Appendix A: Hydrologic Data

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A.3 Groundwater Level Data for CY 2009

A.4 Groundwater Hydrographs
- A.4.1 Hydrographs for Manually Collected Water Level Data
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Appendix A: Hydrologic Data

A.1 Surface-Water Discharge Data

This section includes mean daily discharge tables and hydrographs by monitoring location and calendar year.

A.1.1 GS01: Woman Creek at Indiana Street

Table A–1. CY 2009 Discharge Summary for GS01: Woman Creek at Indiana Street

Calendar Year 2009: Daily Mean Discharge Values in Cubic Feet per Second

Day	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09
1	0.000	0.014	0.022	0.385	0.566	0.544	0.008	0.000	0.000	0.000	0.447	0.266
2	0.000	0.009	0.021	0.347	0.539	4.982	0.008	0.000	0.000	0.000	0.990	0.266
3	0.000	0.012	0.018	0.498	0.526	3.337	0.005	0.000	0.000	0.000	0.579	*0.244*
4	*0.000*	0.012	0.016	0.589	0.529	1.504	0.042	0.000	0.000	0.000	0.386	*0.238*
5	0.016	0.011	0.014	0.500	0.425	0.513	0.015	0.000	0.000	0.000	0.268	*0.206*
6	0.022	0.018	0.013	0.444	0.325	0.297	0.008	0.000	0.000	0.000	0.183	WR
7	0.003	0.037	0.013	0.441	0.239	0.194	0.002	0.000	0.000	0.000	0.133	WR
8	0.000	0.042	0.013	0.304	0.165	0.193	0.000	0.000	0.000	0.000	0.101	WR
9	*0.000*	0.042	0.012	0.197	0.130	0.191	0.000	0.000	0.000	0.000	0.078	WR
10	*0.001*	0.034	0.012	0.137	0.175	0.178	0.000	0.000	0.000	0.000	0.072	WR
11	0.001	0.032	0.011	0.115	0.302	0.233	0.000	0.000	0.000	0.000	0.141	WR
12	*0.001*	0.031	0.009	0.093	0.264	0.547	0.000	0.000	0.000	0.000	0.181	WR
13	*0.002*	0.032	0.008	0.086	0.165	0.433	0.000	0.000	0.000	0.000	0.183	0.292
14	0.002	0.042	0.012	0.087	0.116	0.361	0.000	0.000	0.000	0.000	0.226	0.294
15	0.004	0.038	0.006	0.075	0.081	0.275	0.000	0.000	0.000	0.000	0.297	*0.258*
16	0.006	0.045	0.005	0.086	0.060	0.192	0.000	0.000	0.000	0.000	0.334	0.276
17	0.028	0.031	0.004	0.716	0.040	0.135	0.000	0.000	0.000	0.000	0.393	0.346
18	0.053	0.024	0.003	3.306	0.028	0.076	0.000	0.000	0.000	0.000	0.543	0.359
19	0.058	0.023	0.003	9.117	0.015	0.035	0.000	0.000	0.000	0.000	0.589	*0.303*
20	0.061	0.026	0.003	*22.598*	0.010	0.010	0.000	0.000	0.000	0.000	0.514	0.286
21	0.060	0.037	0.002	7.205	0.007	0.010	0.000	0.000	0.000	0.000	0.483	0.311
22	0.061	0.026	0.001	2.147	0.005	0.005	0.000	0.000	0.000	0.000	0.486	0.320
23	0.078	0.024	0.001	1.234	0.011	0.005	0.000	0.000	0.000	0.000	0.422	0.306
24	0.073	0.026	0.000	0.818	0.150	0.310	0.000	0.000	0.000	0.000	0.349	WR
25	0.053	0.037	0.000	0.632	0.289	0.781	0.000	0.000	0.000	0.000	0.304	WR
26	*0.041*	0.035	0.001	0.592	3.417	0.290	0.000	0.000	0.000	0.000	0.308	WR
27	*0.033*	0.030	0.005	1.428	1.873	0.367	0.000	0.000	0.000	0.000	0.338	WR
28	*0.027*	0.025	0.008	2.576	1.093	0.134	0.000	0.000	0.000	0.000	0.322	WR
29	*0.022*	NA	0.249	1.131	1.262	0.038	0.000	0.000	0.000	0.000	0.295	WR
30	*0.018*	NA	0.943	0.713	1.910	0.010	0.000	0.000	0.000	0.000	0.274	0.295
31	*WR*	NA	0.520	NA	1.131	NA	0.002	0.000	NA	0.000	NA	*0.251*
	Partial Data											Partial Data

Flow Rate

Average	0.024	0.028	0.063	1.953	0.511	0.539	0.003	0.000	0.000	0.000	0.341	0.284
Maximum	0.078	0.045	0.943	22.598	3.417	4.982	0.042	0.000	0.000	0.000	0.990	0.359
Minimum	0.000	0.009	0.000	0.075	0.005	0.005	0.000	0.000	0.000	0.000	0.072	0.206
	Partial Data											Partial Data

Discharge

Cubic Feet	62468	68542	168205	5062791	1369534	1397879	7812	0	0	0	882904	441987
Gallons	467294	512734	1258259	37872308	10244823	10456859	58434	0	0	0	6604583	3306290
Acre-Feet	1.43	1.57	3.86	116.23	31.44	32.09	0.18	0.00	0.00	0.00	20.27	10.15
	Partial Data											Partial Data

Annual Summaries for CY09

Ft^3/Sec	0.312
GPM	140.0
Cubic Feet	9462121
Gallons	70781582
Acre-Feet	217.22
	Partial Data

KEY: WR: No data or unacceptable data due to winter icing conditions
BD: Bad data due to equipment failures
ITALICS: Italic values contain data estimated from field observations and electronic record at adjacent or comparable gages

A.1.2 GS03: Walnut Creek at Indiana Street

Table A–2. CY 2009 Discharge Summary for GS03: Walnut Creek at Indiana Street

Calendar Year 2009: Daily Mean Discharge Values in Cubic Feet per Second

Day	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09
1	*0.000*	0.000	0.000	0.000	0.006	1.592	0.000	0.000	*0.000*	*0.000*	0.000	0.000
2	*0.000*	0.000	0.000	0.000	0.005	2.756	0.000	0.000	*0.000*	*0.000*	0.000	0.000
3	*0.000*	0.000	0.000	0.000	0.006	2.724	0.000	0.000	*0.000*	*0.000*	0.000	0.000
4	*0.000*	0.000	0.000	0.000	0.003	1.680	0.000	0.000	*0.000*	*0.000*	0.000	0.000
5	*0.000*	0.000	0.000	0.000	*0.000*	0.978	0.000	0.000	*0.000*	*0.000*	0.000	0.000
6	*0.000*	0.000	0.000	0.000	0.000	0.392	0.000	*0.000*	*0.000*	*0.000*	0.000	0.000
7	0.000	0.000	0.000	0.000	0.000	0.045	0.000	*0.000*	*0.000*	0.000	0.000	0.000
8	*0.000*	0.000	0.000	0.000	0.000	0.033	0.000	*0.000*	*0.000*	0.000	0.000	0.000
9	0.000	0.000	0.000	0.000	0.000	0.029	0.000	*0.000*	*0.000*	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.019	0.031	0.000	*0.000*	*0.000*	0.000	0.000	0.000
11	0.000	0.000	0.000	0.000	0.020	0.031	0.000	*0.000*	*0.000*	0.000	0.000	0.000
12	0.000	0.000	0.000	0.000	0.017	0.049	0.000	*0.000*	*0.000*	0.000	0.000	0.000
13	0.000	0.000	0.000	0.000	0.009	0.014	0.000	*0.000*	*0.000*	0.000	0.000	0.567
14	0.000	0.000	0.000	0.000	0.005	0.011	0.000	*0.000*	*0.000*	0.000	0.000	1.386
15	0.000	0.000	0.000	0.000	0.001	0.012	0.000	*0.000*	*0.000*	0.000	0.000	1.447
16	0.000	0.000	0.000	0.000	0.000	0.009	0.000	*0.000*	*0.000*	0.000	0.000	0.986
17	0.000	0.000	0.000	0.000	0.000	0.007	0.000	*0.000*	*0.000*	0.000	0.000	1.626
18	0.000	0.000	0.000	BD	0.000	0.008	0.000	*0.000*	*0.000*	0.000	0.000	1.414
19	0.000	0.000	0.000	BD	0.018	0.008	0.000	*0.000*	*0.000*	0.000	0.000	1.482
20	0.000	0.000	0.000	11.120	1.013	0.010	0.000	*0.000*	*0.000*	0.000	0.000	1.095
21	0.000	0.000	0.000	2.472	1.176	0.012	0.000	*0.000*	*0.000*	0.000	0.000	0.624
22	0.000	0.000	0.000	0.424	1.158	0.008	0.000	*0.000*	*0.000*	0.000	0.000	*0.021*
23	0.000	0.000	0.000	0.099	1.694	0.004	0.000	*0.000*	*0.000*	0.000	0.000	*0.010*
24	0.000	0.000	0.000	0.009	2.599	0.010	0.000	*0.000*	*0.000*	0.000	0.000	*0.005*
25	0.000	0.000	0.000	0.000	2.813	0.003	0.000	*0.000*	*0.000*	0.000	0.000	*0.000*
26	0.000	0.000	0.000	0.000	3.203	0.003	0.000	*0.000*	*0.000*	0.000	0.000	*0.000*
27	0.000	0.000	0.000	0.215	2.724	0.001	0.000	*0.000*	*0.000*	0.000	0.000	*0.000*
28	0.000	0.000	0.000	0.609	2.380	0.001	0.000	*0.000*	*0.000*	0.000	0.000	*0.000*
29	0.000	NA	0.000	0.124	2.081	0.000	0.000	*0.000*	*0.000*	0.000	0.000	*0.010*
30	0.000	NA	0.000	0.012	2.000	0.000	0.000	*0.000*	*0.000*	0.000	0.000	*0.014*
31	0.000	NA	0.000	NA	1.864	NA	0.000	*0.000*	NA	0.000	NA	*0.000*

Partial Data

Flow Rate

Average	0.000	0.000	0.000	0.539	0.800	0.349	0.000	0.000	0.000	0.000	0.000	0.345
Maximum	0.000	0.000	0.000	11.120	3.203	2.756	0.000	0.000	0.000	0.000	0.000	1.626
Minimum	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Partial Data

Discharge

Cubic Feet	0	0	0	1303324	2143819	904011	0	0	0	0	0	923421
Gallons	0	0	0	9749538	16036883	6762473	0	0	0	0	0	6907670
Acre-Feet	0.00	0.00	0.00	29.92	49.22	20.75	0.00	0.00	0.00	0.00	0.00	21.20

Partial Data

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Ft^3/Sec	0.168
GPM	75.5
Cubic Feet	5274575
Gallons	39456563
Acre-Feet	121.09

Partial Data

KEY: WR: No data or unacceptable data due to winter icing conditions
BD: Bad data due to equipment failures
ITALICS: Italic values contain data estimated from field observations and electronic record at adjacent or comparable gages

A.1.3 GS05: Woman Creek at West Fenceline

Table A–3. CY 2009 Discharge Summary for GS05: Woman Creek at West Fenceline

Calendar Year 2009: Daily Mean Discharge Values in Cubic Feet per Second

Day	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09
1	WR	0.016	0.016	0.065	0.168	0.059	0.015	0.016	0.000	0.000	0.690	0.217
2	WR	0.016	0.014	0.128	0.180	2.377	0.042	0.008	0.000	0.001	0.581	0.219
3	0.011	0.026	0.012	0.143	0.204	0.699	0.033	0.001	0.000	0.039	0.402	0.187
4	0.003	0.036	0.012	0.165	0.175	0.227	0.037	0.000	0.000	0.054	0.194	0.086
5	WR	0.034	0.011	0.159	0.092	0.133	0.050	0.000	0.000	0.087	0.149	WR
6	WR	0.033	0.012	0.214	0.069	0.098	0.031	0.000	0.000	0.068	0.128	WR
7	WR	0.033	0.013	0.122	0.054	0.111	0.029	0.008	0.000	0.068	0.088	WR
8	0.015	0.034	0.013	0.073	0.049	0.140	0.025	0.001	0.000	0.076	0.078	WR
9	*0.010*	0.045	0.015	0.046	0.067	0.179	0.021	0.000	0.000	0.060	*0.107*	WR
10	*0.014*	*0.028*	0.018	0.043	0.119	0.264	0.024	0.000	0.000	0.055	*0.215*	WR
11	0.031	*0.031*	0.019	0.041	0.127	0.314	0.020	0.000	0.000	0.054	*0.212*	WR
12	0.014	0.048	0.020	0.049	0.075	0.423	0.057	0.000	0.000	0.051	*0.219*	WR
13	0.027	0.027	0.018	0.043	0.056	0.364	0.044	0.000	0.071	0.052	*0.242*	WR
14	0.019	0.028	0.016	0.037	0.057	0.282	0.025	0.000	0.024	0.051	*0.253*	0.136
15	0.020	0.022	0.016	0.037	0.053	0.271	0.020	0.000	0.014	0.049	*0.269*	*0.186*
16	0.028	0.028	0.014	0.081	0.053	0.232	0.019	0.000	0.007	0.050	*0.280*	0.224
17	0.027	0.027	0.013	0.206	0.048	0.190	0.016	0.000	0.003	0.028	*0.352*	0.238
18	0.026	0.018	0.013	1.065	0.041	0.096	0.018	0.000	0.002	0.024	*0.401*	0.202
19	0.028	0.020	0.014	4.821	0.033	0.082	0.018	0.000	0.001	0.024	*0.353*	0.236
20	0.026	0.018	0.014	*9.432*	0.027	0.068	0.013	0.000	0.000	0.025	*0.332*	0.207
21	0.029	0.024	0.014	1.496	0.038	0.073	0.035	0.000	0.001	0.090	*0.324*	0.202
22	0.028	0.018	0.018	0.484	0.040	0.066	0.018	0.000	0.017	0.117	*0.303*	0.192
23	0.023	0.021	0.016	0.362	0.047	0.064	0.011	0.000	0.017	0.143	*0.264*	0.186
24	0.018	0.019	0.014	0.256	0.098	0.131	0.001	0.000	0.018	0.260	*0.245*	0.232
25	*0.014*	0.016	0.014	0.240	0.122	0.067	0.001	0.000	0.017	0.282	0.244	0.112
26	WR	0.015	*0.025*	0.236	0.840	0.137	0.000	0.000	0.016	0.286	0.249	0.114
27	WR	0.013	0.039	1.215	0.176	0.065	0.000	0.000	0.009	0.303	0.240	0.112
28	WR	0.019	0.064	0.590	0.077	0.038	0.001	0.000	0.002	0.323	0.213	0.095
29	WR	NA	0.219	0.284	0.059	0.019	0.042	0.000	0.001	0.309	0.209	0.090
30	WR	NA	*0.150*	0.205	0.057	0.016	0.066	0.000	0.001	0.377	0.213	0.115
31	WR	NA	0.101	NA	0.056	NA	0.030	0.000	NA	0.538	NA	0.178
	Partial Data											Partial Data

Flow Rate

	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09
Average	0.021	0.025	0.031	0.745	0.108	0.243	0.025	0.001	0.007	0.127	0.268	0.171
Maximum	0.031	0.048	0.219	9.432	0.840	2.377	0.066	0.016	0.071	0.538	0.690	0.238
Minimum	0.003	0.013	0.011	0.037	0.027	0.016	0.000	0.000	0.000	0.000	0.078	0.086
	Partial Data											Partial Data

Discharge

	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09
Cubic Feet	35583	61670	83418	1930195	290078	629328	66110	2973	19260	340761	695458	325446
Gallons	266179	461321	624008	14438860	2169933	4707702	494535	22241	144077	2549073	5202390	2434504
Acre-Feet	0.82	1.42	1.92	44.31	6.66	14.45	1.52	0.07	0.44	7.82	15.97	7.47
	Partial Data											Partial Data

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Ft^3/Sec	0.150
GPM	67.5
Cubic Feet	4480280
Gallons	33514821
Acre-Feet	102.85
	Partial Data

