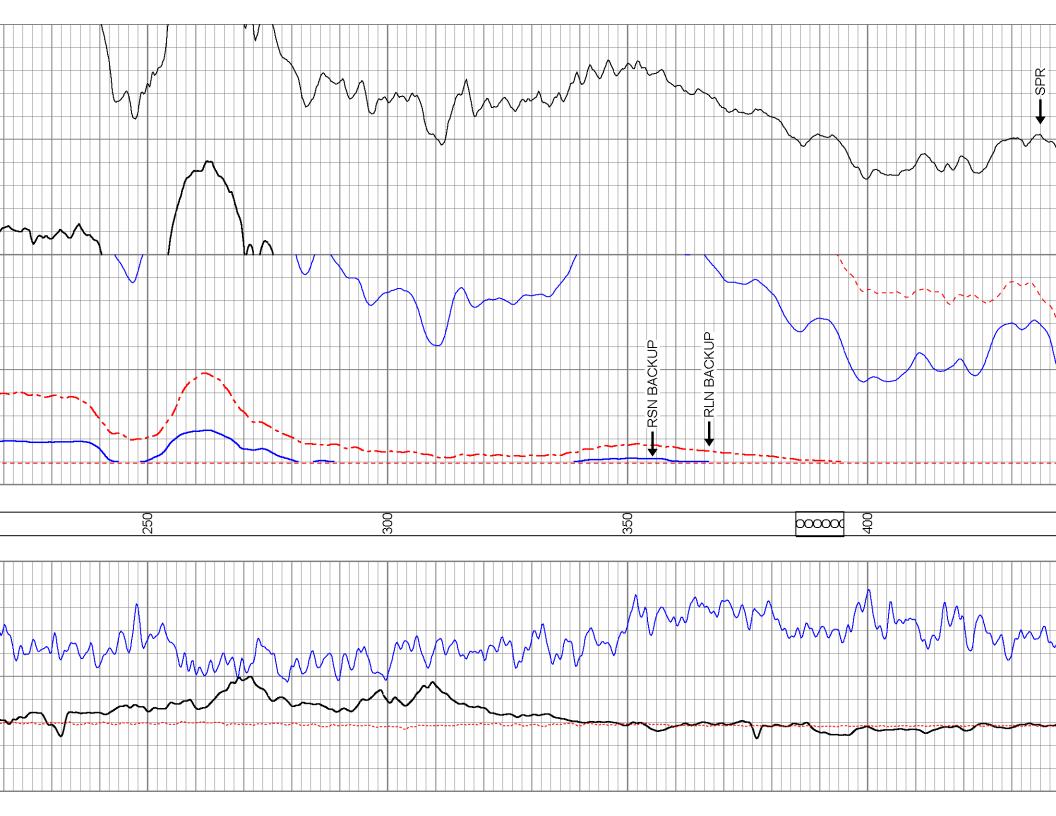
ELOG Calibration Report Comments 27 070 0 Serial: Model:

