

WELL DEVELOPMENT AND SAMPLING LOG

Project Name: JPL Pasadena Well ID: MW-10
 Project No: 00HW019 Equipment: 2' SUBMERSIBLE GRUNDFOS
 Date: 7/11/01 PUMP (DEDICATED)
 Personnel: PRJ/JNT Contractor: NA

	Before	Reference Point	After
Depth to Water (ft.)	96.82	TOC	96.82
Depth to Sediment (ft.)	70 155 154.97	TOC	154.97
Thickness of Sediment (ft.)	0.03	TOC	0.03

Depth of Well (ft.) 155
 Diameter of Casing (ft.) .333
 Water Column Height (ft.) 58.18

Casing Volume (gal.) = $\pi(\text{Casing Diam. [ft.]} / 2)^2 (\text{Water Column Ht. [ft.]}) 7.48 \text{ gal./ft}^3 =$ 37.99

Total Volume Purged (gal.) 120 Casing Volumes Purged 3

Time	pH	Turbidity (NTU)	Temperature (°C)	Conductivity (µmhos)	Pump Rate (gpm)	Comments
1055					3	Pump on @ 300 Hz
1105	7.56	23	21.1	.631	R 2	Slightly cloudy - pump
1110	7.56	5	21.2	.637	R 2	CLEAR Reduced to 2.5
1115	7.53	38	21.0	.630	R 2	CLEAR
1120	7.57	34	20.9	.632	R 2	CLEAR
1125	7.59	2	20.7	.640	R 2	CLEAR
1130	7.51	2	20.7	.637	R 2	CLEAR
1135	7.54	2	20.6	.636	R 2	CLEAR
1140	7.53	3	20.6	.633	R 2	CLEAR
1145	7.53	2	20.9	.641	2	CLEAR
1150	7.52	49	20.8	.642	2	CLEAR
1155	7.49	8	20.8	.643	2	CLEAR
1200	7.48	7	20.7	.642	2	CLEAR
1203						Flow reduced to a trickle for sampling

Notes: MW-10-D IS A FIELD DUPLICATE, TAKEN AFTER
REGULAR SAMPLE (MW-10)
NO ODOR DURING PURGING

WELL DEVELOPMENT AND SAMPLING LOG

Project Name: <u>JPL Pasadena</u>	Well ID: <u>MW-13</u>
Project No: <u>00HW019</u>	Equipment: <u>2" SUBMERSIBLE GRUNDFOS PUMP (DEDICATED)</u>
Date: <u>7/11/01</u>	Contractor: _____
Personnel: <u>PEJ/JNT</u>	

	Before	Reference Point	After
Depth to Water (ft.)	<u>189.87</u>	<u>To C</u>	<u>189.87</u>
Depth to Sediment (ft.)	<u>235</u>	<u>To C</u>	<u>235</u>
Thickness of Sediment (ft.)	<u>∅</u>	<u>To C</u>	<u>∅</u>

Depth of Well (ft.) 235
 Diameter of Casing (ft.) .333
 Water Column Height (ft.) 45.13

Casing Volume (gal.) = $\pi(\text{Casing Diam. [ft.]}^2) (\text{Water Column Ht. [ft.]}) 7.48 \text{ gal./ft}^3 = \underline{29.47}$

Casing Volumes Purged 3.3

Total Volume Purged (gal.) 100

Time	pH	Turbidity (NTU)	Temperature (°C)	Conductivity (µmhos)	Pump Rate (gpm)	Comments
1340	8.16	47	23.0	.558	2	Pump on @ 350 Hz
1345	8.06	19	22.7	.563	2	SLIGHT ORANGE TWT
1350	7.90	6	22.6	.562	2	CLEAR
1355	7.81	∅	22.3	.559	2	CLEAR
1400	7.75	∅	22.4	.561	2	CLEAR
1405	7.72	1	22.6	.565	2	CLEAR
1410	7.78	∅	22.6	.564	2	CLEAR
1415	7.78	3	22.3	.567	2	CLEAR
1420	7.76	∅	22.7	.567	2	CLEAR
1425	7.77	1	22.5	.565	2	CLEAR
1430	7.78	3	22.5	.563	2	CLEAR - Pump Reduced To A TRICKLE FOR SAMPLING.

Notes: _____
ms/msd Sample
No odor while purging

WELL DEVELOPMENT AND SAMPLING LOG

Project Name: JPL Pasadena

Well ID: MW-6

Project No: 00HW019

Equipment: 2" Submersible Grubbers

Date: 7/11/01

Pump (Dedicated)

Personnel: PRJ / JNT

Contractor: NA

	Before	Reference Point	After
Depth to Water (ft.)	191.41	TOC	191.55
Depth to Sediment (ft.)	245	TOC	245
Thickness of Sediment (ft.)	0	TOC	0

Depth of Well (ft.)