KEY: WR: No data or unacceptable data due to winter icing conditions
BD: Bad data due to equipment failures
ITALICS: Italic values contain data estimated from field observations and electronic record at adjacent or comparable gages

A.1.4 GS08: South Walnut Creek at Pond B-5 Outlet

Table A–4. CY 2009 Discharge Summary for GS08: South Walnut Creek at Pond B-5 Outlet

Calendar Year 2009: Daily Mean Discharge Values in Cubic Feet per Second

Day	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09
1	0.000	0.000	0.000	0.000	0.000	0.669	0.000	0.000	0.000	0.000	0.000	0.000
2	0.000	0.000	0.000	0.000	0.000	1.003	0.000	0.000	0.000	0.000	0.000	0.000
3	0.000	0.000	0.000	0.000	0.000	0.989	0.000	0.000	0.000	0.000	0.000	0.000
4	0.000	0.000	0.000	0.000	0.000	0.721	0.000	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000	0.624	0.000	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000	0.280	0.000	0.000	0.000	0.000	0.000	0.000
7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
11	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
13	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
14	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
16	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
19	0.000	0.000	0.000	0.000	0.751	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	0.000	1.383	0.000	0.000	0.000	0.000	0.000	0.000	0.000
21	0.000	0.000	0.000	0.000	1.445	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22	0.000	0.000	0.000	0.000	1.365	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23	0.000	0.000	0.000	0.000	1.332	0.000	0.000	0.000	0.000	0.000	0.000	0.000
24	0.000	0.000	0.000	0.000	1.319	0.000	0.000	0.000	0.000	0.000	0.000	0.000
25	0.000	0.000	0.000	0.000	1.345	0.000	0.000	0.000	0.000	0.000	0.000	0.000
26	0.000	0.000	0.000	0.000	1.278	0.000	0.000	0.000	0.000	0.000	0.000	0.000
27	0.000	0.000	0.000	0.000	1.161	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28	0.000	0.000	0.000	0.000	1.061	0.000	0.000	0.000	0.000	0.000	0.000	0.000
29	0.000	NA	0.000	0.000	0.929	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30	0.000	NA	0.000	0.000	0.958	0.000	0.000	0.000	0.000	0.000	0.000	0.000
31	0.000	NA	0.000	NA	0.920	NA	0.000	0.000	NA	0.000	NA	0.000

Flow Rate

Average	0.000	0.000	0.000	0.000	0.492	0.143	0.000	0.000	0.000	0.000	0.000	0.000
Maximum	0.000	0.000	0.000	0.000	1.445	1.003	0.000	0.000	0.000	0.000	0.000	0.000
Minimum	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Discharge

Cubic Feet	0	0	0	0	1317402	370257	0	0	0	0	0	0
Gallons	0	0	0	0	9854854	2769714	0	0	0	0	0	0
Acre-Feet	0.00	0.00	0.00	0.00	30.24	8.50	0.00	0.00	0.00	0.00	0.00	0.00

Annual Summaries for CY09

Ft^3/Sec	0.054
GPM	24.0
Cubic Feet	1687659
Gallons	12624568
Acre-Feet	38.74

KEY: WR: No data or unacceptable data due to winter icing conditions
BD: Bad data due to equipment failures
ITALICS: Italic values contain data estimated from field observations and electronic record at adjacent or comparable gages

A.1.5 GS10: South Walnut Creek at B-1 Bypass

Table A–5. CY 2009 Discharge Summary for GS10: South Walnut Creek at B-1 Bypass

Calendar Year 2009: Daily Mean Discharge Values in Cubic Feet per Second

Day	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09
1	0.013	0.008	0.007	0.028	0.087	0.126	0.047	0.016	*0.014*	0.008	0.194	0.028
2	0.016	0.009	0.008	0.029	0.089	0.673	0.049	0.013	*0.014*	0.008	0.091	0.021
3	0.009	0.008	0.009	0.031	0.091	0.293	0.057	0.011	*0.016*	0.008	0.076	0.018
4	0.005	0.010	0.009	0.043	0.105	0.166	0.097	0.013	*0.016*	0.009	0.061	0.017
5	0.011	0.010	0.008	0.028	0.081	0.137	0.068	0.015	*0.012*	0.019	0.053	0.023
6	0.014	0.010	0.008	0.026	0.074	0.124	0.070	0.033	*0.011*	0.016	0.056	0.020
7	0.012	0.009	0.008	0.028	0.069	0.121	0.049	0.026	*0.014*	0.010	0.049	0.019
8	0.014	0.008	0.009	0.024	0.065	0.120	0.044	0.012	*0.013*	0.014	0.043	0.022
9	0.011	0.011	0.008	0.020	0.063	0.114	0.037	0.010	*0.015*	0.014	*0.040*	0.005
10	0.008	0.007	0.007	0.018	0.088	0.115	0.038	0.009	*0.015*	0.011	*0.037*	*0.000*
11	0.009	0.007	0.007	0.018	0.094	0.129	0.037	0.008	*0.015*	0.012	*0.038*	*0.000*
12	0.007	0.008	0.007	0.019	0.071	0.188	0.039	0.008	*0.015*	0.013	*0.038*	*0.000*
13	0.009	0.008	0.008	0.022	0.060	0.118	0.043	*0.010*	*0.031*	0.014	*0.038*	0.009
14	0.010	0.006	0.008	0.018	0.056	0.108	0.036	*0.013*	*0.032*	0.014	*0.038*	*0.028*
15	0.012	0.007	0.009	0.014	0.056	0.089	0.025	*0.011*	*0.014*	0.014	*0.038*	*0.027*
16	0.018	0.009	0.009	0.014	0.055	0.060	0.026	*0.012*	*0.012*	0.014	*0.038*	*0.031*
17	0.018	0.011	0.008	0.063	0.054	0.053	0.026	*0.012*	*0.013*	0.014	*0.049*	0.038
18	0.016	0.008	0.008	0.474	0.051	0.051	0.028	*0.015*	*0.012*	0.016	0.062	0.027
19	0.016	0.008	0.008	*5.374*	0.051	0.050	0.032	*0.017*	*0.014*	0.016	0.058	0.022
20	0.015	0.008	0.009	2.733	0.054	0.051	0.037	*0.014*	*0.012*	0.016	0.046	0.027
21	0.014	0.007	0.009	0.479	0.062	0.054	0.067	*0.014*	*0.012*	0.045	0.045	0.029
22	0.014	0.007	0.009	0.173	0.072	0.048	0.021	*0.014*	*0.013*	0.027	0.042	0.026
23	0.013	0.008	0.009	0.113	0.084	0.044	0.016	*0.015*	*0.011*	0.020	0.036	0.023
24	0.009	0.009	0.008	0.091	0.215	0.082	0.013	*0.016*	*0.013*	0.020	0.029	0.021
25	0.006	0.008	0.008	0.083	0.139	0.074	0.012	*0.017*	*0.012*	0.017	*0.030*	0.021
26	0.003	0.011	0.008	0.081	0.591	0.090	0.019	*0.016*	*0.009*	0.019	0.031	0.022
27	0.000	0.007	0.009	0.257	0.173	0.079	0.018	*0.014*	0.006	0.019	0.032	0.021
28	0.000	0.006	0.018	0.183	0.126	0.051	0.022	*0.009*	0.006	0.033	0.032	0.018
29	0.000	NA	0.082	0.116	0.115	0.050	0.026	*0.008*	0.006	0.032	0.029	0.019
30	0.004	NA	0.060	0.094	0.118	0.046	0.046	*0.011*	0.007	0.042	*0.029*	0.022
31	0.009	NA	0.034	NA	0.123	NA	0.026	*0.014*	NA	0.098	NA	0.020

Flow Rate

Average	0.010	0.008	0.013	0.356	0.104	0.117	0.038	0.014	0.014	0.020	0.049	0.020
Maximum	0.018	0.011	0.082	5.374	0.591	0.673	0.097	0.033	0.032	0.098	0.194	0.038
Minimum	0.000	0.006	0.007	0.014	0.051	0.044	0.012	0.008	0.006	0.008	0.029	0.000

Discharge

Cubic Feet	27178	20284	36137	923810	279131	302834	101168	36948	35050	54723	127719	53687
Gallons	203304	151736	270322	6910579	2088047	2265358	756788	276391	262195	409360	955402	401608
Acre-Feet	0.62	0.47	0.83	21.21	6.41	6.95	2.32	0.85	0.80	1.26	2.93	1.23

Annual Summaries for CY09

Ft^3/Sec	0.063
GPM	28.4
Cubic Feet	1998670
Gallons	14951089
Acre-Feet	45.88

KEY: WR: No data or unacceptable data due to winter icing conditions
BD: Bad data due to equipment failures
ITALICS: Italic values contain data estimated from field observations and electronic record at adjacent or comparable gages

A.1.6 GS11: North Walnut Creek at Pond A-4 Outlet

Table A–6. CY 2009 Discharge Summary for GS11: North Walnut Creek at Pond A-4 Outlet

Calendar Year 2009: Daily Mean Discharge Values in Cubic Feet per Second

Day	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09
1	0.000	0.000	0.000	0.000	0.000	0.935	0.000	0.000	0.000	0.000	0.000	0.000
2	0.000	0.000	0.000	0.000	0.000	0.991	0.000	0.000	0.000	0.000	0.000	0.000
3	0.000	0.000	0.000	0.000	0.000	0.881	0.000	0.000	0.000	0.000	0.000	0.000
4	0.000	0.000	0.000	0.000	0.000	0.717	0.000	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000	0.235	0.000	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
11	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.579
13	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.472
14	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.441
15	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.385
16	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.983
17	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.375
18	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.259
19	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.249
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.981
21	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.367
22	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23	0.000	0.000	0.000	0.000	0.598	0.000	0.000	0.000	0.000	0.000	0.000	0.000
24	0.000	0.000	0.000	0.000	1.213	0.000	0.000	0.000	0.000	0.000	0.000	0.000
25	0.000	0.000	0.000	0.000	1.407	0.000	0.000	0.000	0.000	0.000	0.000	0.000
26	0.000	0.000	0.000	0.000	1.387	0.000	0.000	0.000	0.000	0.000	0.000	0.000
27	0.000	0.000	0.000	0.000	1.321	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28	0.000	0.000	0.000	0.000	1.208	0.000	0.000	0.000	0.000	0.000	0.000	0.000
29	0.000	NA	0.000	0.000	1.111	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30	0.000	NA	0.000	0.000	1.052	0.000	0.000	0.000	0.000	0.000	0.000	0.000
31	0.000	NA	0.000	NA	1.016	NA	0.000	0.000	NA	0.000	NA	0.000

Flow Rate

Average	0.000	0.000	0.000	0.000	0.333	0.125	0.000	0.000	0.000	0.000	0.000	0.358
Maximum	0.000	0.000	0.000	0.000	1.407	0.991	0.000	0.000	0.000	0.000	0.000	1.472
Minimum	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Discharge

Cubic Feet	0	0	0	0	891065	324794	0	0	0	0	0	958271
Gallons	0	0	0	0	6665626	2429624	0	0	0	0	0	7168366
Acre-Feet	0.00	0.00	0.00	0.00	20.46	7.46	0.00	0.00	0.00	0.00	0.00	22.00

Annual Summaries for CY09

Ft^3/Sec	0.069
GPM	30.9
Cubic Feet	2174129
Gallons	16263617
Acre-Feet	49.91

KEY: WR: No data or unacceptable data due to winter icing conditions
BD: Bad data due to equipment failures
ITALICS: Italic values contain data estimated from field observations and electronic record at adjacent or comparable gages

A.1.7 GS12: North Walnut Creek at Pond A-3 Outlet

Table A–7. CY 2009 Discharge Summary for GS12: North Walnut Creek at Pond A-3 Outlet

Calendar Year 2009: Daily Mean Discharge Values in Cubic Feet per Second

Day	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000	0.729	0.000	0.000	0.000	0.000	0.138	0.000
7	0.000	0.000	0.000	0.000	0.000	1.049	0.000	0.000	0.000	0.000	0.205	0.000
8	0.000	0.000	0.000	0.000	0.000	1.114	0.000	0.000	0.000	0.000	0.181	0.000
9	0.000	0.000	0.000	0.000	0.000	0.877	0.000	0.000	0.000	0.000	0.635	0.000
10	0.000	0.000	0.000	0.000	0.000	0.926	0.000	0.000	0.000	0.000	0.990	0.000
11	0.000	0.000	0.000	0.000	0.000	0.802	0.000	0.000	0.000	0.000	0.448	0.000
12	0.000	0.000	0.000	0.000	0.000	0.651	0.000	0.000	0.000	0.000	0.000	0.000
13	0.000	0.000	0.000	0.000	0.000	0.561	0.000	0.000	0.000	0.000	0.000	0.000
14	0.000	0.000	0.000	0.000	0.000	0.481	0.000	0.000	0.000	0.000	0.000	0.000
15	0.000	0.000	0.000	0.000	0.000	0.466	0.000	0.000	0.000	0.000	0.000	0.000
16	0.000	0.000	0.000	0.000	0.000	0.775	0.000	0.000	0.000	0.000	0.000	0.000
17	0.000	0.000	0.000	0.000	0.000	0.740	0.000	0.000	0.000	0.000	0.000	0.000
18	0.000	0.000	0.000	0.000	0.000	0.587	0.000	0.000	0.000	0.000	0.445	0.000
19	0.000	0.000	0.000	0.000	0.000	0.337	0.000	0.000	0.000	0.000	0.346	0.000
20	0.000	0.000	0.000	1.729	0.000	0.347	0.000	0.000	0.000	0.000	0.000	0.000
21	0.000	0.000	0.000	4.077	0.000	0.365	0.000	0.000	0.000	0.000	0.000	0.000
22	0.000	0.000	0.000	3.400	0.000	0.469	0.000	0.000	0.000	0.000	0.000	0.000
23	0.000	0.000	0.000	1.946	0.000	0.322	0.000	0.000	0.000	0.000	0.000	0.000
24	0.000	0.000	0.000	1.401	0.000	0.315	0.000	0.000	0.000	0.000	0.000	0.000
25	0.000	0.000	0.000	1.225	0.000	0.585	0.000	0.000	0.000	0.000	0.000	0.000
26	0.000	0.000	0.000	1.199	0.000	0.802	0.000	0.000	0.000	0.000	0.000	0.000
27	0.000	0.000	0.000	1.076	0.000	0.757	0.000	0.000	0.000	0.000	0.000	0.000
28	0.000	0.000	0.000	1.057	0.000	0.764	0.000	0.000	0.000	0.000	0.000	0.000
29	0.000	NA	0.000	1.505	0.000	0.281	0.000	0.000	0.000	0.000	0.000	0.000
30	0.000	NA	0.000	0.985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
31	0.000	NA	0.000	NA	0.000	NA	0.000	0.000	NA	0.000	NA	0.000

Flow Rate

Average	0.000	0.000	0.000	0.653	0.000	0.504	0.000	0.000	0.000	0.000	0.113	0.000
Maximum	0.000	0.000	0.000	4.077	0.000	1.114	0.000	0.000	0.000	0.000	0.990	0.000
Minimum	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Discharge

Cubic Feet	0	0	0	1693449	0	1305107	0	0	0	0	292645	0
Gallons	0	0	0	12667877	0	9762882	0	0	0	0	2189141	0
Acre-Feet	0.00	0.00	0.00	38.88	0.00	29.96	0.00	0.00	0.00	0.00	6.72	0.00

Annual Summaries for CY09

Ft^3/Sec	0.104
GPM	46.8
Cubic Feet	3291202
Gallons	24619899
Acre-Feet	75.56

KEY: WR: No data or unacceptable data due to winter icing conditions
BD: Bad data due to equipment failures
ITALICS: Italic values contain data estimated from field observations and electronic record at adjacent or comparable gages

A.1.8 GS13: North Walnut Creek above Pond A-1

Table A–8. CY 2009 Discharge Summary for GS13: North Walnut Creek above Pond Pond A-1

