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## **Appendix G**

### **Well Development Data for Alluvial Wells (Temperature)**

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**FRIANT**  
FRIANT  
WATER USERS AUTHORITY



**TECHNICAL REPORT :**

**ALLUVIAL GROUNDWATER WELL INSTALLATION  
SAN JOAQUIN RIVER RIPARIAN FLOW PILOT PROJECT**

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## CONTENTS

<b>1.0 INTRODUCTION</b> .....	1-1
<b>2.0 PILOT PROJECT HISTORY AND BACKGROUND</b> .....	2-1
<b>3.0 FIELD ACTIVITIES</b> .....	3-1
3.1 Drilling Program.....	3-1
3.2 Soil Sampling.....	3-3
3.3 Well Installation.....	3-5
3.4 Well Development.....	3-5
<b>4.0 GEOLOGY</b> .....	4-1
4.1 Subsurface Geology.....	4-1
<b>5.0 RECOMENDATIONS</b> .....	5-1
5.1 Recommendations.....	5-1

## APPENDICES

Appendix A	Figures
Appendix B	Soil Boring and Well Installation Logs
Appendix C	Well Development Data

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## 1.0 INTRODUCTION

This technical report was prepared on behalf of Friant Water Users Authority (FWUA) and summarizes field activities associated with samples collected during the installation of shallow alluvial groundwater monitoring wells at the San Joaquin River (SJR). These wells were installed as part of the San Joaquin River Riparian Flow Pilot Project (pilot project). This report is meant to serve as a technical document only; no documentation as to permitting and access issues will be discussed.

This report consists of six sections (1.0 through 5.0) and three appendices (A through C). The report sections include the following:

- Pilot Project history and background information is presented in Section 2.0.
- Field activities are presented in Section 3.0.
- Geologic data are summarized in Section 4.0.
- Recommendations are presented in Section 5.0.

The report appendices include the following:

- Appendix A contains figures.
  - Appendix B contains soil boring and well installation logs.
  - Appendix C contains well development data.
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APPENDIX C

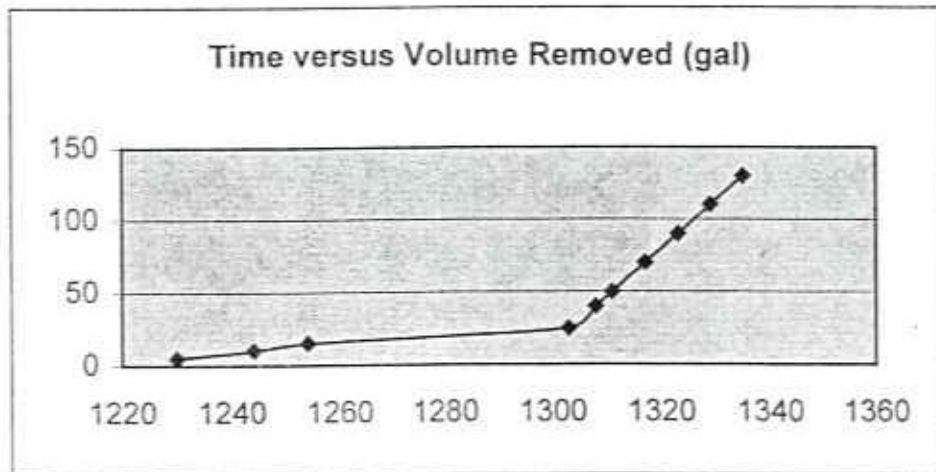
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# Development Log

Well ID: **FA-1**  
 Casing Diameter: 2-inch  
 Depth to Water: Not recorded  
 Well Volume: Not recorded  
 Purge Volume: 130 gallons

Purge method: Bailer  
 Pump/Bailer Type: 2" stainless steel  
 Date: 8/12/99

Time	Volume Removed (Gallons)	Temperature (Degree F)	pH	Conductivity (microS/mS)
1230	5	82.5	8.04	2.15
1244	10	77.2	8.19	1.86
1254	15	75	8.22	1.75
1303	25	79.2	8.32	1.65
1308	40	78.7	7.91	1.57
1311	50	77.6	7.87	1.39
1317	70	78.9	7.97	1.81
1323	90	78.4	7.68	1.42
1329	110	76.8	7.63	1.35
1335	130			