245

Diameter of Casing (ft.)

.333

Water Column Height (ft.)

53.59

Casing Volume (gal.) = $\pi(\text{Casing Diam. [ft.]} / 2)^2 (\text{Water Column Ht. [ft.]}) 7.48 \text{ gal./ft}^3 =$

34.99

Casing Volumes Purged

3.1

Total Volume Purged (gal.)

110

Time	pH	Turbidity (NTU)	Temperature (°C)	Conductivity (µmhos)	Pump Rate (gpm)	Comments
1510					2	Pump on @ 400 Hz
1515	7.83	37	22.3	0.95	2	SLIGHT ORANGE TINT FOR
1520	7.56	4	22.1	0.95	2	FIRST 5 MIN. OF PURGING
1525	7.47	1	21.6	0.95	2	CLEAR
1530	7.46	0	21.5	0.95	2	CLEAR
1535	7.37	1	21.4	0.95	2	CLEAR
1540	7.50	0	21.2	0.95	2	CLEAR
1545	7.32	2	21.2	0.95	2	CLEAR
1550	7.35	0	21.1	0.95	2	CLEAR
1555	7.33	2	21.2	0.95	2	CLEAR
1600	7.37	1	21.3	0.95	2	CLEAR
1605	7.34	3	21.2	0.95	2	CLEAR - FLOW REDUCED
						TO A TRICKLE FOR
						SAMPLING

Notes:

MS / mso Sample

No ooc while Purging

WELL DEVELOPMENT AND SAMPLING LOG

Project Name: JPL Pasadena Well ID: MW-5
 Project No: 00HW019 Equipment: 2" SUBMERSIBLE GRUNDFOS
 Date: 7/12/01 PUMP (DEDICATED)
 Personnel: RRJ/JNT Contractor: NA

	Before	Reference Point	After
Depth to Water (ft.)	81.50	TOC	81.65
Depth to Sediment (ft.)	140	TOC	140
Thickness of Sediment (ft.)	Ø	TOC	Ø

Depth of Well (ft.) 140
 Diameter of Casing (ft.) .333
 Water Column Height (ft.) 58.50

Casing Volume (gal.) = $\pi(\text{Casing Diam. [ft.]} / 2)^2 (\text{Water Column Ht. [ft.]}) 7.48 \text{ gal./ft}^3 = \underline{38.20}$
 Casing Volumes Purged 3.1

Total Volume Purged (gal.) 120

Time	pH	Turbidity (NTU)	Temperature (°C)	Conductivity (µmhos)	Pump Rate (gpm)	Comments
1230					2	Pump on @ 300 Hz -
1235	7.74	1	17.9	.310	2	ORANGE TINT TO WATER
1240	7.72	3	17.5	.308	2	FOR FIRST MINUTE OF
1245	7.55	3	17.3	.309	2	PURGING - THEN CLEAR
1250	7.59	Ø	17.1	.310	2	CLEAR
1255	7.56	1	17.2	.313	2	CLEAR
1300	7.49	2	17.2	.313	2	CLEAR
1305	7.60	3	16.8	.312	2	CLEAR
1310	7.48	2	17.0	.313	2	CLEAR
1315	7.46	Ø	17.1	.312	2	CLEAR
1320	7.47	2	17.2	.312	2	CLEAR
1325	7.47	Ø	17.0	.314	2	CLEAR
1330	7.48	Ø	17.1	.311	2	CLEAR - REDUCED
						FLOW TO A TRICKLE
						FOR SAMPLING

Notes: MW-5-D IS A FIELD DUPLICATE, TAKEN AFTER REGULAR
SAMPLE (MW-5).

NO ODOR WHILE PURGING

WELL DEVELOPMENT AND SAMPLING LOG

Project Name: JPL Pasadena

Well ID: MW-16

Project No: 00HW019

Equipment: 2" SUBMERSIBLE GRUNDOS

Date: 7/12/01

PUMP (DEDICATED)

Personnel: PRJ/JNT

Contractor: NA

	Before	Reference Point	After
Depth to Water (ft.)	243.15	TOC	243.34
Depth to Sediment (ft.)	285	TOC	285
Thickness of Sediment (ft.)	0	TOC	0

Depth of Well (ft.)

285

Diameter of Casing (ft.)

.333

Water Column Height (ft.)

41.85

Casing Volume (gal.) = $\pi(\text{Casing Diam. [ft.]}^2) (\text{Water Column Ht. [ft.]}) 7.48 \text{ gal./ft}^3 =$ 27.32

Casing Volumes Purged 3.3

Total Volume Purged (gal.)