Calendar Year 2009: Daily Mean Discharge Values in Cubic Feet per Second

Day	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09
1	*0.047*	0.035	0.036	0.098	0.282	0.088	0.038	0.052	0.000	0.000	0.491	*0.066*
2	0.052	0.036	0.037	0.133	0.280	*1.569*	0.034	0.041	0.000	0.000	0.236	*0.067*
3	0.055	0.035	0.036	0.194	0.310	*0.815*	0.049	0.033	0.000	0.000	0.163	*0.065*
4	0.043	0.035	0.036	0.373	0.351	0.578	0.115	0.031	0.000	0.000	0.146	*0.059*
5	0.036	0.037	0.036	0.155	0.243	0.363	0.092	0.030	0.000	0.000	0.113	*0.061*
6	0.034	0.039	0.035	0.156	0.186	0.244	0.122	0.033	0.000	0.000	0.099	*0.067*
7	0.032	0.037	0.035	0.093	0.153	0.194	0.061	0.039	0.000	0.000	0.082	*0.069*
8	0.039	0.036	0.036	0.065	0.130	0.196	0.044	0.035	0.000	0.000	0.070	*0.069*
9	0.052	0.038	0.032	0.048	0.114	0.173	0.034	0.021	0.000	0.000	0.063	*0.065*
10	0.046	0.037	0.032	0.040	0.185	0.177	0.030	0.020	0.000	0.000	0.061	*0.061*
11	0.040	0.036	0.030	0.039	0.239	0.255	0.027	0.019	0.000	0.000	0.060	0.062
12	0.037	0.035	0.030	0.039	0.172	*0.528*	0.027	0.015	0.000	0.000	0.061	*0.073*
13	0.037	0.040	0.030	0.047	0.119	0.273	0.027	0.014	0.000	0.000	0.058	*0.086*
14	0.039	0.040	0.029	0.046	0.090	0.240	0.026	0.015	0.000	0.000	0.070	*0.092*
15	0.045	0.039	0.029	0.039	0.080	0.185	0.026	0.015	0.000	0.000	0.110	0.077
16	0.058	0.039	0.030	0.045	0.075	0.167	0.025	0.016	0.000	0.000	0.196	0.091
17	0.078	0.041	0.030	0.383	0.072	0.135	0.025	0.015	0.000	0.000	0.345	0.149
18	0.069	0.042	0.028	2.090	0.063	0.112	0.026	0.017	0.000	0.000	0.298	0.119
19	0.064	0.038	0.028	*7.411*	0.054	0.093	0.029	0.017	0.000	0.000	0.200	0.084
20	0.070	0.037	0.028	*4.819*	0.044	0.085	0.033	0.013	0.000	0.000	0.147	0.080
21	0.062	0.036	0.028	1.751	0.042	0.097	*0.180*	0.008	0.000	0.005	0.135	0.106
22	0.058	0.036	0.028	0.824	0.057	0.077	*0.069*	0.001	0.000	*0.012*	0.130	0.100
23	0.054	0.038	0.028	0.469	0.071	0.066	*0.055*	0.000	0.000	*0.033*	0.098	0.090
24	0.051	0.044	0.028	0.360	0.316	*0.225*	*0.038*	0.000	0.000	*0.039*	0.076	0.097
25	0.045	0.046	0.028	0.309	0.184	*0.233*	*0.033*	0.000	0.000	*0.035*	0.073	0.088
26	0.040	0.043	0.032	0.290	*1.374*	0.333	*0.032*	0.000	0.000	*0.039*	0.080	0.088
27	*0.035*	0.040	0.050	0.997	0.452	0.247	*0.028*	0.000	0.000	0.048	0.085	0.087
28	*0.030*	0.037	0.120	0.853	0.215	0.103	*0.027*	0.000	0.000	0.103	0.077	0.081
29	*0.028*	NA	0.652	0.579	0.139	0.068	*0.028*	0.000	0.000	0.197	0.072	0.084
30	0.028	NA	0.292	0.336	0.106	0.048	*0.073*	0.000	0.000	0.408	0.066	0.089
31	0.031	NA	0.143	NA	0.093	NA	*0.111*	0.000	NA	0.700	NA	0.078

Flow Rate

Average	0.046	0.038	0.067	0.769	0.203	0.266	0.050	0.016	0.000	0.052	0.132	0.082
Maximum	0.078	0.046	0.652	7.411	1.374	1.569	0.180	0.052	0.000	0.700	0.491	0.149
Minimum	0.028	0.035	0.028	0.039	0.042	0.048	0.025	0.000	0.000	0.000	0.058	0.059

Discharge

Cubic Feet	124120	92624	179110	1994202	543684	688277	135055	43221	28	139691	342129	220066
Gallons	928481	692875	1339833	14917671	4067036	5148671	1010282	323316	208	1044964	2559305	1646209
Acre-Feet	2.85	2.13	4.11	45.78	12.48	15.80	3.10	0.99	0.00	3.21	7.85	5.05

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Ft^3/Sec	0.143
GPM	64.1
Cubic Feet	4502207
Gallons	33678849
Acre-Feet	103.36

KEY: WR: No data or unacceptable data due to winter icing conditions
BD: Bad data due to equipment failures
ITALICS: Italic values contain data estimated from field observations and electronic record at adjacent or comparable gages

A.1.9 GS31: Woman Creek at Pond C-2 Outlet

Table A–9. CY 2009 Discharge Summary for GS31: Woman Creek at Pond C-2 Outlet

Calendar Year 2009: Daily Mean Discharge Values in Cubic Feet per Second

Day	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09
1	0.000	0.000	0.000	0.000	0.000	0.657	0.000	0.000	0.000	0.000	0.000	0.000
2	0.000	0.000	0.000	0.000	0.000	0.917	0.000	0.000	0.000	0.000	0.000	0.000
3	0.000	0.000	0.000	0.000	0.000	1.022	0.000	0.000	0.000	0.000	0.000	0.000
4	0.000	0.000	0.000	0.000	0.000	0.434	0.000	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
11	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
13	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
14	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
16	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
19	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
21	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
24	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
25	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
26	0.000	0.000	0.000	0.000	0.547	0.000	0.000	0.000	0.000	0.000	0.000	0.000
27	0.000	0.000	0.000	0.000	0.989	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28	0.000	0.000	0.000	0.000	0.755	0.000	0.000	0.000	0.000	0.000	0.000	0.000
29	0.000	NA	0.000	0.000	0.312	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30	0.000	NA	0.000	0.000	0.933	0.000	0.000	0.000	0.000	0.000	0.000	0.000
31	0.000	NA	0.000	NA	0.924	NA	0.000	0.000	NA	0.000	NA	0.000

Flow Rate

Average	0.000	0.000	0.000	0.000	0.144	0.101	0.000	0.000	0.000	0.000	0.000	0.000
Maximum	0.000	0.000	0.000	0.000	0.989	1.022	0.000	0.000	0.000	0.000	0.000	0.000
Minimum	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Discharge

Cubic Feet	0	0	0	0	385231	261868	0	0	0	0	0	0
Gallons	0	0	0	0	2881731	1958906	0	0	0	0	0	0
Acre-Feet	0.00	0.00	0.00	0.00	8.84	6.01	0.00	0.00	0.00	0.00	0.00	0.00

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Ft^3/Sec	0.021
GPM	9.2
Cubic Feet	647099
Gallons	4840637
Acre-Feet	14.86

KEY: WR: No data or unacceptable data due to winter icing conditions
BD: Bad data due to equipment failures
ITALICS: Italic values contain data estimated from field observations and electronic record at adjacent or comparable gages

A.1.10 GS33: No Name Gulch at Walnut Creek

Table A–10. CY 2009 Discharge Summary for GS33: No Name Gulch at Walnut Creek

Calendar Year 2009: Daily Mean Discharge Values in Cubic Feet per Second

Day	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09
1	0.000	0.000	0.000	*0.000*	0.084	0.017	0.000	0.000	0.000	0.000	0.000	0.000
2	0.000	0.000	0.000	*0.001*	0.096	0.671	0.000	0.000	0.000	0.000	0.000	0.000
3	0.000	0.000	0.000	*0.028*	0.104	0.249	0.000	0.000	0.000	0.000	0.067	0.000
4	0.000	0.000	0.000	*0.104*	0.104	0.133	0.010	0.000	0.000	0.000	0.059	0.000
5	0.000	0.000	0.000	*0.062*	0.053	0.085	0.006	0.000	0.000	0.000	0.045	0.000
6	0.000	0.000	0.000	*0.064*	0.057	0.058	0.004	0.000	0.000	0.000	0.048	0.000
7	0.000	0.000	0.000	*0.040*	0.072	0.038	0.000	0.000	0.000	0.000	0.030	0.000
8	0.000	0.000	0.000	*0.006*	0.020	0.048	0.000	0.000	0.000	0.000	*0.001*	0.000
9	0.000	0.000	0.000	*0.000*	0.014	0.034	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	*0.000*	0.047	0.037	0.000	0.000	0.000	0.000	0.000	0.000
11	0.000	0.000	0.000	*0.000*	0.088	0.087	0.000	0.000	0.000	0.000	0.000	0.000
12	0.000	0.000	0.000	*0.000*	0.037	0.181	0.000	0.000	0.000	0.000	0.000	0.000
13	0.000	0.000	0.000	*0.000*	0.010	0.080	0.000	0.000	0.000	0.000	0.000	0.000
14	0.000	0.000	0.000	*0.000*	0.003	0.067	0.000	0.000	0.000	0.000	0.002	*0.011*
15	0.000	0.000	0.000	*0.000*	0.000	0.037	0.000	0.000	0.000	0.000	0.000	*0.008*
16	0.000	0.000	0.000	*0.000*	0.000	0.025	0.000	0.000	0.000	0.000	*0.009*	0.017
17	0.000	0.000	0.000	*0.161*	0.000	0.020	0.000	0.000	0.000	0.000	*0.059*	*0.061*
18	0.000	0.000	0.000	*1.083*	0.000	0.018	0.000	0.000	0.000	0.000	0.105	WR
19	0.000	0.000	0.000	*2.320*	0.000	0.010	0.000	0.000	0.000	0.000	0.093	WR
20	0.000	0.000	0.000	*2.205*	0.000	0.015	0.000	0.000	0.000	0.000	*0.069*	WR
21	0.000	0.000	0.000	*0.625*	0.000	0.009	0.000	0.000	0.000	0.000	*0.073*	0.031
22	0.000	0.000	0.000	*0.241*	0.000	0.008	0.000	0.000	0.000	0.000	0.069	*0.028*
23	0.000	0.000	0.000	*0.148*	0.001	0.000	0.000	0.000	0.000	0.000	*0.049*	WR
24	0.000	0.000	0.000	*0.097*	0.022	0.009	0.000	0.000	0.000	0.000	*0.030*	WR
25	0.000	0.000	0.000	*0.087*	0.020	0.017	0.000	0.000	0.000	0.000	*0.027*	WR
26	0.000	0.000	0.000	*0.086*	0.472	0.028	0.000	0.000	0.000	0.000	*0.033*	0.023
27	0.000	0.000	0.000	*0.391*	0.185	0.055	0.000	0.000	0.000	0.000	*0.034*	WR
28	0.000	0.000	0.000	*0.260*	0.127	0.008	0.000	0.000	0.000	*0.000*	*0.023*	WR
29	0.000	NA	0.000	0.143	0.030	0.006	0.000	0.000	0.000	*0.001*	*0.009*	WR
30	0.000	NA	0.000	0.093	0.018	0.000	0.000	0.000	0.000	0.000	*0.000*	WR
31	0.000	NA	*0.000*	NA	0.014	NA	0.000	0.000	NA	0.000	NA	WR

Partial Data

Flow Rate

Average	0.000	0.000	0.000	0.275	0.054	0.068	0.001	0.000	0.000	0.000	0.031	0.009
Maximum	0.000	0.000	0.000	2.320	0.472	0.671	0.010	0.000	0.000	0.001	0.105	0.061
Minimum	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Partial Data

Discharge

Cubic Feet	0	0	0	712222	145099	177117	1706	0	0	77	80617	15417
Gallons	0	0	0	5327794	1085419	1324925	12760	0	0	573	603061	115329
Acre-Feet	0.00	0.00	0.00	16.35	3.33	4.07	0.04	0.00	0.00	0.00	1.85	0.35

Partial Data

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Ft^3/Sec	0.037
GPM	16.6
Cubic Feet	1132255
Gallons	8469859
Acre-Feet	25.99

Partial Data

KEY: WR: No data or unacceptable data due to winter icing conditions
BD: Bad data due to equipment failures
ITALICS: Italic values contain data estimated from field observations and electronic record at adjacent or comparable gages

A.1.11 GS51: Ditch South of 903 Pad

Table A–11. CY 2009 Discharge Summary for GS51: Ditch South of 903 Pad

Calendar Year 2009: Daily Mean Discharge Values in Cubic Feet per Second

Day	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	0.000	0.000	0.000	0.000	0.000	0.034	0.000	0.000	0.000	0.000	0.000	0.000
3	0.000	0.000	0.000	*0.001*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	*0.000*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	*0.000*	0.000	0.000
11	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	*0.000*	0.000	0.000
12	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	*0.000*	0.000	0.000
13	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	*0.000*	0.000	0.000
14	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
16	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	*0.000*	0.000
18	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
19	0.000	0.000	0.000	0.107	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	*0.080*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
21	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	*0.000*	0.000
24	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000
25	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	*0.000*	0.000
26	0.000	0.000	0.000	0.000	0.025	0.004	0.000	0.000	0.000	*0.000*	0.000	0.000
27	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
29	0.000	NA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30	0.000	NA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	*0.000*	0.000
31	0.000	NA	0.000	NA	0.000	NA	0.000	0.000	NA	0.000	NA	0.000

Flow Rate

Average	0.000	0.000	0.000	0.007	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000
Maximum	0.000	0.000	0.000	0.107	0.025	0.034	0.000	0.000	0.000	0.000	0.000	0.000
Minimum	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Discharge

Cubic Feet	0	0	46	18202	2422	3593	6	0	0	0	0	0
Gallons	0	0	347	136161	18117	26878	42	0	0	0	0	0
Acre-Feet	0.00	0.00	0.00	0.42	0.06	0.08	0.00	0.00	0.00	0.00	0.00	0.00

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Ft^3/Sec	0.001
GPM	0.3
Cubic Feet	24269
Gallons	181546
Acre-Feet	0.56

KEY: WR: No data or unacceptable data due to winter icing conditions
BD: Bad data due to equipment failures
ITALICS: Italic values contain data estimated from field observations and electronic record at adjacent or comparable gages

A.1.12 GS59: Woman Creek Upstream of Antelope Springs Confluence

Table A–12. CY 2009 Discharge Summary for GS59: Woman Creek Upstream of Antelope Springs Confluence