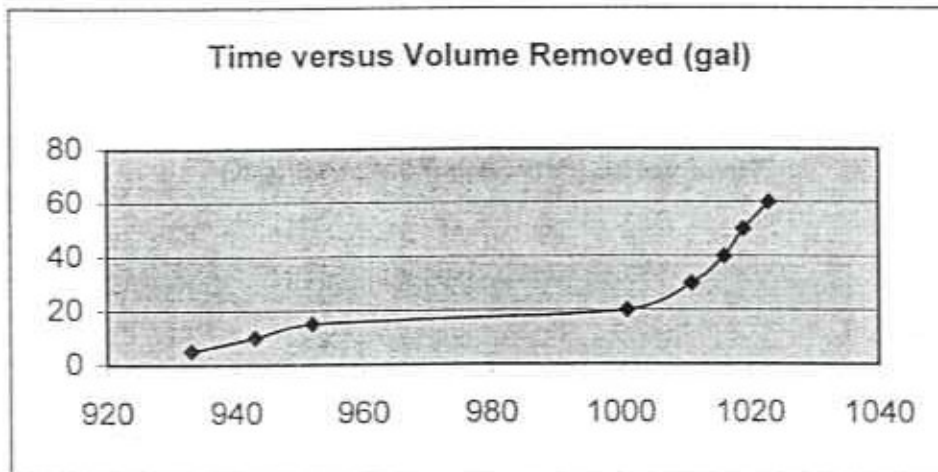


# Development Log

Well ID: FA-2  
Casing Diameter: 2-inch  
Depth to Water: 18.98  
Well Volume: Not recorded  
Purge Volume: 60 Gallons

Purge method: Bailer  
Pump/Bailer Type: 2" stainless steel  
Date: 8/12/99

Time	Volume Removed (Gallons)	Temperature (Degree F)	pH	Conductivity (microS/mS)
933	5	73.9	7.92	3.26
943	10	74.1	8.17	3.66
952	15	73.2	8.32	2.51
1001	20	73.4	8.39	2.09
1011	30	75.4	8.35	1.82
1016	40	74.2	8.11	1.4
1019	50	74.9	7.95	1.3
1023	60	74.2	7.94	1.3

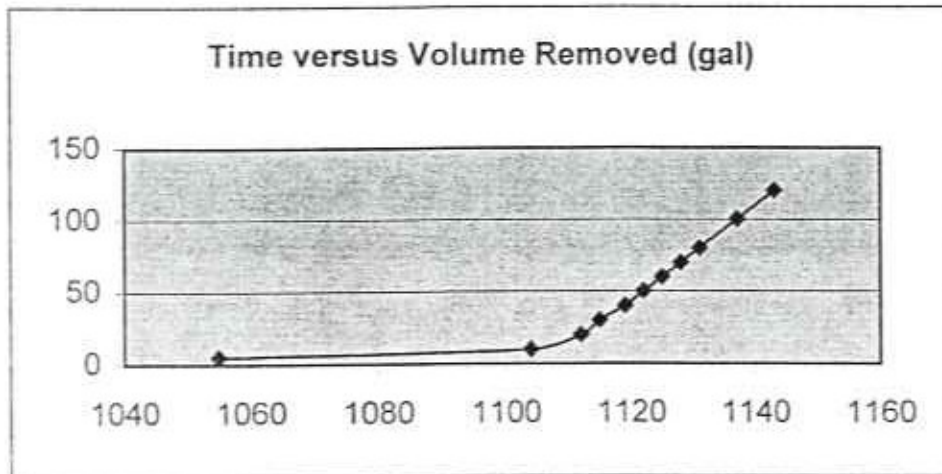


# Development Log

Well ID: **FA-3**  
 Casing Diameter: 2-inch  
 Depth to Water: 15  
 Well Volume: Not recorded  
 Purge Volume: 120 gallons

Purge method: Bailer  
 Pump/Bailer Type: 2" stainless steel  
 Date: 8/12/99

Time	Volume Removed (Gallons)	Temperature (Degree F)	pH	Conductivity (microS/mS)
1055	5	78.4	8.06	1.75
1104	10	76.2	8.43	1.45
1112	20	75.6	8.53	1.17
1115	30	75.2	8.32	1.02
1119	40	74.8	8.24	0.991
1122	50	73.9	8.18	0.96
1125	60	74.2	8.12	0.982
1128	70	74.3	7.93	0.982
1131	80	74.5	7.88	1.08
1137	100	74.1	7.52	0.925
1143	120	74.9	7.55	0.889