90

Time	pH	Turbidity (NTU)	Temperature (°C)	Conductivity (μmhos)	Pump Rate (gpm)	Comments
1400					2	Pump on @ 400 Hz -
1405	8.02	20	22.9	.476	2	SLIGHTLY CLOUDY
1410	8.07	6	23.4	.478	2	CLEAR
1415	8.07	5	23.3	.480	2	CLEAR
1420	8.17	8	23.6	.497	2	CLEAR
1425	8.11	3	22.9	.481	2	CLEAR
1430	8.09	8	23.4	.479	2	CLEAR
1435	8.06	0	23.9	.477	2	CLEAR
1440	8.06	1	24.0	.475	2	CLEAR
1445	8.04	0	24.1	.478	2	CLEAR - REDUCED FLOW TO A TRICKLE FOR SAMPLING

Notes:

MW-16-D IS A FIELD DUPLICATE, TAKEN AFTER REGULAR SAMPLE (MW-16)

NO ODOR WHILE PURGING

WELL DEVELOPMENT AND SAMPLING LOG

Project Name: JPL Pasadena Well ID: MW-8
 Project No: 00HW019 Equipment: 2" SUBMERSIBLE
 Date: 7/18/01 7/19/01 Contractor: GRUNDFOS - RENTAL
 Personnel: MES/SNT

	Before	Reference Point	After
Depth to Water (ft.)	148.08	TDC	148.27
Depth to Sediment (ft.)	202.18	TDC	202.97
Thickness of Sediment (ft.)	2.82	TDC	2.03

Depth of Well (ft.) 205
 Diameter of Casing (ft.) 0.333
 Water Column Height (ft.) 54.10

Casing Volume (gal.) = $\pi(\text{Casing Diam. [ft.]} / 2)^2 (\text{Water Column Ht. [ft.]}) 7.48 \text{ gal./ft}^3 = \underline{35.3}$

Casing Volumes Purged 3.1

Total Volume Purged (gal.) 110

Time	pH	Turbidity (NTU)	Temperature (°C)	Conductivity (µmhos)	Pump Rate (gpm)	Comments
1244	8.57	25	21.3	0.405	2	PUMP ON @ 300 7/19/01
1249	8.57	25	21.3	0.405	2	SLIGHTLY CLOUDY
1254	7.88	23	19.5	0.406	2	CLEAR
1259	7.87	8	19.4	0.404	2	CLEAR
1304	7.70	1	19.3	0.405	2	CLEAR
1309	7.69	0	19.3	0.402	2	CLEAR
1314	7.71	0	19.2	0.402	2	CLEAR
1319	7.71	0	19.2	0.403	2	CLEAR
1324	7.70	0	19.2	0.403	2	CLEAR
1329	7.68	5	19.3	0.404	2	CLEAR
1334	7.66	4	19.2	0.404	2	CLEAR
1339	7.68	5	19.2	0.402	2	CLEAR

Notes: WATER IS SLIGHTLY CLOUDY TO 1249 - CLEAR
NO ODDOR
REDUCED FLOW TO TRICKLE FOR SAMPLING

Groundwater Sampling

Field Data Sheet for Multi-Port Well

Date: 7/5/01

Well ID: MW-18 Depth (ft.): 684

Project Name: JPL Pasadena

Project No.: 00HW019

Sampling Zone No.: 5

Personnel: RJS/JMT

Starting Time: 1250 Finishing Time: 1345

Beginning of Session: 147.87

End of Session: 147.91

Water Pressure Inside MP Casing -

Run No.	Surface Function Checks				Position Sampler	Sample Collection Checks						Water Quality Parameters									
	Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container		Valve Closed	Deactivate Set Arm Locate Port	Pressure in MP	Shoe out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	pH	Turbidity (NTU)	Temperature (°C)	Conductivity (mmhos)	
1	✓	✓	✓	✓	✓	✓	147.87	✓	178.49	✓	178.46	✓	✓	147.91	1340	10.79	44	21.0	.411		
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10																					
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12																					

Notes:

WATER IS CLEAR, NO ODOOR

Total Volume: 1 LITER

Groundwater Sampling

Field Data Sheet for Multi-Port Well

Date: 7/5/01

Depth (ft.): 564

Well ID: MW-18

Sampling Zone No.: 4

Starting Time: 1350

Finishing Time: 1420

Beginning of Session: 96.70

End of Session: 96.71

Water Pressure Inside MP Casing -

Run No.	Surface Function Checks				Position Sampler	Sample Collection Checks							Water Quality Parameters						
	Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container		Valve Closed	Deactivate Set Arm Locate Port	Pressure in MP	Shoe out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	pH	Turbidity (NTU)	Temperature (°C)
1	✓	✓	✓	✓	✓	96.70	✓	133.64	✓	133.63	✓	✓	96.71	1415	9.37	45	20.2	.369	
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7																			
8																			
9																			
10																			
11																			
12																			