Calendar Year 2009: Daily Mean Discharge Values in Cubic Feet per Second

Day	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09
1	*0.096*	WR	0.082	0.214	0.571	0.163	0.057	0.040	0.000	0.000	0.900	0.277
2	0.099	WR	0.064	0.371	0.598	3.044	0.065	0.030	0.000	0.000	0.651	0.283
3	0.065	WR	0.059	0.373	0.632	1.103	0.064	0.024	0.000	0.000	0.469	WR
4	WR	0.106	0.053	0.469	0.621	0.488	0.077	0.023	0.000	0.000	0.283	WR
5	WR	0.100	0.056	0.377	0.478	0.315	0.095	0.022	0.000	0.014	0.212	WR
6	WR	0.092	0.058	0.446	0.433	0.238	0.080	0.023	0.000	0.036	0.179	WR
7	0.102	0.087	0.064	0.270	0.399	0.249	0.063	0.024	0.000	0.035	0.148	WR
8	0.084	*0.090*	0.060	0.199	0.390	0.260	0.047	0.022	0.000	0.050	0.134	WR
9	0.068	0.085	0.062	0.163	0.395	0.271	0.044	0.021	0.000	0.049	0.123	WR
10	0.118	0.078	0.067	0.158	0.553	0.341	0.041	0.024	0.000	0.057	0.246	WR
11	0.100	*0.119*	*0.067*	0.161	0.528	0.443	0.039	0.025	0.000	0.060	0.242	WR
12	WR	0.107	0.072	0.192	0.391	0.651	0.050	0.023	0.000	0.062	0.251	WR
13	WR	0.079	0.069	0.187	0.348	0.469	0.053	0.025	0.000	0.064	0.265	WR
14	0.072	WR	0.070	0.164	0.339	0.388	0.040	0.017	0.001	0.072	0.304	WR
15	0.084	WR	0.066	0.161	0.322	0.351	0.035	0.004	0.000	0.074	0.332	WR
16	0.104	WR	0.062	0.327	0.306	0.322	0.039	0.001	0.000	0.077	0.357	WR
17	0.114	0.091	0.057	0.701	0.274	0.260	0.052	0.000	0.000	0.078	0.452	0.366
18	0.106	0.064	0.058	2.523	0.234	0.184	0.067	0.000	0.000	0.069	0.502	0.302
19	0.100	0.084	0.058	7.215	0.199	0.157	0.070	0.001	0.000	0.071	0.441	0.280
20	0.097	0.083	0.060	*13.689*	0.184	0.141	0.065	0.000	0.000	0.080	0.414	0.304
21	0.104	0.112	0.056	2.654	0.196	0.148	0.051	0.000	0.004	0.133	0.427	0.310
22	0.113	0.097	0.052	1.065	0.189	0.123	0.027	0.000	0.008	0.108	0.404	0.292
23	0.094	0.083	0.061	0.744	0.190	0.121	0.024	0.000	0.008	0.121	0.338	0.295
24	0.082	0.073	0.056	0.580	0.450	0.429	0.022	0.000	0.008	0.181	0.300	0.315
25	WR	0.067	0.057	0.562	0.422	0.207	0.022	0.000	0.010	0.219	0.312	0.296
26	WR	0.063	*0.080*	0.542	1.690	0.404	0.025	0.000	0.007	0.231	0.338	0.313
27	WR	0.062	0.076	1.911	0.444	0.199	0.030	0.000	0.000	0.233	0.325	WR
28	WR	0.083	0.166	1.100	0.240	0.102	0.038	0.000	0.001	0.299	0.284	WR
29	WR	NA	0.631	0.662	0.177	0.078	0.053	0.000	0.000	0.289	0.275	WR
30	WR	NA	0.412	0.562	0.158	0.066	0.122	0.000	0.000	0.334	0.271	WR
31	WR	NA	0.305	NA	0.161	NA	0.057	0.000	NA	0.695	NA	WR
	Partial Data	Partial Data										Partial Data

Flow Rate

Average	0.095	0.087	0.104	1.291	0.404	0.390	0.052	0.011	0.002	0.122	0.339	0.303
Maximum	0.118	0.119	0.631	13.689	1.690	3.044	0.122	0.040	0.010	0.695	0.900	0.366
Minimum	0.065	0.062	0.052	0.158	0.158	0.066	0.022	0.000	0.000	0.000	0.123	0.277
	Partial Data	Partial Data										Partial Data

Discharge

Cubic Feet	155594	164509	277727	3347514	1081146	1012131	139223	30373	4193	327692	879636	313875
Gallons	1163927	1230612	2077542	25041149	8087536	7571263	1041464	227209	31364	2451305	6580131	2347948
Acre-Feet	3.57	3.78	6.38	76.85	24.82	23.24	3.20	0.70	0.10	7.52	20.19	7.21
	Partial Data	Partial Data										Partial Data

Annual Summaries for CY09

Ft^3/Sec	0.273
GPM	122.5
Cubic Feet	7733613
Gallons	57851450
Acre-Feet	177.54
	Partial Data

KEY: WR: No data or unacceptable data due to winter icing conditions
BD: Bad data due to equipment failures
ITALICS: Italic values contain data estimated from field observations and electronic record at adjacent or comparable gages

A.1.13 SW018: Functional Channel 2 at FC-2 Wetland

Table A–13. CY 2009 Discharge Summary for SW018: North Walnut Creek Tributary East of B371

Calendar Year 2009: Daily Mean Discharge Values in Cubic Feet per Second

Day	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09
1	0.006	0.005	*0.004*	0.011	0.042	0.023	0.012	0.012	0.007	0.005	0.055	0.014
2	0.007	0.005	0.004	0.015	0.042	0.124	0.014	0.009	0.006	0.005	0.029	WR
3	*0.006*	0.005	0.004	0.016	0.042	0.059	0.014	0.008	0.006	0.005	0.027	WR
4	*0.006*	0.005	0.004	0.021	0.040	0.044	0.018	0.007	0.006	0.004	*0.019*	WR
5	*0.005*	0.005	0.004	0.014	0.034	0.039	0.019	0.007	0.007	0.009	*0.017*	WR
6	*0.005*	0.005	0.004	0.014	0.031	0.034	0.016	0.010	0.008	0.010	0.015	WR
7	*0.006*	0.005	0.004	0.011	0.029	0.034	0.013	0.007	0.007	0.008	0.013	WR
8	0.006	0.005	0.005	0.009	0.028	0.032	0.011	0.006	0.007	0.009	0.012	WR
9	0.005	0.005	0.005	0.008	0.027	0.031	0.010	0.006	0.009	0.010	0.011	WR
10	*0.005*	0.005	*0.004*	0.007	0.033	0.030	0.010	0.006	0.008	0.011	0.011	WR
11	0.005	0.006	0.004	0.009	0.034	0.037	0.011	0.006	0.007	0.010	0.011	WR
12	*0.006*	*0.005*	*0.004*	0.009	0.028	0.042	0.012	0.005	0.012	0.009	0.011	WR
13	0.006	0.005	0.004	0.007	0.024	0.033	0.015	0.006	0.015	0.008	0.011	0.012
14	0.006	*0.005*	0.004	0.007	0.023	0.030	0.013	0.007	0.007	0.009	0.012	0.012
15	0.005	*0.005*	0.004	0.007	0.022	0.028	0.009	0.007	0.007	0.009	0.013	0.011
16	0.007	*0.005*	0.004	0.012	0.021	0.024	0.007	0.006	0.007	0.009	0.015	0.013
17	0.007	0.005	0.004	0.035	0.020	0.023	0.006	0.007	0.006	0.010	0.019	0.016
18	0.007	0.004	0.004	0.161	0.019	0.021	0.007	0.008	0.006	0.010	0.022	0.015
19	0.007	0.004	0.004	*0.858*	0.017	0.020	0.007	0.006	0.006	0.009	0.020	0.014
20	0.006	0.005	0.004	0.544	0.016	0.021	0.010	0.006	0.004	0.010	0.018	0.013
21	0.006	*0.004*	0.004	0.148	0.017	0.019	0.013	0.005	0.007	0.019	0.019	0.014
22	0.006	*0.004*	0.004	0.082	0.016	0.017	0.009	0.005	*0.009*	0.013	0.018	0.013
23	*0.005*	0.005	*0.005*	0.060	0.019	0.017	0.007	0.005	*0.009*	0.012	0.016	0.012
24	*0.005*	0.004	*0.004*	0.049	0.035	0.025	0.006	0.005	0.008	0.012	0.014	*0.011*
25	WR	0.005	*0.004*	0.044	0.032	0.023	0.009	0.007	0.008	0.014	0.014	*0.010*
26	WR	0.004	*0.006*	0.042	0.082	0.030	0.009	0.007	0.006	0.014	0.015	*0.011*
27	WR	0.004	0.005	0.082	0.030	0.021	0.009	0.006	0.005	0.011	0.015	*0.010*
28	WR	*0.003*	0.009	0.057	0.027	0.016	0.016	0.005	0.007	0.014	0.015	*0.009*
29	WR	NA	0.027	0.048	0.023	0.014	0.017	0.006	0.007	0.013	0.014	*0.011*
30	WR	NA	0.019	0.043	0.022	0.013	0.017	0.009	0.006	0.017	0.014	0.010
31	WR	NA	0.015	NA	0.021	NA	0.016	0.008	NA	0.034	NA	WR
	Partial Data											Partial Data

Flow Rate

Average	0.006	0.005	0.006	0.081	0.029	0.031	0.012	0.007	0.007	0.011	0.017	0.012
Maximum	0.007	0.006	0.027	0.858	0.082	0.124	0.019	0.012	0.015	0.034	0.055	0.016
Minimum	0.005	0.003	0.004	0.007	0.016	0.013	0.006	0.005	0.004	0.004	0.011	0.009
	Partial Data											Partial Data

Discharge

Cubic Feet	12291	11605	16114	210068	77430	79935	31221	18346	18934	29421	44494	20068
Gallons	91946	86808	120541	1571420	579214	597959	233550	137239	141638	220086	332836	150117
Acre-Feet	0.28	0.27	0.37	4.82	1.78	1.84	0.72	0.42	0.43	0.68	1.02	0.46
	Partial Data											Partial Data

Annual Summaries for CY09

Ft^3/Sec	0.019
GPM	8.6
Cubic Feet	569928
Gallons	4263354
Acre-Feet	13.08
	Partial Data

KEY: WR: No data or unacceptable data due to winter icing conditions
BD: Bad data due to equipment failures
ITALICS: Italic values contain data estimated from field observations and electronic record at adjacent or comparable gages

A.1.14 SW027: South Interceptor Ditch at Pond C-2

Table A–14. CY 2009 Discharge Summary for SW027: South Interceptor Ditch at Pond C-2

Calendar Year 2009: Daily Mean Discharge Values in Cubic Feet per Second

Day	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	*0.000*	0.000	0.000
2	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000
3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
11	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	0.000	0.000	0.000	0.000	*0.000*	0.000	0.000	0.000	0.000	0.000	0.000	0.000
13	0.000	0.000	0.000	0.000	*0.000*	0.000	0.000	0.000	0.000	0.000	0.000	0.000
14	0.000	0.000	0.000	0.000	*0.000*	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15	0.000	0.000	0.000	0.000	*0.000*	0.000	0.000	0.000	0.000	0.000	0.000	0.000
16	0.000	0.000	0.000	0.000	*0.000*	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17	0.000	0.000	0.000	0.000	*0.000*	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18	0.000	0.000	0.000	0.005	*0.000*	0.000	0.000	0.000	0.000	0.000	0.000	0.000
19	0.000	0.000	0.000	1.114	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	0.958	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
21	0.000	0.000	0.000	0.084	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22	0.000	0.000	0.000	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
24	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
25	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
26	0.000	0.000	0.000	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000
27	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
29	0.000	NA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30	0.000	NA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
31	0.000	NA	0.000	NA	0.000	NA	0.000	0.000	NA	0.000	NA	0.000

Flow Rate

Average	0.000	0.000	0.000	0.073	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Maximum	0.000	0.000	0.000	1.114	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000
Minimum	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Discharge

Cubic Feet	0	0	0	189204	163	105	0	0	0	0	0	0
Gallons	0	0	0	1415345	1216	782	0	0	0	0	0	0
Acre-Feet	0.00	0.00	0.00	4.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Annual Summaries for CY09

Ft^3/Sec	0.006
GPM	2.7
Cubic Feet	189471
Gallons	1417342
Acre-Feet	4.35

KEY: WR: No data or unacceptable data due to winter icing conditions
BD: Bad data due to equipment failures
ITALICS: Italic values contain data estimated from field observations and electronic record at adjacent or comparable gages

A.1.15 SW093: North Walnut Creek 1,300 feet Upstream of A-1 Bypass

Table A–15. CY 2009 Discharge Summary for SW093: North Walnut Creek Upstream of A-1 Bypass

Calendar Year 2009: Daily Mean Discharge Values in Cubic Feet per Second

Day	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09
1	*0.014*	0.007	*0.007*	0.044	0.223	0.063	0.030	0.038	0.006	0.008	0.374	0.050
2	*0.016*	0.006	0.006	0.084	0.220	1.444	0.029	0.029	0.006	0.008	0.154	0.050
3	*0.019*	0.005	0.006	0.111	0.246	0.694	0.047	0.021	0.007	0.009	0.099	*0.053*
4	*0.011*	0.006	0.006	0.316	0.283	0.477	0.095	0.018	0.008	0.009	0.094	*0.048*
5	*0.008*	0.007	0.006	0.110	0.180	0.276	0.084	0.016	0.006	0.013	0.067	*0.047*
6	*0.006*	0.008	0.006	0.109	0.131	0.178	0.108	0.016	0.008	0.008	0.059	*0.049*
7	*0.005*	0.006	0.005	0.061	0.103	0.137	0.054	0.011	0.009	0.007	0.048	*0.047*
8	*0.010*	0.006	0.005	0.035	0.084	0.137	0.048	0.009	0.009	0.008	0.043	*0.045*
9	0.016	0.008	0.005	0.023	0.069	0.122	0.039	0.008	0.009	0.011	0.038	*0.039*
10	0.012	*0.005*	*0.005*	0.020	0.123	0.132	0.030	0.007	0.009	0.013	0.040	*0.034*
11	0.009	*0.006*	*0.005*	0.019	0.166	0.207	0.029	0.006	0.009	0.014	0.037	*0.033*
12	*0.008*	*0.010*	*0.006*	0.020	0.108	0.461	0.022	0.007	0.008	0.014	0.037	*0.038*
13	*0.007*	0.009	*0.005*	0.030	0.068	0.218	0.018	*0.008*	0.011	0.013	0.039	*0.044*
14	0.008	*0.009*	*0.006*	0.023	0.054	0.195	0.013	*0.007*	*0.009*	0.013	0.048	*0.045*
15	0.013	*0.007*	0.006	0.019	0.049	0.146	0.011	*0.007*	*0.005*	0.013	0.082	*0.032*
16	0.017	*0.011*	0.006	0.024	0.046	0.133	0.010	*0.007*	*0.005*	0.013	0.168	*0.043*
17	0.027	0.013	0.006	0.313	0.046	0.105	0.013	*0.006*	*0.005*	0.014	0.292	*0.080*
18	0.020	0.012	0.006	1.915	0.041	0.090	0.014	*0.004*	*0.005*	0.014	0.226	*0.049*
19	0.018	0.010	0.006	7.055	0.035	0.076	0.022	*0.004*	*0.005*	0.013	0.139	*0.029*
20	0.019	0.011	0.006	4.493	0.026	0.067	0.026	*0.004*	*0.005*	0.013	0.096	0.031
21	0.015	0.013	0.006	1.625	0.024	0.083	0.170	*0.005*	*0.007*	0.028	0.090	0.047
22	0.015	0.010	0.006	0.775	0.035	0.059	0.027	*0.006*	*0.006*	0.029	0.087	0.042
23	0.016	0.011	0.007	0.443	0.049	0.037	0.018	*0.005*	*0.007*	0.021	0.065	0.038
24	0.011	0.013	0.006	0.325	0.244	0.221	0.013	*0.005*	*0.007*	0.017	0.049	*0.041*
25	0.011	0.012	0.006	0.259	0.136	0.173	0.012	*0.005*	0.008	0.015	0.049	*0.035*
26	*0.012*	0.010	0.013	0.239	1.272	0.307	0.017	0.005	0.007	0.021	0.055	0.035
27	*0.009*	0.008	0.034	0.907	0.379	0.193	0.019	0.004	0.005	0.026	0.059	0.035
28	*0.007*	0.009	0.061	0.743	0.169	0.081	0.017	0.004	0.006	0.075	0.055	0.031
29	0.007	NA	0.548	0.488	0.104	0.052	0.019	0.005	0.007	0.164	0.054	0.032
30	0.005	NA	0.178	0.270	0.077	0.037	0.067	0.006	0.007	0.362	0.048	0.036
31	0.006	NA	0.071	NA	0.067	NA	0.086	0.006	NA	0.587	NA	0.029

Flow Rate

Average	0.012	0.009	0.034	0.697	0.157	0.220	0.039	0.009	0.007	0.051	0.093	0.041
Maximum	0.027	0.013	0.548	7.055	1.272	1.444	0.170	0.038	0.011	0.587	0.374	0.080
Minimum	0.005	0.005	0.005	0.019	0.024	0.037	0.010	0.004	0.005	0.007	0.037	0.029

Discharge

Cubic Feet	32638	21273	90950	1805603	419482	570319	104235	24882	18016	135827	241103	111095
Gallons	244150	159136	680353	13506849	3137946	4266285	779731	186128	134766	1016055	1803578	831048
Acre-Feet	0.75	0.49	2.09	41.45	9.63	13.09	2.39	0.57	0.41	3.12	5.53	2.55

Annual Summaries for CY09

Ft^3/Sec	0.113
GPM	50.9
Cubic Feet	3575423
Gallons	26746026
Acre-Feet	82.08

KEY: WR: No data or unacceptable data due to winter icing conditions
BD: Bad data due to equipment failures
ITALICS: Italic values contain data estimated from field observations and electronic record at adjacent or comparable gages

A.2 Precipitation Data

This section includes total daily precipitation tables and hyetographs by precipitation gage and calendar year.