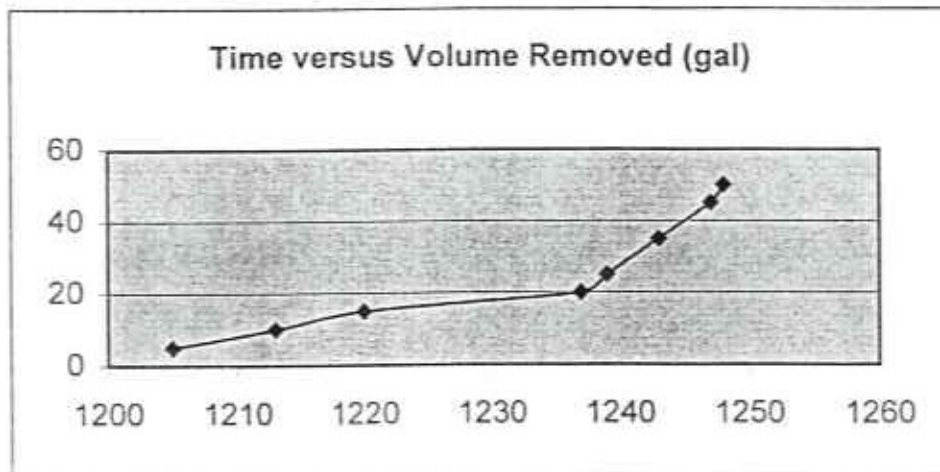


# Development Log

Well ID: **FA-4**  
Casing Diameter: 2-inch  
Depth to Water: 7.06  
Well Volume: 1.84 gallons  
Purge Volume: 50 gallons

Purge method: Bailer & Pump  
Pump/Bailer Type: Grundfos & 2" bailer  
Date: 10/14/99

Time	Volume Removed (Gallons)	Temperature (Degree F)	pH	Conductivity (microS/mS)
1205	5	77.7	6.98	1.68
1213	10	74.4	6.97	0.778
1220	15	73.4	6.9	0.705
1237	20	74	6.69	0.679
1239	25	72.7	6.58	0.56
1243	35	73	6.74	0.592
1247	45	73.7	7.11	0.599
1248	50	73.9	7.02	0.59

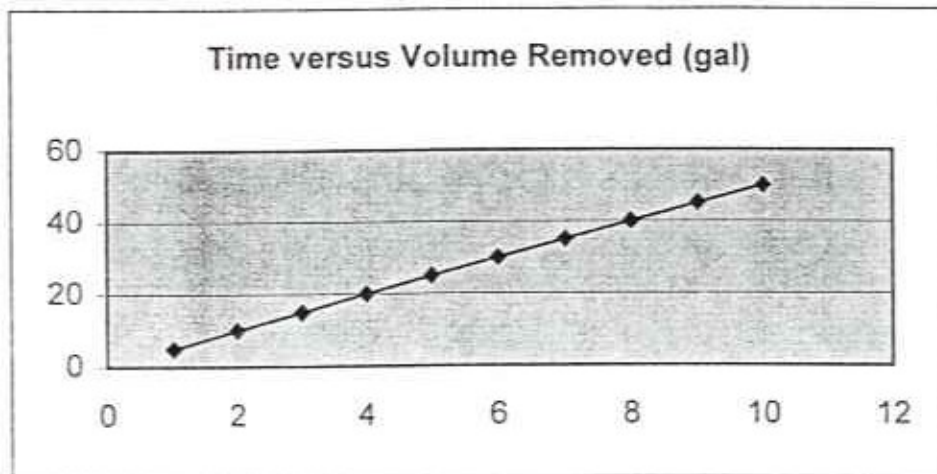


# Development Log

Well ID: FA-5  
Casing Diameter: 2-inch  
Depth to Water: 11  
Well Volume: 1.97 gallons  
Purge Volume: 50 gallons

Purge method: Bailer & Pump  
Pump/Bailer Type: Grundfos & 2" bailer  
Date: 10/14/99