Notes:

WATER IS CLEAR, NO ODOOR

Total Volume: 1.5 LITERS

Groundwater Sampling

Field Data Sheet for Multi-Port Well

Date: 7/5/01

Well ID: MW-18 Depth (ft.): 424

Project Name: JPL Pasadena Sampling Zone No.: 3

Project No: 00HW019 Starting Time: 1425 Finishing Time: 1455

Personnel: PRE/JNT

Beginning of Session: 35.81

End of Session: 35.86

Water Pressure Inside MP Casing -

Run No.	Surface Function Checks				Position Sampler	Sample Collection Checks						Water Quality Parameters								
	Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container		Valve Closed	Deactivate Set Arm Locate Port	Pressure in MP	Shoe out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	pH	Turbidity (NTU)	Temperature (°C)	Conductivity (mmhos)
1	✓	✓	✓	✓	✓	35.81	✓	80.83	✓	80.88	✓	✓	35.86	1450	9.02	2	19.7	462		
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10																				
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Notes:

WATER IS CLEAR, NO ODOOR

Total Volume: 1.5 LITERS

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project Name: JPL Pasadena Well ID: WW-18 Depth (ft.): 330
 Project No: 00HW019 Sampling Zone No.: 2
 Personnel: PES/JST Starting Time: 1500 Finishing Time: 1520
 Date: 7/5/01

Water Pressure Inside MP Casing -
 Beginning of Session: 14.20
 End of Session: 14.23

Run No.	Surface Function Checks				Position Sampler	Sample Collection Checks						Water Quality Parameters							
	Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container		Valve Closed	Deactivate Set Arm Locate Port	Pressure in MP	Shoe out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	pH	Turbidity (NTU)	Temperature (°C)
1	✓	✓	✓	✓	✓	14.19	✓	49.19	✓	49.15	✓	✓	14.23	1515	8.95	36	21.3	.396	
2						14.20													
3																			
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5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			

Notes: WATER IS CLEAR, NO ODOR

Total Volume: 1.5 LITERS

Groundwater Sampling

Field Data Sheet for Multi-Port Well

Project Name: JPL Pasadena Well ID: MW-17 Depth (ft.): 726
 Project No.: 00HW019 Sampling Zone No.: 5
 Personnel: RES/JST Starting Time: 1025 Finishing Time: 1055
 Date: 7/6/01

Water Pressure Inside MP Casing - Beginning of Session: 170.48
 End of Session: 170.50

Run No.	Surface Function Checks				Position Sampler	Sample Collection Checks							Water Quality Parameters						
	Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container		Valve Closed	Deactivate Set Arm Locate Port	Pressure in MP	Shoe out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	pH	Turbidity (NTU)	Temperature (°C)
1	✓	✓	✓	✓	✓	170.48	✓	194.53	✓	119.56	✓	✓	170.50	1050	9.84	48	19.1	.401	
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9																			
10																			
11																			
12																			

Total Volume: 1 LITEK

Notes: WATER IS SLIGHTLY CLOUDY, NO ODOR

Groundwater Sampling

Field Data Sheet for Multi-Port Well

Date: 7/11/01

Depth (ft.): 582

Well ID: WW-17

Project Name: JPL Pasadena

Sampling Zone No.: 4

Project No.: 00HW019

Starting Time: 1100

Finishing Time: 1130

Date: 7/11/01

Beginning of Session: 108.10

Finishing Time: 1130

108.13

Water Pressure Inside MP Casing -

Run No.	Surface Function Checks				Position Sampler	Sample Collection Checks						Water Quality Parameters								
	Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container		Valve Closed	Deactivate Set Arm Locate Port	Pressure in MP	Shoe out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	pH	Turbidity (NTU)	Temperature (°C)	Conductivity (mmhos)
1	✓	✓	✓	✓	✓	✓	108.10	✓	141.48	✓	141.45	✓	✓	108.13	1125	9.15	56	18.5	.380	
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9																				
10																				
11																				
12																				

Notes:

WATER IS CLEAR, NO OOR

Total Volume: 1.5 LITERS

Groundwater Sampling

Field Data Sheet for Multi-Port Well

Project Name: JPL Pasadena Well ID: MW-17 Depth (ft.): 468
 Project No: 00HW019 Sampling Zone No.: 3
 Personnel: PLS/JNT Starting Time: 1135 Finishing Time: 1200
 Date: 7/16/01

Water Pressure Inside MP Casing - Beginning of Session: 58.48
 End of Session: 58.51

Run No.	Surface Function Checks				Position Sampler	Sample Collection Checks						Water Quality Parameters							
	Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container		Valve Closed	Deactivate Set Arm Locate Port	Pressure in MP	Shoe out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	pH	Turbidity (NTU)	Temperature (°C)
1	✓	✓	✓	✓	✓	58.48	✓	116.92	✓	116.91	✓	✓	58.51	1155	9.11	1.01	17.9	.380	
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9																			
10																			
11																			
12																			