A.2.1 PG58: Gaging Station GS01

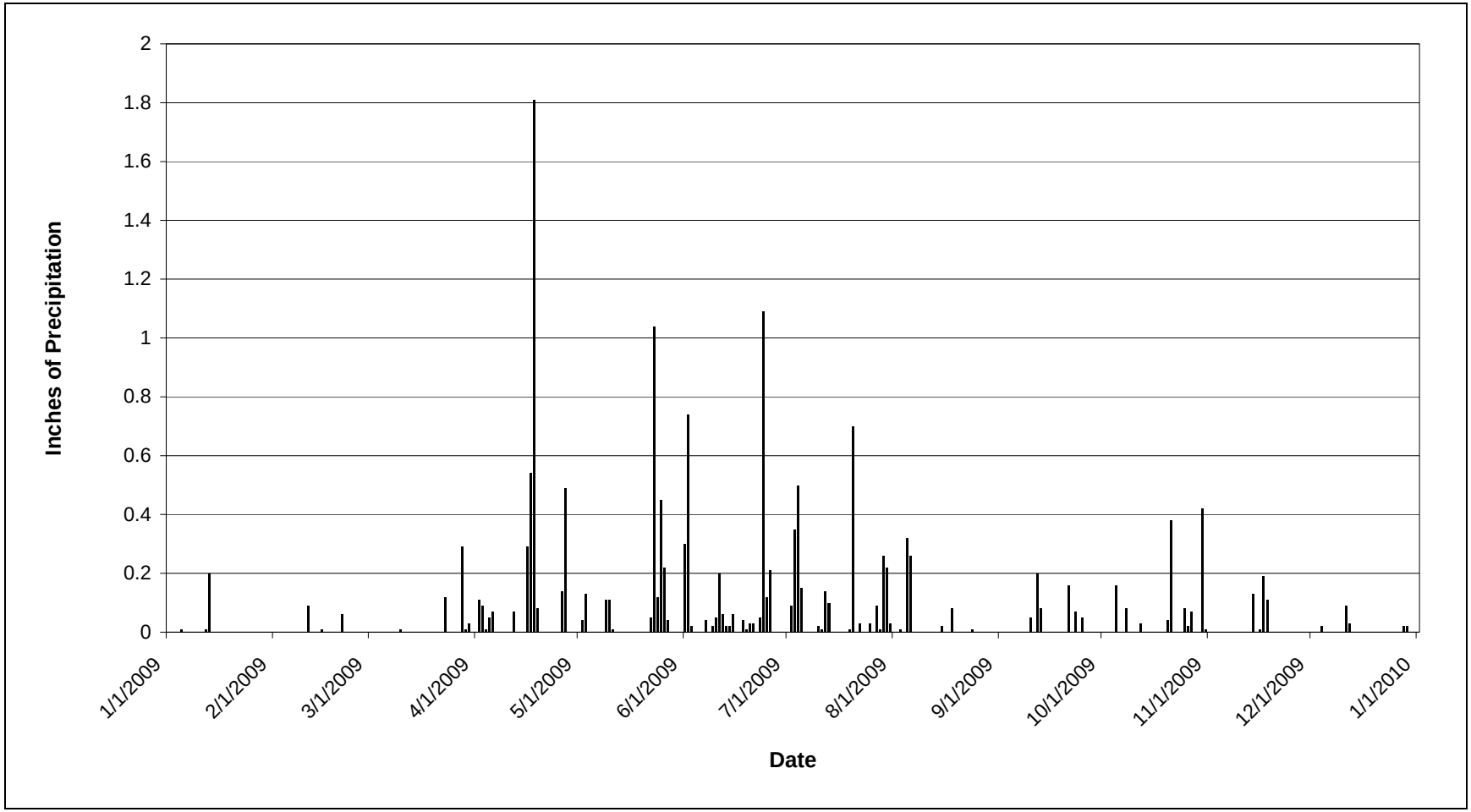

Figure A−1. CY 2009 Annual Hyetograph at PG58: Gaging Station GS01

Table A–16. CY 2009 Precipitation Summary for PG58: Gaging Station GS01

Calendar Year 2009: Daily Total Precipitation Values in Inches

Day	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09
1	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.11	0.04	0.74	0.09	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.09	0.13	0.02	0.35	0.01	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.01	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.02
5	0.01	0.00	0.00	0.05	0.00	0.00	0.15	0.32	0.00	0.16	0.00	0.00
6	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00
9	0.00	0.00	0.00	0.00	0.11	0.02	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.01	0.00	0.11	0.05	0.02	0.00	0.05	0.00	0.00	0.00
11	0.00	0.09	0.00	0.00	0.01	0.20	0.01	0.00	0.00	0.00	0.00	0.09
12	0.01	0.00	0.00	0.07	0.00	0.06	0.14	0.00	0.20	0.03	0.00	0.03
13	0.20	0.00	0.00	0.00	0.00	0.02	0.10	0.00	0.08	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.13	0.00
15	0.00	0.01	0.00	0.00	0.00	0.06	0.00	0.02	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
17	0.00	0.00	0.00	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.00
18	0.00	0.00	0.00	1.81	0.00	0.04	0.00	0.08	0.00	0.00	0.11	0.00
19	0.00	0.00	0.00	0.08	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.03	0.70	0.00	0.00	0.04	0.00	0.00
21	0.00	0.06	0.00	0.00	0.00	0.03	0.00	0.00	0.16	0.38	0.00	0.00
22	0.00	0.00	0.00	0.00	0.05	0.00	0.03	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.12	0.00	1.04	0.05	0.00	0.00	0.07	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.12	1.09	0.00	0.01	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.45	0.12	0.03	0.00	0.05	0.08	0.00	0.00
26	0.00	0.00	0.00	0.14	0.22	0.21	0.00	0.00	0.00	0.02	0.00	0.00
27	0.00	0.00	0.00	0.49	0.04	0.00	0.09	0.00	0.00	0.07	0.00	0.00
28	0.00	0.00	0.29	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02
29	0.00	NA	0.01	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.00	0.02
30	0.00	NA	0.03	0.00	0.00	0.00	0.22	0.00	0.00	0.42	0.00	0.00
31	0.00	NA	0.00	NA	0.00	NA	0.03	0.00	NA	0.01	NA	0.00

Precipitation

Monthly Total	0.22	0.16	0.46	3.75	2.32	3.11	2.74	0.70	0.61	1.29	0.44	0.18
Daily Maximum	0.20	0.09	0.29	1.81	1.04	1.09	0.70	0.32	0.20	0.42	0.19	0.09

Annual Summaries for CY09

KEY: No Data: Bad or missing data due to equipment failures or discontinued operation

Total Inches 15.98

A.2.2 PG59: Gaging Station GS03

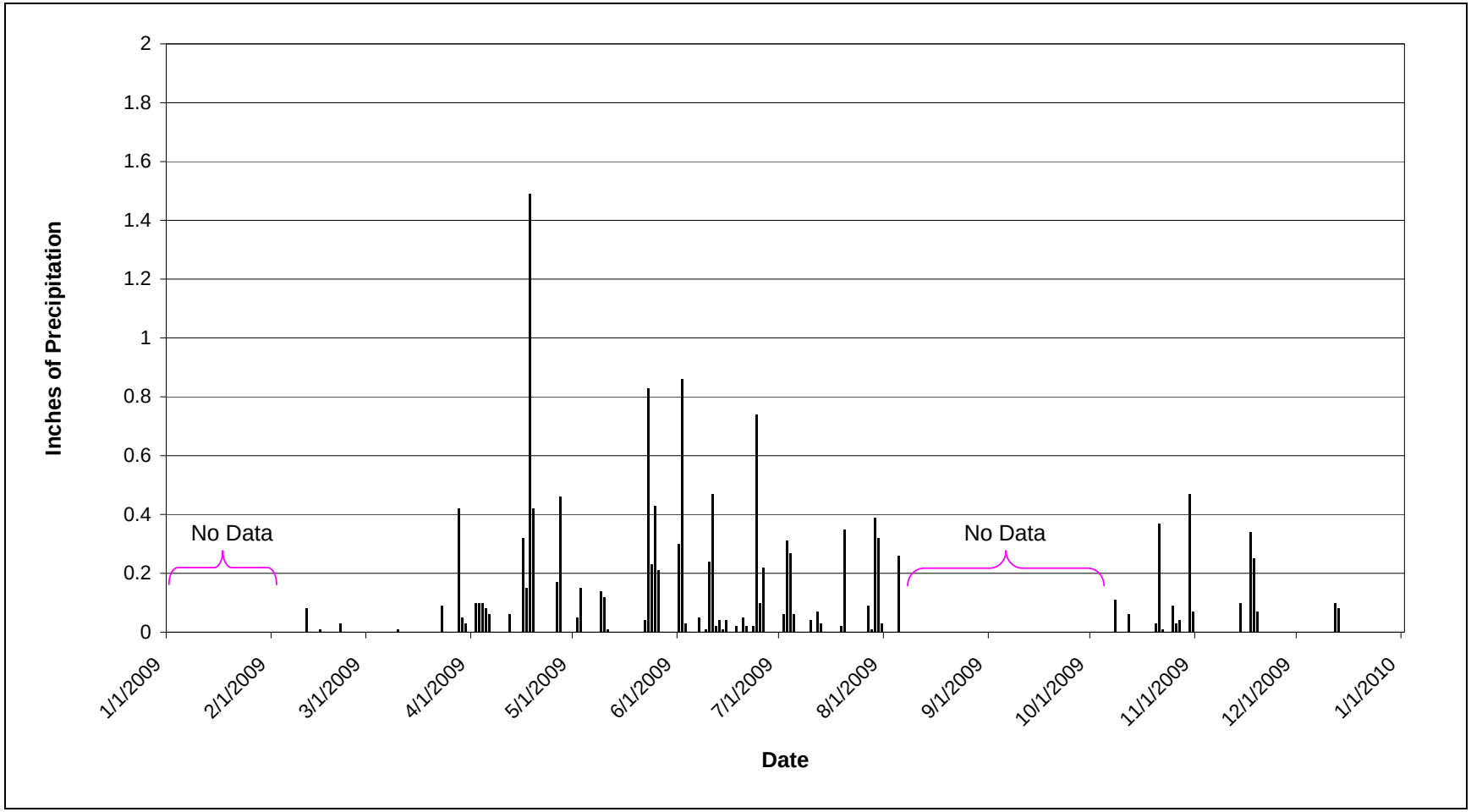

Figure A−2. CY 2009 Annual Hyetograph at PG59: Gaging Station GS03

Table A–17. CY 2009 Precipitation Summary for PG59: Gaging Station GS03

Calendar Year 2009: Daily Total Precipitation Values in Inches

Day	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09
1	No Data	No Data	0.00	0.00	0.00	0.30	0.00	0.00	No Data	No Data	0.00	0.00
2	No Data	No Data	0.00	0.10	0.05	0.86	0.06	0.00	No Data	No Data	0.00	0.00
3	No Data	0.00	0.00	0.10	0.15	0.03	0.31	0.00	No Data	No Data	0.00	0.00
4	No Data	0.00	0.00	0.10	0.00	0.00	0.27	0.00	No Data	No Data	0.00	0.00
5	No Data	0.00	0.00	0.08	0.00	0.00	0.06	0.26	No Data	No Data	0.00	0.00
6	No Data	0.00	0.00	0.06	0.00	0.00	0.00	No Data	No Data	No Data	0.00	0.00
7	No Data	0.00	0.00	0.00	0.00	0.05	0.00	No Data	No Data	0.00	0.00	0.00
8	No Data	0.00	0.00	0.00	0.00	0.00	0.00	No Data	No Data	0.11	0.00	0.00
9	No Data	0.00	0.00	0.00	0.14	0.01	0.00	No Data	No Data	0.00	0.00	0.00
10	No Data	0.00	0.01	0.00	0.12	0.24	0.04	No Data	No Data	0.00	0.00	0.00
11	No Data	0.08	0.00	0.00	0.01	0.47	0.00	No Data	No Data	0.00	0.00	0.00
12	No Data	0.00	0.00	0.06	0.00	0.02	0.07	No Data	No Data	0.06	0.00	0.10
13	No Data	0.00	0.00	0.00	0.00	0.04	0.03	No Data	No Data	0.00	0.00	0.08
14	No Data	0.00	0.00	0.00	0.00	0.01	0.00	No Data	No Data	0.00	0.10	0.00
15	No Data	0.01	0.00	0.00	0.00	0.04	0.00	No Data	No Data	0.00	0.00	0.00
16	No Data	0.00	0.00	0.32	0.00	0.00	0.00	No Data	No Data	0.00	0.00	0.00
17	No Data	0.00	0.00	0.15	0.00	0.00	0.00	No Data	No Data	0.00	0.34	0.00
18	No Data	0.00	0.00	1.49	0.00	0.02	0.00	No Data	No Data	0.00	0.25	0.00
19	No Data	0.00	0.00	0.42	0.00	0.00	0.02	No Data	No Data	0.00	0.07	0.00
20	No Data	0.00	0.00	0.00	0.00	0.05	0.35	No Data	No Data	0.03	0.00	0.00
21	No Data	0.03	0.00	0.00	0.00	0.02	0.00	No Data	No Data	0.37	0.00	0.00
22	No Data	0.00	0.00	0.00	0.04	0.00	0.00	No Data	No Data	0.01	0.00	0.00
23	No Data	0.00	0.09	0.00	0.83	0.02	0.00	No Data	No Data	0.00	0.00	0.00
24	No Data	0.00	0.00	0.00	0.23	0.74	0.00	No Data	No Data	0.00	0.00	0.00
25	No Data	0.00	0.00	0.00	0.43	0.10	0.00	No Data	No Data	0.09	0.00	0.00
26	No Data	0.00	0.00	0.17	0.21	0.22	0.00	No Data	No Data	0.03	0.00	0.00
27	No Data	0.00	0.00	0.46	0.00	0.00	0.09	No Data	No Data	0.04	0.00	0.00
28	No Data	0.00	0.42	0.00	0.00	0.00	0.01	No Data	No Data	0.00	0.00	0.00
29	No Data	NA	0.05	0.00	0.00	0.00	0.39	No Data	No Data	0.00	0.00	0.00
30	No Data	NA	0.03	0.00	0.00	0.00	0.32	No Data	No Data	0.47	0.00	0.00
31	No Data	NA	0.00	NA	0.00	NA	0.03	No Data	NA	0.07	NA	0.00
	No Data	Partial Data						Partial Data	No Data	Partial Data		

Precipitation

Monthly Total	0.00	0.12	0.60	3.51	2.21	3.24	2.05	0.26		1.28	0.76	0.18
Daily Maximum	0.00	0.08	0.42	1.49	0.83	0.86	0.39	0.26		0.47	0.34	0.10
	No Data	Partial Data						Partial Data	No Data	Partial Data		

Annual Summaries for CY09

Total Inches	14.21
	Partial Data

KEY: No Data: Bad or missing data due to equipment failures or discontinued operation