Time	Volume Removed (Gallons)	Temperature (Degree F)	pH	Conductivity (microS/mS)
925	5	68.3	6.35	2.45
936	10	69.4	6.84	1.35
1004	15	72.6	6.85	1.34
1006	20	71	6.54	0.95
1009	25	70.5	6.41	0.862
1011	30	70.2	6.4	0.805
1013	35	70.1	6.39	0.814
1015	40	69.9	6.4	0.83
1016	45	69.9	6.47	0.806
	50	69.9	6.35	0.772

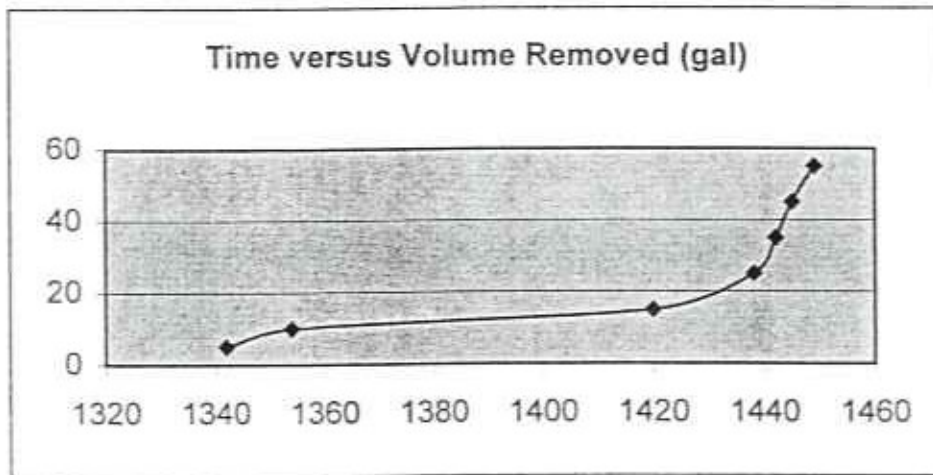


# Development Log

Well ID: FA-6  
Casing Diameter: 2-inch  
Depth to Water: 10.34  
Well Volume: 1.65 gallons  
Purge Volume: 55 gallons

Purge method: Bailer & Pump  
Pump/Bailer Type: Grundfos & 2" bailer  
Date: 10/14/99

Time	Volume Removed (Gallons)	Temperature (Degree F)	pH	Conductivity (microS/mS)
1342	5	80.6	6.65	1
1354	10	76.5	6.8	0.609
1420	15	78.3	6.96	0.658
1438	25	79.2	6.68	0.596
1442	35	76.7	6.23	0.51
1445	45	76	6.42	0.504
1449	55	75.7	6.45	0.513

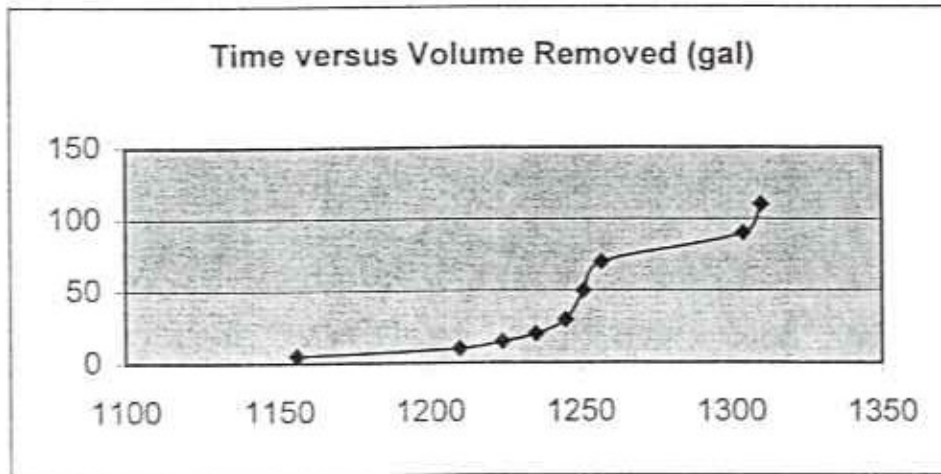


# Development Log

Well ID: FA-7  
Casing Diameter: 2-inch  
Depth to Water: 10.28  
Well Volume: 3.60 gallons  
Purge Volume: 110 gallons