Total Volume: 1.5 LITERS

Notes: WATER IS CLEAR, NO ODOOR

Groundwater Sampling

Field Data Sheet for Multi-Port Well

Project Name: JPL Pasadena
 Project No.: 00HW019
 Personnel: RES / JLT

Well ID: MW-17 Depth (ft.): 370
 Sampling Zone No.: 2 Starting Time: 1204 Finishing Time: 1230

Date: 7/6/01

Water Pressure Inside MP Casing - Beginning of Session: 16.75
 End of Session: 16.73

Run No.	Surface Function Checks				Position Sampler	Sample Collection Checks							Water Quality Parameters						
	Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container		Valve Closed	Pressure in MP	Shoe out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	pH	Turbidity (NTU)	Temperature (°C)	Conductivity (mmhos)
1	✓	✓	✓	✓	✓	16.75	✓	79.30	✓	79.31	✓	✓	16.73	1225	9.13	20	17.7	.310	
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7																			
8																			
9																			
10																			
11																			
12																			

Notes: WATER IS CLEAR, NO ODOR Total Volume: 1.5 LITERS

Groundwater Sampling

Field Data Sheet for Multi-Port Well

Project Name: JPL Pasadena
 Project No: 00HW019
 Personnel: PRS/JST

Well ID: MW-21
 Sampling Zone No.: 5
 Starting Time: 1240

Depth (ft.): 372
 Finishing Time: 1320

Date: 7/9/01

Water Pressure Inside MP Casing -
 Beginning of Session: 130.26
 End of Session: 130.30

Run No.	Surface Function Checks				Position Sampler	Sample Collection Checks						Water Quality Parameters											
	Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container		Valve Closed	Deactivate Set Arm Locate Port	Pressure in MP	Shoe out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	pH	Turbidity (NTU)	Temperature (°C)	Conductivity (mmhos)			
1	✓	✓	✓	✓	✓	130.26	✓	147.10	✓	147.07	✓	✓	✓	130.30	1315	9.50	23	19.2	.389				
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5																							
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7																							
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9																							
10																							
11																							
12																							

Total Volume: 1 LITER

Notes: WATER IS CLEAR, NO Ooze

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project Name: JPL Pasadena Well ID: MW-21 Depth (ft.): 310
 Project No: 00HW019 Sampling Zone No.: 4
 Personnel: RLS/JLS Starting Time: 1325 Finishing Time: 1630
 Date: 7/9/01

Water Pressure Inside MP Casing - Beginning of Session: 104.90
 End of Session: 104.93

Run No.	Surface Function Checks				Position Sampler	Sample Collection Checks						Water Quality Parameters							
	Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container		Valve Closed	Deactivate Set Arm Locate Port	Pressure in MP	Shoe out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	pH	Turbidity (NTU)	Temperature (°C)
1	✓	✓	✓	✓	✓	24.5	✓	120.25	✓	120.23	✓	✓	✓	104.93	1625	9.40	46	25.5	.686
2						104.90													
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			

Notes: WATER IS CLEAR, NO ODOR

Total Volume: 1 LITER

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project Name: JPL Pasadena Well ID: WW-21 Depth (ft.): 240
 Project No.: 00HW019 Sampling Zone No.: 3
 Personnel: PJS JVT Starting Time: 1635 Finishing Time: 1645
 Date: 7/9/01

Water Pressure Inside MP Casing - Beginning of Session: 74.85
 End of Session: 74.84

Run No.	Surface Function Checks				Position Sampler	Sample Collection Checks						Water Quality Parameters								
	Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container		Valve Closed	Deactivate Set Arm Locate Port	Pressure in MP	Shoe out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	pH	Turbidity (NTU)	Temperature (°C)	Conductivity (mmhos)
1	✓	✓	✓	✓	✓	74.85	✓	90.46	✓	90.48	✓	74.84	1640	8.58	44	22.3	1.09			
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				

Total Volume: 1 Liter

Notes: WATER IS CLEAR, NO ODOR

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project Name: JPL Pasadena Well ID: MMW-21 Depth (ft.): 161
 Project No.: 00HW019 Sampling Zone No.: 2
 Personnel: RES/JWT Starting Time: 1650 Finishing Time: 1700
 Date: 7/9/01

Water Pressure Inside MP Casing - Beginning of Session: 40.39
 End of Session: 40.41