A.2.3 PG61: Gaging Station GS05

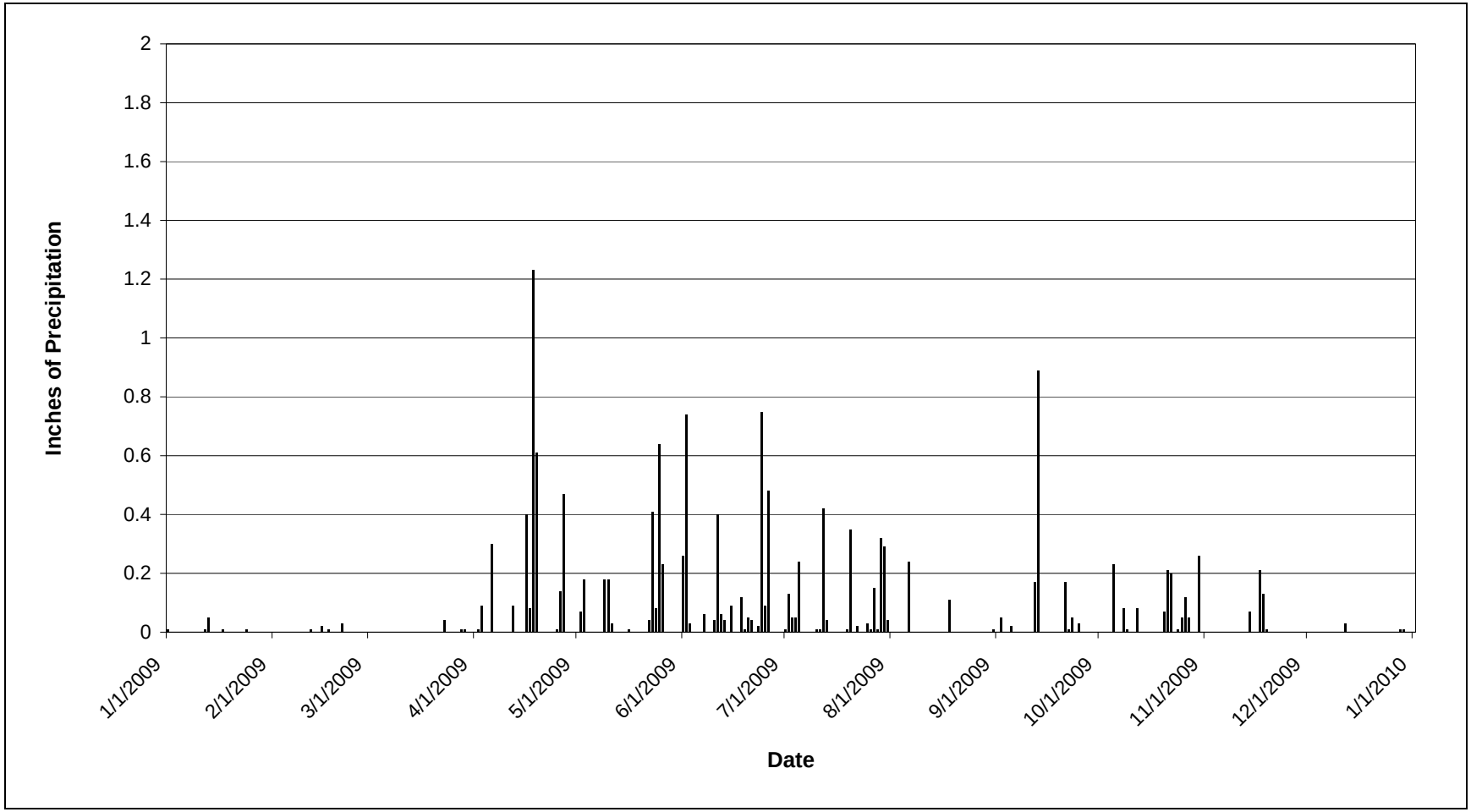

Figure A-3. CY 2009 Annual Hyetograph at PG61: Gaging Station GS05

Table A–18. CY 2009 Precipitation Summary for PG61: Gaging Station GS05

Calendar Year 2009: Daily Total Precipitation Values in Inches

Day	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09
1	0.01	0.00	0.00	0.00	0.00	0.26	0.01	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.01	0.07	0.74	0.13	0.00	0.05	0.00	0.00	0.00
3	0.00	0.00	0.00	0.09	0.18	0.03	0.05	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.02	0.23	0.00	0.00
6	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00
9	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.01	0.00	0.00
10	0.00	0.00	0.00	0.00	0.18	0.04	0.01	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.03	0.40	0.01	0.00	0.00	0.00	0.00	0.00
12	0.01	0.01	0.00	0.09	0.00	0.06	0.42	0.00	0.17	0.08	0.00	0.03
13	0.05	0.00	0.00	0.00	0.00	0.04	0.04	0.00	0.89	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00
15	0.00	0.02	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.40	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.01	0.01	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00
18	0.00	0.00	0.00	1.23	0.00	0.12	0.00	0.11	0.00	0.00	0.13	0.00
19	0.00	0.00	0.00	0.61	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.00
20	0.00	0.00	0.00	0.00	0.00	0.05	0.35	0.00	0.00	0.07	0.00	0.00
21	0.00	0.03	0.00	0.00	0.00	0.04	0.00	0.00	0.17	0.21	0.00	0.00
22	0.00	0.00	0.00	0.00	0.04	0.00	0.02	0.00	0.01	0.20	0.00	0.00
23	0.00	0.00	0.04	0.00	0.41	0.02	0.00	0.00	0.05	0.00	0.00	0.00
24	0.01	0.00	0.00	0.00	0.08	0.75	0.00	0.00	0.00	0.01	0.00	0.00
25	0.00	0.00	0.00	0.01	0.64	0.09	0.03	0.00	0.03	0.05	0.00	0.00
26	0.00	0.00	0.00	0.14	0.23	0.48	0.01	0.00	0.00	0.12	0.00	0.00
27	0.00	0.00	0.00	0.47	0.00	0.00	0.15	0.00	0.00	0.05	0.00	0.00
28	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01
29	0.00	NA	0.01	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00	0.01
30	0.00	NA	0.00	0.00	0.00	0.00	0.29	0.00	0.00	0.26	0.00	0.00
31	0.00	NA	0.00	NA	0.00	NA	0.04	0.01	NA	0.00	NA	0.00

Precipitation

Monthly Total	0.09	0.07	0.06	3.43	2.05	3.28	2.19	0.36	1.39	1.37	0.42	0.05
Daily Maximum	0.05	0.03	0.04	1.23	0.64	0.75	0.42	0.24	0.89	0.26	0.21	0.03

Annual Summaries for CY09

Total Inches	14.76

KEY: No Data: Bad or missing data due to equipment failures or discontinued operation

A.2.4 PG73: Gaging Station GS13

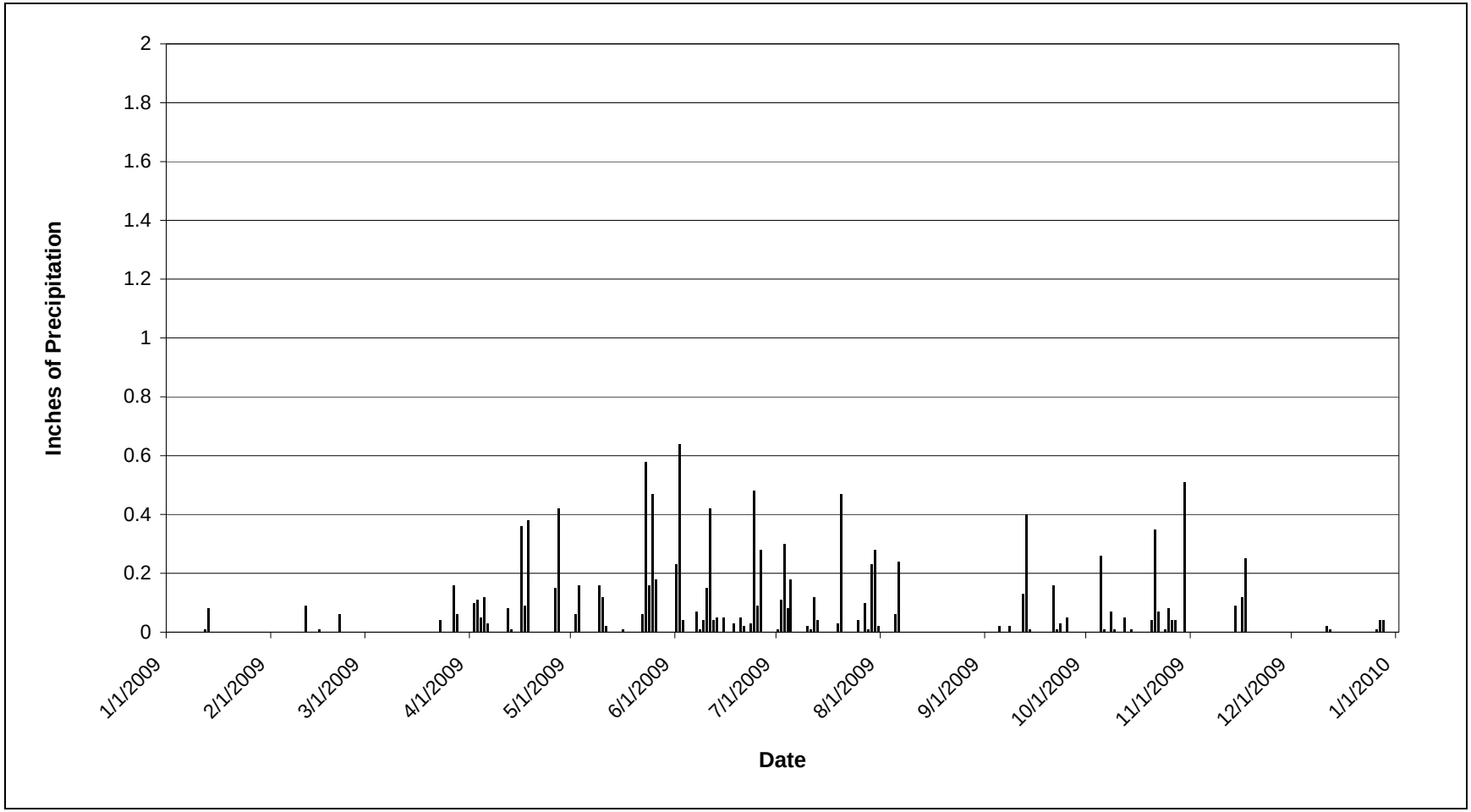

Figure A-4. CY 2009 Annual Hyetograph at PG73: Gaging Station GS13

Table A–19. CY 2009 Precipitation Summary for PG73: Gaging Station GS13

Calendar Year 2009: Daily Total Precipitation Values in Inches

Day	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09
1	0.00	0.00	0.00	0.00	0.00	0.23	0.01	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.10	0.06	0.64	0.11	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.11	0.16	0.04	0.30	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.05	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.12	0.00	0.00	0.18	0.06	0.02	0.26	0.00	0.00
6	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.24	0.00	0.01	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.07	0.00	0.00
9	0.00	0.00	0.00	0.00	0.16	0.04	0.00	0.00	0.00	0.01	0.00	0.00
10	0.00	0.00	0.00	0.00	0.12	0.15	0.02	0.00	0.00	0.00	0.00	0.00
11	0.00	0.09	0.00	0.00	0.02	0.42	0.01	0.00	0.00	0.00	0.00	0.02
12	0.01	0.00	0.00	0.08	0.00	0.04	0.12	0.00	0.13	0.05	0.00	0.01
13	0.08	0.00	0.00	0.01	0.00	0.05	0.04	0.00	0.40	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.09	0.00
15	0.00	0.01	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.36	0.01	0.00	0.00	0.00	0.00	0.00	0.12	0.00
17	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00
18	0.00	0.00	0.00	0.38	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.05	0.47	0.00	0.00	0.04	0.00	0.00
21	0.00	0.06	0.00	0.00	0.00	0.02	0.00	0.00	0.16	0.35	0.00	0.00
22	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.01	0.07	0.00	0.00
23	0.00	0.00	0.04	0.00	0.58	0.03	0.00	0.00	0.03	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.16	0.48	0.00	0.00	0.00	0.01	0.00	0.00
25	0.00	0.00	0.00	0.00	0.47	0.09	0.04	0.00	0.05	0.08	0.00	0.00
26	0.00	0.00	0.00	0.15	0.18	0.28	0.00	0.00	0.00	0.04	0.00	0.01
27	0.00	0.00	0.16	0.42	0.00	0.00	0.10	0.00	0.00	0.04	0.00	0.04
28	0.00	0.00	0.06	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.04
29	0.00	NA	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00
30	0.00	NA	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.51	0.00	0.00
31	0.00	NA	0.00	NA	0.00	NA	0.02	0.00	NA	0.00	NA	0.00

Precipitation

Monthly Total	0.09	0.16	0.26	1.90	1.98	2.72	2.05	0.30	0.83	1.55	0.46	0.12
Daily Maximum	0.08	0.09	0.16	0.42	0.58	0.64	0.47	0.24	0.40	0.51	0.25	0.04

Annual Summaries for CY09

Total Inches 12.42

KEY: No Data: Bad or missing data due to equipment failures or discontinued operation