Purge method: Bailer & Pump  
Pump/Bailer Type: Grundfos & 2" bailer  
Date: 10/20/99

Time	Volume Removed (Gallons)	Temperature (Degree F)	pH	Conductivity (microS/mS)
1156	5	75.4	5.76	1.53
1210	10	71.6	6.44	2.25
1224	15	71	6.7	1.62
1235	20	72	6.72	1.4
1245	30	71.4	5.4	1.27
1251	50	69.5	6.12	0.937
1257	70	69.5	6.14	0.945
1304	90	69.2	6.33	0.946
1310	110	68.2	6.37	0.828

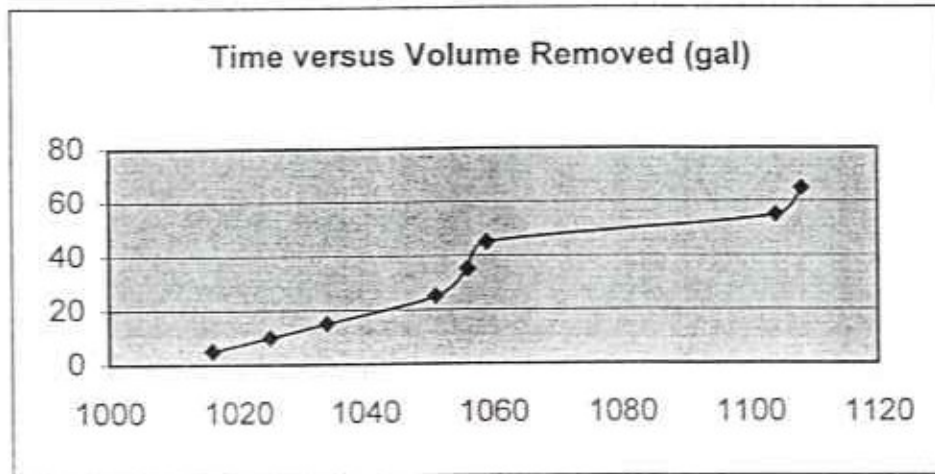


## Development Log

Well ID: **FA-8**  
 Casing Diameter: 2-inch  
 Depth to Water: 9.77  
 Well Volume: 3.37 gallons  
 Purge Volume: 65 gallons

Purge method: Bailer & Pump  
 Pump/Bailer Type: Grundfos & 2" bailer  
 Date: 10/15/99

Time	Volume Removed (Gallons)	Temperature (Degree F)	pH	Conductivity (microS/mS)
1016	5	72.3	5.51	0.68
1025	10	70.9	5.88	0.64
1034	15	68.4	6.14	0.648
1051	25	72.5	6.38	0.843
1056	35	70.8	6.48	0.702
1059	45	70.7	6.55	0.809
1104	55	70.4	6.33	0.651
1108	65	70.3	6.4	0.652

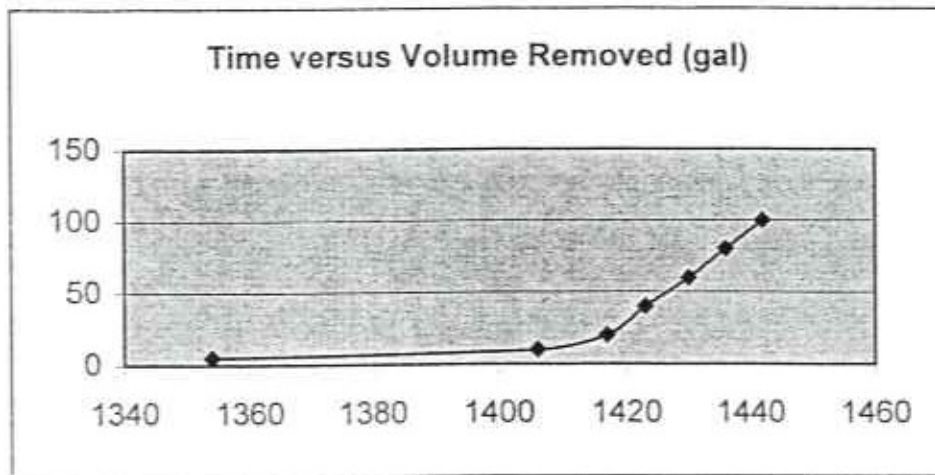


# Development Log

Well ID: FA-9  
Casing Diameter: 2-inch  
Depth to Water: 8.93  
Well Volume: 3.61 gallons  
Purge Volume: 100 gallons