Run No.	Surface Function Checks				Position Sampler	Sample Collection Checks						Water Quality Parameters								
	Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container		Valve Closed	Deactivate Set Arm Locate Port	Pressure in MP	Shoe out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	pH	Turbidity (NTU)	Temperature (°C)	Conductivity (mmhos)
1	✓	✓	✓	✓	✓	✓	40.39	✓	56.32	✓	56.31	✓	✓	40.41	1655	8.41	33	20.6	1.26	
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				

Notes: WATER IS CLEAR, NO ODOZ Total Volume: 1 LITE

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project Name: JPL Pasadena Well ID: MW-21 Depth (ft.): 90
 Project No.: 00HW019 Sampling Zone No.: 1
 Personnel: PES/JJT Starting Time: 1705 Finishing Time: 1720
 Date: 7/9/01

Water Pressure Inside MP Casing - 14.12
 Beginning of Session: 14.12
 End of Session: 14.14

Run No.	Surface Function Checks				Position Sampler	Sample Collection Checks						Water Quality Parameters								
	Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container		Valve Closed	Deactivate Set Arm Locate Port	Pressure in MP	Shoe out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	pH	Turbidity (NTU)	Temperature (°C)	Conductivity (mmhos)
1	✓	✓	✓	✓	✓	✓	14.12	✓	25.22	✓	25.21	✓	✓	14.14	1715	8.68	2.1	24.3	.386	
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				

Total Volume: 1 LITER

Notes: WATER IS CLEAR, NO ODOOR

Groundwater Sampling

Field Data Sheet for Multi-Port Well

Project Name: JPL Pasadena
 Project No: 00HW019
 Personnel: RES/JSI

Well ID: MW-20 Depth (ft.): 900
 Sampling Zone No.: 5 Finishing Time: 1240
 Starting Time: 1140

Date: 7/10/01

Beginning of Session: 308.49
 End of Session: 308.48

Water Pressure Inside MP Casing -

Run No.	Surface Function Checks				Position Sampler	Sample Collection Checks						Water Quality Parameters								
	Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container		Valve Closed	Deactivate Set Arm Locate Port	Pressure in MP	Shoe out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	pH	Turbidity (NTU)	Temperature (°C)	Conductivity (mmhos)
1	✓	✓	✓	✓	✓	308.49	✓	317.01	✓	317.03	✓	308.48	12:35	10.31	138	19.2	.346			
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				

Notes:

WATER IS CLEAR, NO OODR

Total Volume: 1.5 LITERS

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project Name: JPL Pasadena Well ID: MW-10 Depth (ft.): 700
 Project No: 00HW019 Sampling Zone No.: 4
 Personnel: RES/JNT Starting Time: 12:50 10/08 Finishing Time: 1040
RES/JNT Beginning of Session: 222.29
 Water Pressure Inside MP Casing - End of Session: 222.28

Date: 7/16/01

Run No.	Surface Function Checks				Position Sampler	Sample Collection Checks						Water Quality Parameters							
	Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container		Valve Closed	Deactivate Set Arm Locate Port	Pressure in MP	Shoe out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	pH	Turbidity (NTU)	Temperature (°C)
1	✓	✓	✓	✓	✓	222.29	✓	214.5B	✓	214.50	✓	✓	222.28	10:35	9.91	56	19.1	0.299	
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			

Total Volume: 1.5 LITERS

Notes: WATER IS CLEAR, SLIGHT SULFOR ODOR

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Date: 7/16/01

Project Name: JPL Pasadena Well ID: MW-20 Depth (ft.): 562
 Project No: 00HW019 Sampling Zone No.: 3
 Personnel: MES/JNT Starting Time: 1047 Finishing Time: 1115

Water Pressure Inside MP Casing - Beginning of Session: 162.29
 End of Session: 162.29

Run No.	Surface Function Checks				Position Sampler	Sample Collection Checks						Water Quality Parameters								
	Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container		Valve Closed	Deactivate Set Arm Locate Port	Pressure in MP	Shoe out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	pH	Turbidity (NTU)	Temperature (°C)	Conductivity (mmhos)
1	✓	✓	✓	✓	✓	✓	162.29	✓	157.80	✓	157.78	✓	✓	162.29	1110	9.35	46	18.6	0.499	
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				

Notes: WATER IS CLEAR, NO ODOR

Total Volume: 1.5 L

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Date: 7/16/01

Well ID: MW-20 Depth (ft.): 392

Sampling Zone No.: 2 Finishing Time: 1155

Project Name: JPL Pasadena
Project No.: 00HW019
Personnel: MES / SNT

Starting Time: 1126

Beginning of Session: 88.32
End of Session: 88.37

Water Pressure Inside MP Casing -

Run No.	Surface Function Checks				Position Sampler	Sample Collection Checks						Water Quality Parameters								
	Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container		Valve Closed	Deactivate Set Arm Locate Port	Pressure in MP	Shoe out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	pH	Turbidity (NTU)	Temperature (°C)	Conductivity (mmhos)
1	✓	✓	✓	✓	✓	88.32	✓	94.15	✓	94.19	✓	✓	88.37	1150	9.17	37	19.3	0.353		
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				