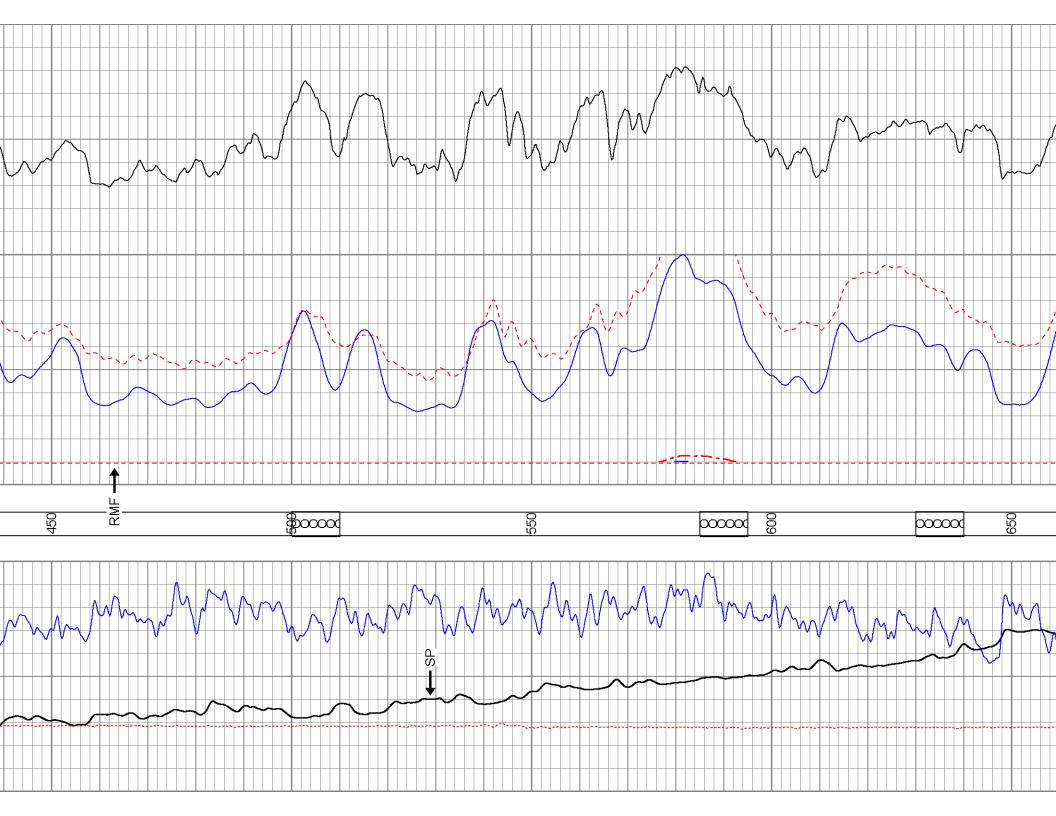
Thu Feb 12 18:50:48 2004 Fri Mar 28 18:39:54 2003

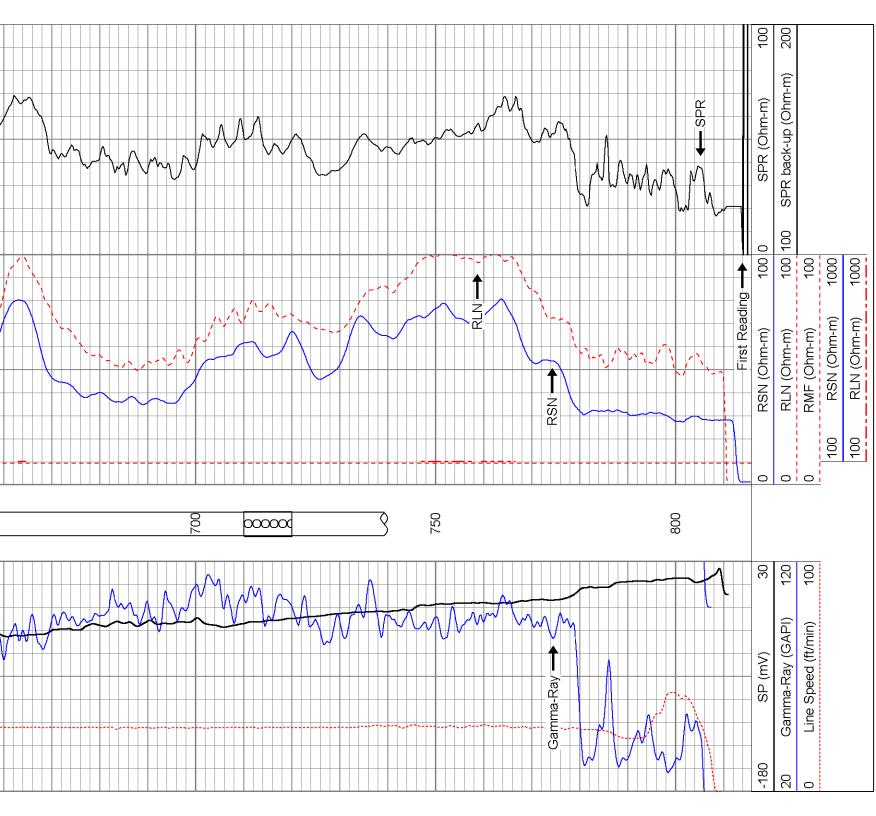
Shop Calibration Performed:
Before Survey Verification Performed:

F Zero	Readings C	Qa 		References Zero C	ences Cal		Results Gain C	ts Offset
Short 8.8 Long 6.0	8.842 10 6.083 9	100.519 95.489		10.200	102.200	Ohm-m Ohm-m	1.004	1.327
IEE 222.231 VSN 79.981 VLN 119.037		7097.889 8070.806 2050.833	counts counts counts	0.243 1.526 2.270	7.768 153.941 39.117	∢>>		
Before Survey Verification	rification							
F Zero	Readings C	Cal		References Zero C	ences Cal		Results Gain C	ts Offset
Short 255.170 Long 1150.040		100.412 103.869		46.444 103.264	100.411	Ohm-m Ohm-m	-0.349 0.219	135.426 80.559
IEE 140.620 VSN 403.139 VLN 454.231		6475.111 7304.796 1889.074	counts counts counts	0.154 7.689 8.664	7.086 139.330 36.032	∢>>		
After Survey Verification	ication							
F Zero	Readings C	Sal Cal		References Zero C	ences Cal		Results Gain C	ts Offset
Short 0.C Long 0.C	0.000	99.861 102.069		0.000	99.853 102.055	Ohm-m Ohm-m	1.000	0.000
IEE 129.370 VSN 142.833 VLN 114.778		6528.851 7325.000 1871.738	counts counts counts	0.142 2.724 2.189	7.145 139.715 35.701	∢>>		
After Survey Verification compared to Before Survey Calibration	ication cor	mpared to	Before Sur	vey Calibration				
Before	Zero	After		Cal Before	al After			
Short 46.444 Long 331.945	144 745 745	0.000	Ohm-m Ohm-m	100.411	99.853	Ohm-m Ohm-m		
			Gan	Gamma Ray Calibration Report	tion Report			
Serial Number: Tool Model: Performed:	nber:		□ Ⅲ ≥	D1 ELOG Mon Jan 26 16:20:05 2004	:05 2004			
Calibrator Value:	Value:		Ť	162	GAPI			
Background Reading: Calibrator Reading:	nd Readin ₍ Reading:	Ö	<u></u>	172.547 717.938	sdo sdo			
Sensitivity:			0	0.297034	GAPI/cps			
Database File: Dataset Pathname: Presentation Format: Dataset Creation:		db City_yard, ep 27 11:	_yard/run1/pass1 27 11:04:27 2004 eet scaled 1:240	11604.db WDC/City_yard/run1/pass1 elog Mon Sep 27 11:04:27 2004 by Log 6.2_B4 Denth in Feet scaled 1:240				
, , , , , , , , , , , , , , , , , , ,	ll l	Ş	<u> </u>		MSON (Obm.m)	100	(m m40) aas	<u> </u>









PACIFIC SURVEYS

Witnessed By

SONIC/VDL GAMMA RAY SINGLE POINT RESISTIVITY

Job No.						
11604	Company	WDC E	EXPLORA	TION & WE	LLS	
	Well	MW-25	5			
	Field	PASAI	DENA			
File No.	County	LOS A	NGELES	State	CA	
Location:					Other Serv	/ices:
PASADENA CIT	TY YARDS				ELOG/GR CALIPER	
Sec.	Twp.		Rge.			
Permanent Datu	♥.	OUND L	EVEL	Elevation		Elevation
Log Measured F Drilling Measure		ROUND L ROUND L		above perm. da	atum	K.B. D.F. G.L.
Date		09-27-	2004			
Run Number		ONE				
Depth Driller		815'				
Depth Logger		814'				
Bottom Logged	Interval	814'				
Top Log Interva		10'				
Casing Driller		20'				
Casing Logger		20'				
Bit Size		12.25"				
Type Fluid in Ho	ole	BENTO	ONITE			
Density / Viscosi	ity	N/A				
pH / Fluid Loss		N/A				
Source of Samp	le	PIT	<u> </u>			
Rm @ Meas. To	emp	9.5@	75 F			
Rmf @ Meas. To	emp	8.5 @	75 F			
Rmc @ Meas. T	emp	N/A				
Source of Rmf/	/Rmc	N/A				
Rm @ BHT		N/A				
Time Circulation	Stopped	10:00				
Time Logger on	Bottom	14:00				
Max. Recorded	Temperature	N/A				
Equipment Num	ber	PS-1				
Location		LA				
Recorded By		T. HOV	VARD	RIDDER		

D. CLEXTON

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Comments

1600

Variable Density 5 ft

1600 500

Variable Density 5 ft

50 (tTT (msec)) 500

Delta Time (usec/ft)

250

Mon Sep 27 13:14:54 2004 by Log 6.2_B4 Depth in Feet scaled 1:240

WDC/City_yard/run1/SONIC

s

Database File:
Dataset Pathname:
Presentation Format:
Dataset Creation:

Charted by:

11604.db