Purge method: Bailer & Pump  
Pump/Bailer Type: Grundfos & 2" bailer  
Date: 10/20/99

Time	Volume Removed (Gallons)	Temperature (Degree F)	pH	Conductivity (microS/mS)
1354	5	71	5.92	2.1
1406	10	69.8	7.19	1.94
1417	20	72	7.54	1.78
1423	40	67.6	6.9	1.37
1430	60	66.2	6.58	1.35
1436	80	65.7	6.85	1.15
1442	100	65.6	6.8	1.1

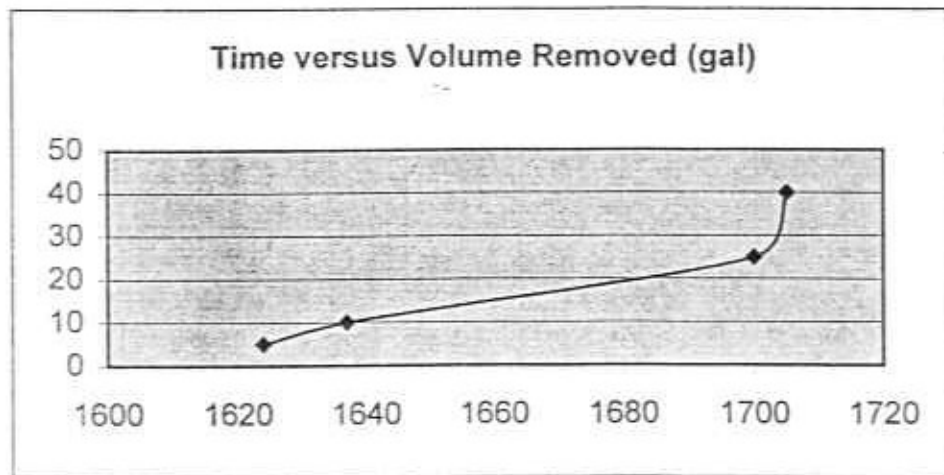


# Development Log

Well ID: **MA-1**  
 Casing Diameter: 2-inch  
 Depth to Water: 23.14  
 Well Volume: 2.03 gallons  
 Purge Volume: 90 gallons

Purge method: Bailer & Pump  
 Pump/Bailer Type: Grundfos & 2" bailer  
 Date: 10/20/99

Time	Volume Removed (Gallons)	Temperature (Degree F)	pH	Conductivity (microS/mS)
1624	5	85.4	7.34	3.78
1637	10	81.7	8.32	2.97
1700	25	89	8.76	2.4
1705	40	79	8.45	2.05
on 10/22/99	5	81.4	6.36	1.81
	10	80.9	8.04	1.84
	30	81.1	8.28	1.14
	50	82.6	8.16	0.954

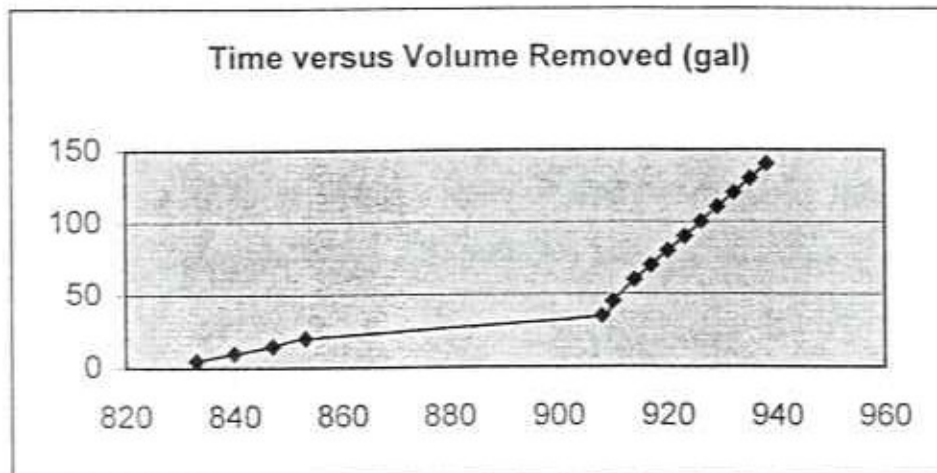


## Development Log

Well ID: **MA-2**  
 Casing Diameter: 2-inch  
 Depth to Water: 10.55  
 Well Volume: 3.63 gallons  
 Purge Volume: 140 gallons