Total Volume: 1.5 L

Notes: WATER IS CLEAR, NO ODOR

Groundwater Sampling

Field Data Sheet for Multi-Port Well

Date: 7/16/01

Well ID: MW-20 Depth (ft.): 230
 Sampling Zone No.: 1
 Starting Time: 12:10 Finishing Time: 12:50

Project Name: JPL Pasadena
 Project No.: 00HW019
 Personnel: MES/SNT

Water Pressure Inside MP Casing -
 Beginning of Session: 17.69
 End of Session: 17.73

Run No.	Surface Function Checks				Position Sampler	Sample Collection Checks						Water Quality Parameters						
	Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container		Valve Closed	Pressure in MP	Shoe out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	pH	Turbidity (NTU)	Temperature (°C)
1	✓	✓	✓	✓	✓	17.69	✓	24.60	✓	24.61	✓	✓	17.73	1225	8.74	44	19.4	0.690
2	✓	✓	✓	✓	✓	16.16	✓	24.59	✓	24.63	✓	✓	16.20	1245				
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		

Total Volume: 1.54 7/16/01
2.25 L

Notes: WATER IS CLEAR, NO ODDR

Groundwater Sampling

Field Data Sheet for Multi-Port Well

Date: 7/13/01

Depth (ft.): 653

Well ID: MW-3

Starting Time: 0830

Sampling Zone No.: 5

Finishing Time: 0905

Personnel: RAT/JST

Beginning of Session: 176.62

End of Session: 176.63

Water Pressure Inside MP Casing -

Run No.	Surface Function Checks				Position Sampler	Sample Collection Checks						Water Quality Parameters							
	Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container		Valve Closed	Deactivate Set Arm Locate Port	Pressure in MP	Shoe out	Zone Pressure	Open Valve	Close Valve	Shoe In	Pressure in MP	Time	pH	Turbidity (NTU)	Temperature (°C)	Conductivity (mmhos)
1	✓	✓	✓	✓	✓	176.62	✓	195.57	✓	195.59	✓	✓	176.63	0900	10.38	10	20.4	305	
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			

Notes: WATER IS SLIGHTLY CLOUDY, SLIGHT ROTTEN EGG SMELL

Total Volume: 1 LITER

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Date: 7/13/01

Well ID: MW-3 Depth (ft.): 550
 Sampling Zone No.: 4
 Starting Time: 0910 Finishing Time: 0930

Project Name: JPL Pasadena
 Project No.: 00HW019
 Personnel: PAS JUT

Water Pressure Inside MP Casing -
 Beginning of Session: 136.84
 End of Session: 136.85

Run No.	Surface Function Checks				Position Sampler	Sample Collection Checks						Water Quality Parameters								
	Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container		Valve Closed	Deactivate Set Arm Locate Port	Pressure in MP	Shoe out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe in	Pressure in MP	Time	pH	Turbidity (NTU)	Temperature (°C)	Conductivity (mmhos)
1	✓	✓	✓	✓	✓	✓	136.86	✓	106.02	✓	106.03	✓	✓	136.85	0925	9.64	29	21.2	.310	
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				

Total Volume: 1.5 LITERS

Notes: WATER IS CLEAR, NO ODOOR

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project Name: JPL Pasadena Well ID: MW-3 Depth (ft.): 346
 Project No: 00HW019 Sampling Zone No.: 3
 Personnel: PRE/JST Starting Time: 0935 Finishing Time: 1000
 Date: 7/13/01

Water Pressure Inside MP Casing - Beginning of Session: 44.63
 End of Session: 44.65

Run No.	Surface Function Checks				Position Sampler	Sample Collection Checks						Water Quality Parameters							
	Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container		Valve Closed	Deactivate Set Arm Locate Port	Pressure in MP	Shoe out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	pH	Turbidity (NTU)	Temperature (°C)
1	✓	✓	✓	✓	✓	44.63	✓	107.06	✓	107.07	✓	✓	44.65	0955	9.24	45	21.4	380	
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			

Notes: WATER IS CLEAR, NO ODOOR

Total Volume: 1.5 LITERS

Groundwater Sampling

Field Data Sheet for Multi-Port Well

Date: 7/13/01

Well ID: MW-3 Depth (ft.): 252

Project Name: JPL Pasadena
 Project No.: 00HW019
 Personnel: PRJ/JLT

Sampling Zone No.: 2
 Starting Time: 1005 Finishing Time: 1025

Beginning of Session: 14.14
 End of Session: 14.13

Water Pressure Inside MP Casing -

Run No.	Surface Function Checks				Position Sampler	Sample Collection Checks						Water Quality Parameters							
	Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container		Valve Closed	Deactivate Set Arm Locate Port	Pressure in MP	Shoe out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	pH	Turbidity (NTU)	Temperature (°C)
1	✓	✓	✓	✓	✓	14.14	✓	68.65	✓	68.63	✓	✓	14.13	1020	8.47	6	23.1	443	
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			