A.2.5 PG74: Gaging Station GS59

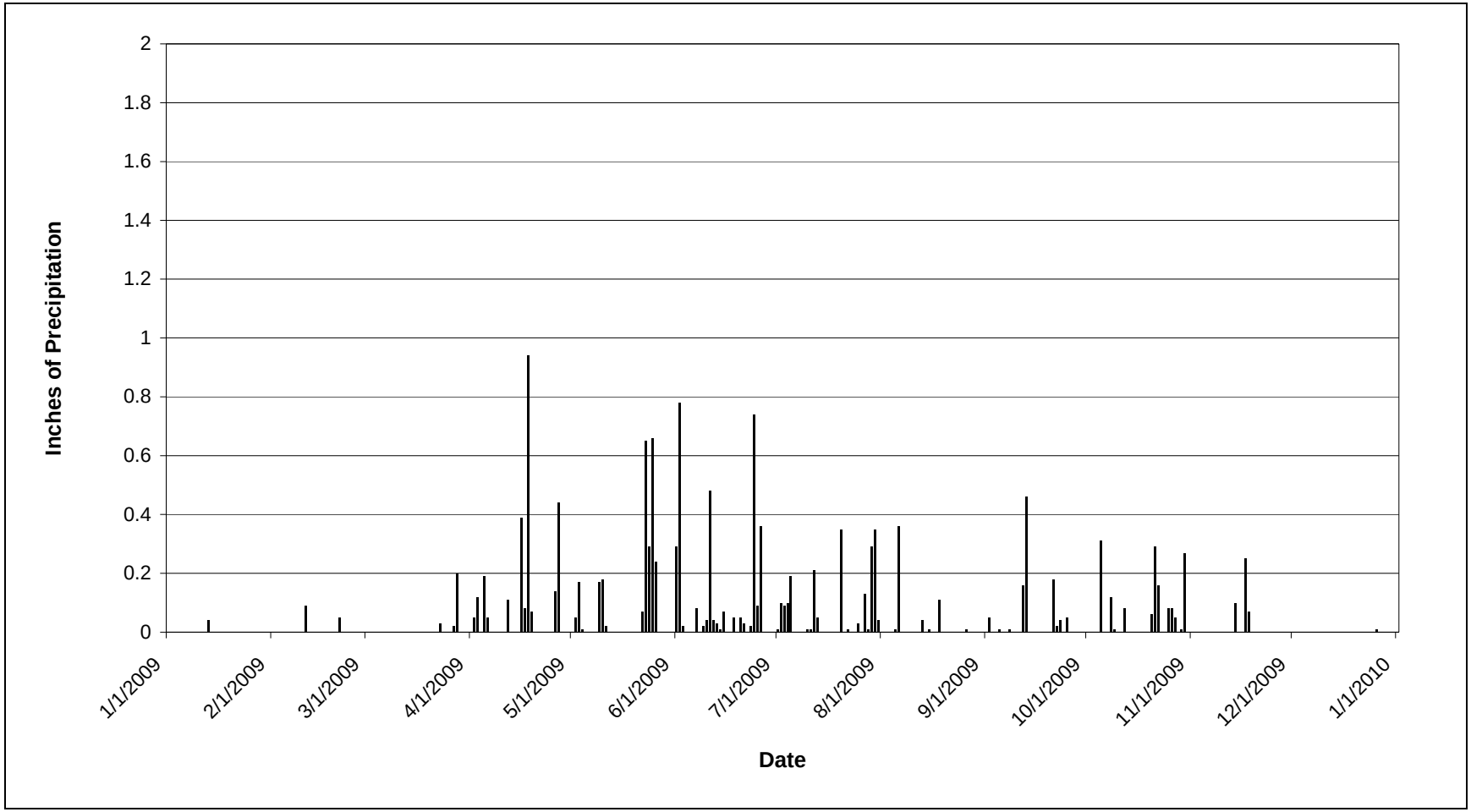

Figure A-5. CY 2009 Annual Hyetograph at PG74: Gaging Station GS59

Table A–20. CY 2009 Precipitation Summary for PG74: Gaging Station GS59

Calendar Year 2009: Daily Total Precipitation Values in Inches

Day	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09
1	0.00	0.00	0.00	0.00	0.00	0.29	0.01	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.05	0.05	0.78	0.10	0.00	0.05	0.00	0.00	0.00
3	0.00	0.00	0.00	0.12	0.17	0.02	0.09	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.01	0.00	0.10	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.19	0.00	0.00	0.19	0.01	0.01	0.31	0.00	0.00
6	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.36	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.12	0.00	0.00
9	0.00	0.00	0.00	0.00	0.17	0.02	0.00	0.00	0.00	0.01	0.00	0.00
10	0.00	0.00	0.00	0.00	0.18	0.04	0.01	0.00	0.00	0.00	0.00	0.00
11	0.00	0.09	0.00	0.00	0.02	0.48	0.01	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.11	0.00	0.04	0.21	0.00	0.16	0.08	0.00	0.00
13	0.04	0.00	0.00	0.00	0.00	0.03	0.05	0.04	0.46	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.10	0.00
15	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.01	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00
18	0.00	0.00	0.00	0.94	0.00	0.05	0.00	0.11	0.00	0.00	0.07	0.00
19	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.05	0.35	0.00	0.00	0.06	0.00	0.00
21	0.00	0.05	0.00	0.00	0.00	0.03	0.00	0.00	0.18	0.29	0.00	0.00
22	0.00	0.00	0.00	0.00	0.07	0.00	0.01	0.00	0.02	0.16	0.00	0.00
23	0.00	0.00	0.03	0.00	0.65	0.02	0.00	0.00	0.04	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.29	0.74	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.66	0.09	0.03	0.00	0.05	0.08	0.00	0.00
26	0.00	0.00	0.00	0.14	0.24	0.36	0.00	0.01	0.00	0.08	0.00	0.01
27	0.00	0.00	0.02	0.44	0.00	0.00	0.13	0.00	0.00	0.05	0.00	0.00
28	0.00	0.00	0.20	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
29	0.00	NA	0.00	0.00	0.00	0.00	0.29	0.00	0.00	0.01	0.00	0.00
30	0.00	NA	0.00	0.00	0.00	0.00	0.35	0.00	0.00	0.27	0.00	0.00
31	0.00	NA	0.00	NA	0.00	NA	0.04	0.00	NA	0.00	NA	0.00

Precipitation

Monthly Total	0.04	0.14	0.25	2.58	2.51	3.20	1.98	0.54	0.98	1.52	0.42	0.01
Daily Maximum	0.04	0.09	0.20	0.94	0.66	0.78	0.35	0.36	0.46	0.31	0.25	0.01

Annual Summaries for CY09

Total Inches 14.17

KEY: No Data: Bad or missing data due to equipment failures or discontinued operation

A.2.6 PG75: Gaging Station SW018

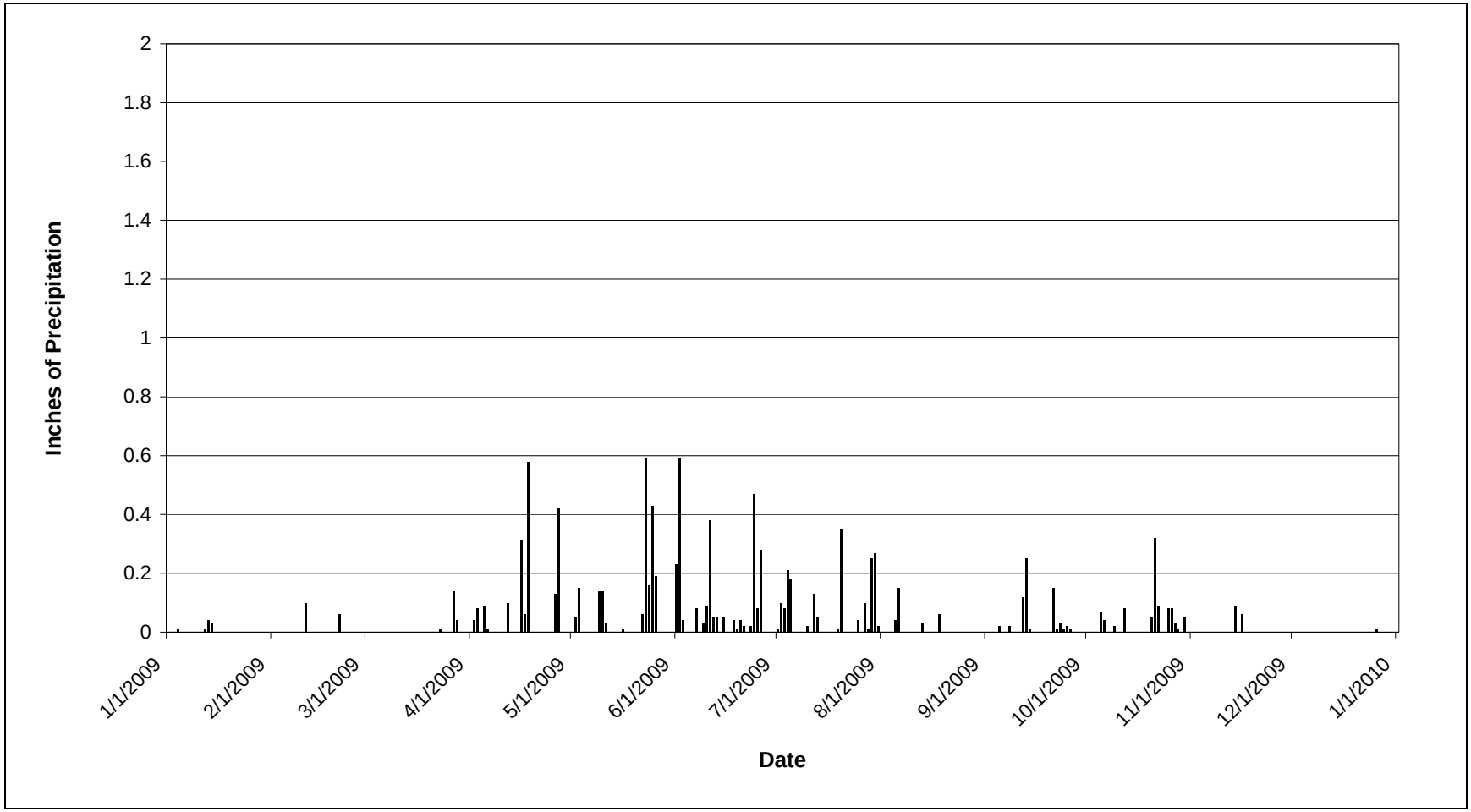

Figure A-6. CY 2009 Annual Hyetograph at PG75: Gaging Station SW018

Table A–21. CY 2009 Precipitation Summary for PG75: Gaging Station SW018

Calendar Year 2009: Daily Total Precipitation Values in Inches

Day	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09
1	0.00	0.00	0.00	0.00	0.00	0.23	0.01	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.04	0.05	0.59	0.10	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.08	0.15	0.04	0.08	0.00	0.00	0.00	0.00	0.00
4	0.01	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.09	0.00	0.00	0.18	0.04	0.02	0.07	0.00	0.00
6	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.15	0.00	0.04	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	No Data	0.00	0.00
9	0.00	0.00	0.00	0.00	0.14	0.03	0.00	0.00	0.00	0.02	0.00	0.00
10	0.00	0.00	0.00	0.00	0.14	0.09	0.02	0.00	0.00	0.00	0.00	0.00
11	0.00	0.10	0.00	0.00	0.03	0.38	0.00	0.00	0.00	0.00	0.00	0.00
12	0.01	0.00	0.00	0.10	0.00	0.05	0.13	0.00	0.12	0.08	0.00	0.00
13	0.04	0.00	0.00	0.00	0.00	0.05	0.05	0.03	0.25	0.00	0.00	0.00
14	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.09	0.00
15	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.31	0.01	0.00	0.00	0.00	0.00	0.00	0.06	0.00
17	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.58	0.00	0.04	0.00	0.06	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.04	0.35	0.00	0.00	0.05	0.00	0.00
21	0.00	0.06	0.00	0.00	0.00	0.02	0.00	0.00	0.15	0.32	0.00	0.00
22	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.01	0.09	0.00	0.00
23	0.00	0.00	0.01	0.00	0.59	0.02	0.00	0.00	0.03	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.16	0.47	0.00	0.00	0.01	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.43	0.08	0.04	0.00	0.02	0.08	0.00	0.00
26	0.00	0.00	0.00	0.13	0.19	0.28	0.00	0.00	0.01	0.08	0.00	0.01
27	0.00	0.00	0.14	0.42	0.00	0.00	0.10	0.00	0.00	0.03	0.00	0.00
28	0.00	0.00	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00
29	0.00	NA	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00
30	0.00	NA	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.05	0.00	0.00
31	0.00	NA	0.00	NA	0.00	NA	0.02	0.00	NA	0.00	NA	0.00
										Partial Data		

Precipitation

Monthly Total	0.09	0.16	0.19	1.82	1.95	2.55	1.83	0.28	0.65	0.92	0.15	0.01
Daily Maximum	0.04	0.10	0.14	0.58	0.59	0.59	0.35	0.15	0.25	0.32	0.09	0.01
										Partial Data		

Annual Summaries for CY09

KEY: No Data: Bad or missing data due to equipment failures or discontinued operation

Total Inches 10.60

Partial Data

A.2.7 PG76: Telemetry Repeater Node RTU3

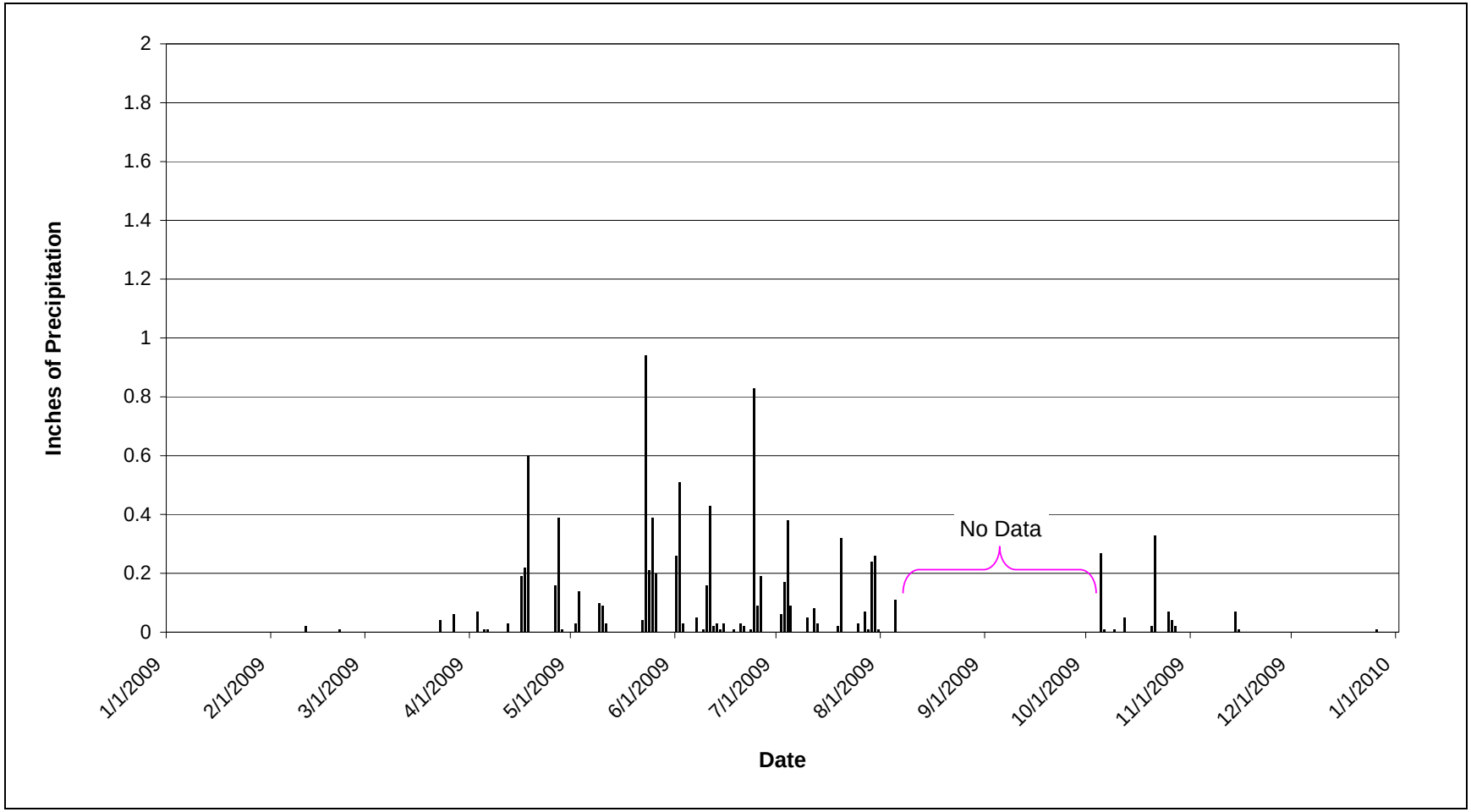

Figure A-7. CY 2009 Annual Hyetograph at PG76: Telemetry Repeater Node RTU3

Table A–22. CY 2009 Precipitation Summary for PG76: Telemetry Repeater Node RTU3

Calendar Year 2009: Daily Total Precipitation Values in Inches

Day	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09
1	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00	No Data	No Data	0.00	0.00
2	0.00	0.00	0.00	0.00	0.03	0.51	0.06	0.00	No Data	No Data	0.00	0.00
3	0.00	0.00	0.00	0.07	0.14	0.03	0.17	0.00	No Data	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.00	No Data	0.00	0.00	0.00
5	0.00	0.00	0.00	0.01	0.00	0.00	0.09	0.11	No Data	0.27	0.00	0.00
6	0.00	0.00	0.00	0.01	0.00	0.00	0.00	No Data	No Data	0.01	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.05	0.00	No Data	No Data	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	No Data	No Data	No Data	0.00	0.00
9	0.00	0.00	0.00	0.00	0.10	0.01	0.00	No Data	No Data	0.01	0.00	0.00
10	0.00	0.00	0.00	0.00	0.09	0.16	0.05	No Data	No Data	0.00	0.00	0.00
11	0.00	0.02	0.00	0.00	0.03	0.43	0.00	No Data	No Data	0.00	0.00	0.00
12	0.00	0.00	0.00	0.03	0.00	0.02	0.08	No Data	No Data	0.05	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.03	0.03	No Data	No Data	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.01	0.00	No Data	No Data	0.00	0.07	0.00
15	0.00	0.00	0.00	0.00	0.00	0.03	0.00	No Data	No Data	0.00	0.01	0.00
16	0.00	0.00	0.00	0.19	0.00	0.00	0.00	No Data	No Data	0.00	0.00	0.00
17	0.00	0.00	0.00	0.22	0.00	0.00	0.00	No Data	No Data	0.00	0.00	0.00
18	0.00	0.00	0.00	0.60	0.00	0.01	0.00	No Data	No Data	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.02	No Data	No Data	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.03	0.32	No Data	No Data	0.02	0.00	0.00
21	0.00	0.01	0.00	0.00	0.00	0.02	0.00	No Data	No Data	0.33	0.00	0.00
22	0.00	0.00	0.00	0.00	0.04	0.00	0.00	No Data	No Data	0.00	0.00	0.00
23	0.00	0.00	0.04	0.00	0.94	0.01	0.00	No Data	No Data	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.21	0.83	0.00	No Data	No Data	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.39	0.09	0.03	No Data	No Data	0.07	0.00	0.00
26	0.00	0.00	0.00	0.16	0.20	0.19	0.00	No Data	No Data	0.04	0.00	0.01
27	0.00	0.00	0.06	0.39	0.00	0.00	0.07	No Data	No Data	0.02	0.00	0.00
28	0.00	0.00	0.00	0.01	0.00	0.00	0.01	No Data	No Data	0.00	0.00	0.00
29	0.00	NA	0.00	0.00	0.00	0.00	0.24	No Data	No Data	0.00	0.00	0.00
30	0.00	NA	0.00	0.00	0.00	0.00	0.26	No Data	No Data	0.00	0.00	0.00
31	0.00	NA	0.00	NA	0.00	NA	0.01	No Data	NA	0.00	NA	0.00
								Partial Data	No Data	Partial Data		