Purge method: Bailer & Pump  
 Pump/Bailer Type: Grundfos & 2" bailer  
 Date: 10/20/99

Time	Volume Removed (Gallons)	Temperature (Degree F)	pH	Conductivity (microS/mS)
833	5	74.8	8.1	1.35
840	10	74.9	8.37	1.01
847	15	74.7	7.96	0.984
853	20	75.6	7.72	0.957
908	35	75.5	7.43	0.82
910	45	76.1	7.16	0.795
914	60	76.4	6.97	0.744
917	70	76.4	7	0.767
920	80	76.8	6.95	0.735
923	90	76.7	7.02	0.718
926	100	76.7	6.94	0.734
929	110	77	6.85	0.705
932	120	76.9	6.84	0.646
935	130	76.7	6.83	0.662
938	140	76.7	6.81	0.668

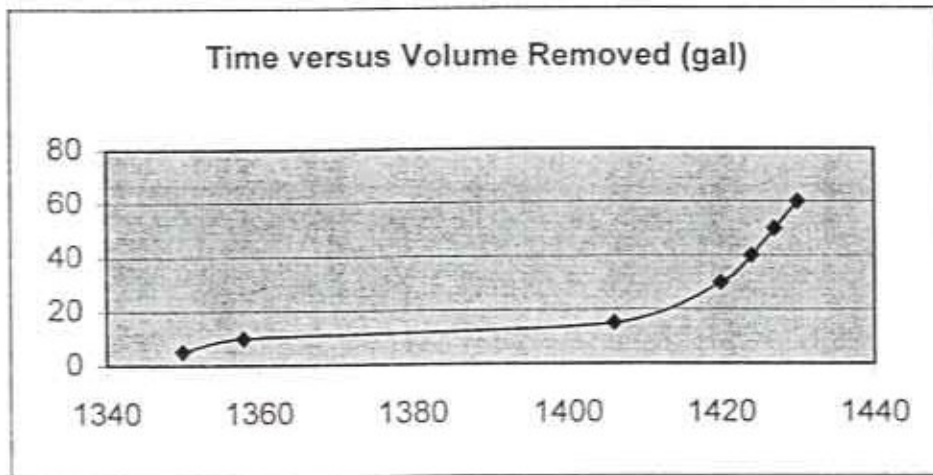


# Development Log

Well ID: MA-3  
Casing Diameter: 2-inch  
Depth to Water: 11.05  
Well Volume: 4.21 gallons  
Purge Volume: 60 gallons

Purge method: Bailer & Pump  
Pump/Bailer Type: Grundfos & 2" bailer  
Date: 10/15/99

Time	Volume Removed (Gallons)	Temperature (Degree F)	pH	Conductivity (microS/mS)
1350	5	73.6	5.84	0.832
1358	10	71.4	6.71	0.737
1406	15	69.8	6.52	0.631
1420	30	70.2	7.19	0.654
1424	40	67.6	6.43	0.564
1427	50	67.2	6.49	0.545
1430	60	66.3	6.49	0.536



# Development Log

Well ID: MA-4  
Casing Diameter: 2-inch  
Depth to Water: 13.34  
Well Volume: 2.16 gallons  
Purge Volume: 60 gallons

Purge method: Bailer & Pump  
Pump/Bailer Type: Grundfos & 2" bailer  
Date: 10/15/99

Time	Volume Removed (Gallons)	Temperature (Degree F)	pH	Conductivity (microS/mS)
1146	5	71.1	7	1.09
1154	10	68.7	6.91	0.667
1203	15	64.8	7.1	0.708
1209	20	64.5	7.06	0.85
1240	30	69.9	7.69	0.711
1245	40	68.7	6.69	0.532
1248	50	68.8	6.77	0.563
1253	60	68	6.89	0.565