Notes: WATER IS CLEAR, NO ODOOR

Total Volume: 1.5 LITERS

Groundwater Sampling

Field Data Sheet for Multi-Port Well

Date: 7/18/01

Well ID: MW-19 Depth (ft.): 498

Project Name: JPL Pasadena Sampling Zone No.: 5

Project No: 00HW019 Starting Time: 1050 Finishing Time: 1135

Personnel: MS/JNT

Water Pressure Inside MP Casing - Beginning of Session: 78.29
End of Session: 78.29

Run No.	Surface Function Checks				Position Sampler	Sample Collection Checks							Water Quality Parameters						
	Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container		Valve Closed	Pressure in MP	Shoe out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	pH	Turbidity (NTU)	Temperature (°C)	Conductivity (mmhos)
1	✓	✓	✓	✓	✓	78.29	✓	102.76	✓	102.76	✓	78.29	✓	1130	7.84	29	20.4	0.770	
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			

Notes: WATER IS CLEAR, NO ODOR

Total Volume: 1L

Groundwater Sampling
Field Data Sheet for Multi-Port Well

Project Name: JPL Pasadena Well ID: MW-19 Depth (ft.): 444
 Project No: 00HW019 Sampling Zone No.: 4
 Personnel: MES/SNT Starting Time: 1145 Finishing Time: 1200
 Date: 7/18/01

Water Pressure Inside MP Casing - Beginning of Session: 54.71
 End of Session: 54.76

Run No.	Surface Function Checks				Position Sampler	Sample Collection Checks						Water Quality Parameters							
	Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container		Valve Closed	Deactivate Set Arm Locate Port	Pressure in MP	Shoe out	Zone Pressure	Open Valve	Close Valve	Shoe In	Pressure in MP	Time	pH	Turbidity (NTU)	Temperature (°C)	Conductivity (mmhos)
1	✓	✓	✓	✓	✓	54.71	✓	80.94	✓	80.99	✓	✓	54.76	1157	8.92	46	19.5	0.379	
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			

Notes: WATER IS CLEAR, NO ODOR

Total Volume: 1L

Groundwater Sampling

Field Data Sheet for Multi-Port Well

Date: 7/18/01

Well ID: MW-19 Depth (ft.): 392

Project Name: JPL Pasadena Sampling Zone No.: 3

Project No: 00HW019 Starting Time: 1205 Finishing Time: 1230

Personnel: MES/JNT

Beginning of Session: 32.05

End of Session: 31.57

Water Pressure Inside MP Casing -

Run No.	Surface Function Checks				Position Sampler	Sample Collection Checks						Water Quality Parameters							
	Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container		Valve Closed	Deactivate Set Arm Locate Port	Pressure in MP	Shoe out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	pH	Turbidity (NTU)	Temperature (°C)
1	✓	✓	✓	✓	✓	✓	32.05	✓	101.43	✓	101.43	✓	✓	32.09	1215	8.22	44	19.5	0.900
2	✓	✓	✓	✓	✓	✓	31.55	✓	101.42	✓	101.43	✓	✓	31.57	1225				
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			

46 TILES
3 BOTTLES

Total Volume: 2.4
1.75L
7/18/01

Notes: WATER IS CLEAR, NO ODOR

Groundwater Sampling

Field Data Sheet for Multi-Port Well

Date: 7/18/01

Well ID: MW-19 Depth (ft.): 314

Project Name: JPL Pasadena

Project No.: 00HW019

Sampling Zone No.: 2

Personnel: MES/JNT

Starting Time: 1235 Finishing Time: 1259

Beginning of Session: 14.17

End of Session: 14.20

Water Pressure Inside MP Casing -

Run No.	Surface Function Checks				Position Sampler	Sample Collection Checks						Water Quality Parameters								
	Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container		Valve Closed	Deactivate Set Arm Locate Port	Pressure in MP	Shoe out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	pH	Turbidity (NTU)	Temperature (°C)	Conductivity (mmhos)
1	✓	✓	✓	✓	✓	14.17	✓	69.79	✓	69.78	✓	✓	14.22	1245	8.28	28	23.2	0.811	4 BOTTLES	
2	✓	✓	✓	✓	✓	14.17	✓	69.79	✓	69.79	✓	✓	14.20	1258						3 BOTTLES
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				

Total Volume: 24
1.75L
7/18/01

Notes: WATER IS CLEAR, NO ODOR