Precipitation

Monthly Total	0.00	0.03	0.10	1.69	2.17	2.72	1.82	0.11		0.82	0.08	0.01
Daily Maximum	0.00	0.02	0.06	0.60	0.94	0.83	0.38	0.11		0.33	0.07	0.01
								Partial Data	No Data	Partial Data		

Annual Summaries for CY09

Total Inches 9.55

Partial Data

KEY: No Data: Bad or missing data due to equipment failures or discontinued operation

A.2.8 PG77: Telemetry Repeater Node RTU2

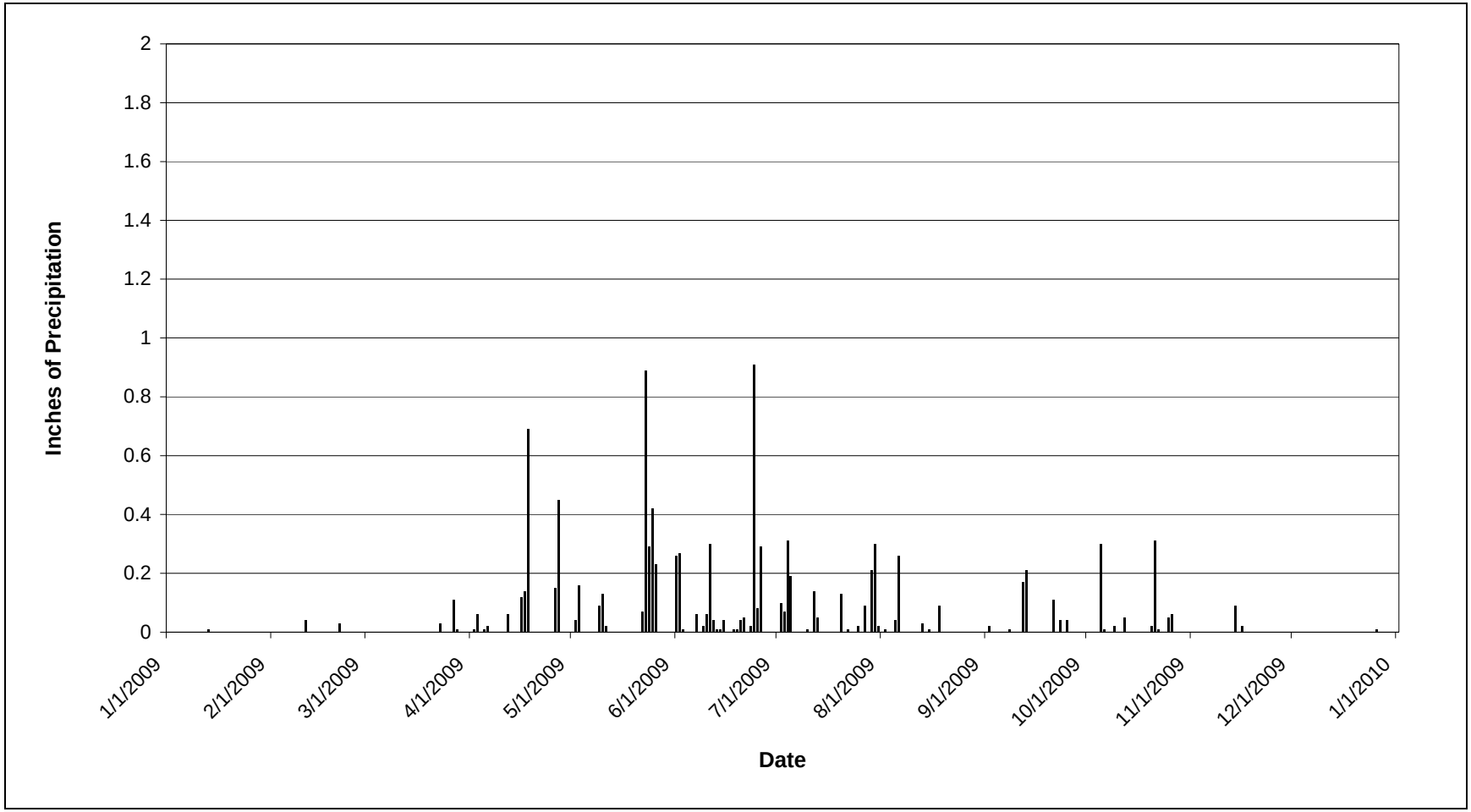

Figure A-8. CY 2009 Annual Hyetograph at PG77: Telemetry Repeater Node RTU2

Table A–23. CY 2009 Precipitation Summary for PG77: Telemetry Repeater Node RTU2

Calendar Year 2009: Daily Total Precipitation Values in Inches

Day	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09
1	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.01	0.04	0.27	0.10	0.01	0.02	0.00	0.00	0.00
3	0.00	0.00	0.00	0.06	0.16	0.01	0.07	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.01	0.00	0.00	0.19	0.04	0.00	0.30	0.00	0.00
6	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.26	0.00	0.01	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	No Data	0.00	0.00
9	0.00	0.00	0.00	0.00	0.09	0.02	0.00	0.00	0.00	0.02	0.00	0.00
10	0.00	0.00	0.00	0.00	0.13	0.06	0.01	0.00	0.00	0.00	0.00	0.00
11	0.00	0.04	0.00	0.00	0.02	0.30	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.06	0.00	0.04	0.14	0.00	0.17	0.05	0.00	0.00
13	0.01	0.00	0.00	0.00	0.00	0.01	0.05	0.03	0.21	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.09	0.00
15	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.01	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00
17	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.69	0.00	0.01	0.00	0.09	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.04	0.13	0.00	0.00	0.02	0.00	0.00
21	0.00	0.03	0.00	0.00	0.00	0.05	0.00	0.00	0.11	0.31	0.00	0.00
22	0.00	0.00	0.00	0.00	0.07	0.00	0.01	0.00	0.00	0.01	0.00	0.00
23	0.00	0.00	0.03	0.00	0.89	0.02	0.00	0.00	0.04	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.29	0.91	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.42	0.08	0.02	0.00	0.04	0.05	0.00	0.00
26	0.00	0.00	0.00	0.15	0.23	0.29	0.00	0.00	0.00	0.06	0.00	0.01
27	0.00	0.00	0.11	0.45	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00
28	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	0.00	NA	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00
30	0.00	NA	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00
31	0.00	NA	0.00	NA	0.00	NA	0.02	0.00	NA	0.00	NA	0.00
										Partial Data		

Precipitation

Monthly Total	0.01	0.07	0.15	1.71	2.34	2.49	1.65	0.44	0.60	0.83	0.11	0.01
Daily Maximum	0.01	0.04	0.11	0.69	0.89	0.91	0.31	0.26	0.21	0.31	0.09	0.01
										Partial Data		

Annual Summaries for CY09

Total Inches 10.41

Partial Data

KEY: No Data: Bad or missing data due to equipment failures or discontinued operation

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A.3 Groundwater Level Data for CY 2009

Water level data for 2009 are included for all wells at which manual measurements were collected.

Table A–24. Groundwater Elevation Data: CY 2009

Location Code	Log Date	Water Elevation (feet)	Depth from TOC (feet)
00191	1/15/2009	5947.54	22.94
00191	3/13/2009	5947.36	23.12
00191	4/9/2009	5947.8	22.68
00191	7/14/2009	5956.51	13.97
00191	10/1/2009	5951.16	19.32
00193	1/21/2009	5756.2	11.41
00193	4/8/2009	5755.96	11.65
00193	4/30/2009	5756.51	11.1
00193	10/1/2009	5759.8	7.81
00193	10/27/2009	5759.61	8
00203	1/8/2009	5963.4	10.76
00203	4/9/2009	5962.71	11.45
00203	7/14/2009	5967.51	6.65
00203	10/7/2009	5965.54	8.62
00491	1/14/2009	5886.3	18.97
00491	4/8/2009	5886.3	18.97
00491	10/1/2009	5889.66	15.61
00491	7/15/2009	5905.27	14.42
00797	1/21/2009	5922.74	17.94
00797	4/9/2009	5923.76	16.92
00797	5/28/2009	5924.7	15.98
00797	10/1/2009	5924.48	16.2
00797	10/27/2009	5924.54	16.14
00897	1/15/2009	5940.65	26.25
00897	4/9/2009	5939.65	27.25
00897	7/14/2009	5946.69	20.21
00897	10/6/2009	5944.96	21.94
00997	1/21/2009	5793.08	8.03
00997	4/9/2009	5794.29	6.82
00997	6/11/2009	5794.6	6.51
00997	10/6/2009	5791.22	9.89
00997	10/14/2009	5791.7	9.41
1786	1/13/2009	5862.88	6.48
1786	4/8/2009	5863.18	6.18
1786	6/16/2009	5863.04	6.32
1786	10/7/2009	5862.95	6.41
3687	1/15/2009	5909.83	41.4
3687	4/9/2009	5909.86	41.37
3687	7/14/2009	5910.92	40.31
3687	10/6/2009	5912.88	38.35
03991	1/15/2009	5899.88	36.81
03991	4/9/2009	5899.83	36.86

Table A−24. Groundwater Elevation Data: CY 2009

Location Code	Log Date	Water Elevation (feet)	Depth from TOC (feet)
03991	7/14/2009	5900.04	36.65
03991	10/1/2009	5900.28	36.41
4087	1/15/2009	5882.1	2.2
4087	4/8/2009	5882.14	2.16
4087	4/21/2009	5882.3	2
4087	7/7/2009	5881.71	2.59
4087	10/7/2009	5877.44	6.86
4087	11/10/2009	5881.99	2.31
04091	1/15/2009	5892.23	37.71
04091	4/9/2009	5892.23	37.71
04091	4/23/2009	5892.34	37.6
04091	5/19/2009	5892.14	37.8
04091	7/15/2009	5892.69	37.25
04091	10/1/2009	5892.55	37.39
04091	10/26/2009	5892.03	37.91
05691	1/15/2009	5913.56	35.15
05691	4/9/2009	5913.26	35.45
05691	7/14/2009	5916	32.71
05691	10/6/2009	5918.74	29.97
07391	1/14/2009	5941.02	9.71
07391	4/9/2009	5941.26	9.47
07391	6/16/2009	5944.41	6.32
07391	6/25/2009	5942.92	7.81
07391	10/1/2009	5941.92	8.81
07391	7/15/2009	5950.73	7.58
10304	1/21/2009	5810.81	5.99
10304	4/8/2009	5810.79	6.01
10304	5/28/2009	5810.54	6.26
10304	10/1/2009	5809.29	7.51
10304	11/4/2009	5811.62	5.18
10394	1/6/2009	5627.07	6.11
10394	4/8/2009	5628.43	4.75
10394	4/13/2009	5628.31	4.87
10394	10/7/2009	5623.93	9.25
10394	7/15/2009	5633.18	6.05
10594	1/13/2009	5808.45	12.64
10594	4/8/2009	5814.88	6.21
10594	6/9/2009	5814.86	6.23
10594	10/7/2009	5812.08	9.01
10594	10/15/2009	5812.28	8.81
11104	1/14/2009	5915.53	7.86
11104	4/8/2009	5915.61	7.78
11104	5/21/2009	5915.04	8.35
11104	10/1/2009	5913.98	9.41
11104	11/11/2009	5915.58	7.81
11104	7/15/2009	5923.39	8.72
11502	1/8/2009	5996.57	19.62

Table A−24. Groundwater Elevation Data: CY 2009

Location Code	Log Date	Water Elevation (feet)	Depth from TOC (feet)
11502	4/8/2009	6002.1	14.09
11502	4/29/2009	6005.79	10.4
11502	10/6/2009	5996.5	19.69
11502	11/4/2009	5996.08	20.11
11502	7/15/2009	6016.19	15.75
15699	1/6/2009	5909.58	10.72
15699	4/9/2009	5910.68	9.62
15699	4/20/2009	5916.65	3.65
15699	7/14/2009	5913.19	7.11
15699	10/6/2009	5912.17	8.13
15699	10/20/2009	5912.64	7.66
16299	1/6/2009	5912.08	12.82
16299	7/7/2009	5913.54	11.36
16399	1/6/2009	5912.26	10.17
16399	7/7/2009	5913.75	8.68
16499	1/6/2009	5912.17	9.64
16499	7/7/2009	5913.68	8.13
16599	1/6/2009	5911.54	10.61
16599	7/7/2009	5916.09	6.06
18199	1/8/2009	5970.64	16.95
18199	4/9/2009	5970.06	17.53
18199	5/1/2009	5977.82	9.77
18199	6/18/2009	5977.38	10.21
18199	7/14/2009	5976.48	11.11
18199	10/7/2009	5973.7	13.89
20205	1/21/2009	5926.4	13.11
20205	4/9/2009	5927.44	12.07
20205	5/1/2009	5930.31	9.2
20205	5/5/2009	5930.46	9.05
20205	7/13/2009	5930.42	9.09
20205	10/7/2009	5929.54	9.97
20205	10/13/2009	5929.52	9.99
20505	1/8/2009	5919.12	22.42
20505	4/9/2009	5920.68	20.86
20505	5/1/2009	5921.4	20.14
20505	5/7/2009	5922.21	19.33
20505	7/13/2009	5931.49	10.05
20505	10/7/2009	5932.96	8.58
20505	10/13/2009	5932.55	8.99
20705	1/8/2009	5924.45	18.75
20705	4/9/2009	5924.61	18.59
20705	5/1/2009	5934.19	9.01
20705	5/5/2009	5933.55	9.65
20705	7/13/2009	5933.15	10.05
20705	10/7/2009	5930.35	12.85
20705	10/13/2009	5930.22	12.98
20902	1/21/2009	5939.33	10.05

Table A−24. Groundwater Elevation Data: CY 2009

Location Code	Log Date	Water Elevation (feet)	Depth from TOC (feet)
20902	4/9/2009	5939.03	10.35
20902	5/1/2009	5939.52	9.86
20902	7/13/2009	5945.23	4.15
20902	10/7/2009	5942.76	6.62
21002	1/8/2009	5944.45	16.55
21002	4/9/2009	5944.78	16.22
21002	5/1/2009	5950.6	10.4
21002	7/13/2009	5950.06	10.94
21002	10/7/2009	5946.47	14.53
21305	1/9/2009	5950.85	15.81
21305	4/9/2009	5950.96	15.7
21305	5/1/2009	5960.05	6.61
21305	7/13/2009	5957.5	9.16
21305	10/7/2009	5952.81	13.85
21505	1/8/2009	5966.04	7.51
21505	4/9/2009	5967.26	6.29
21505	5/1/2009	5969.31	4.24
21505	5/1/2009	5969.31	4.24
21505	7/13/2009	5967.31	6.24
21505	10/7/2009	5963.33	10.22
21505	7/15/2009	5973.55	6.24
21605	1/8/2009	5965.29	10.97
21605	4/9/2009	5965.65	10.61
21605	5/1/2009	5972.79	3.47
21605	7/13/2009	5971.16	5.1
21605	10/7/2009	5967.25	9.01
21605	7/15/2009	5976.26	5.1
22205	1/9/2009	5914.65	19.75
22205	4/9/2009	5914.47	19.93
22205	7/13/2009	5914.67	19.73
22205	10/7/2009	5916.12	18.28
22996	1/21/2009	5975.83	11.13
22996	4/13/2009	5979.71	7.25
22996	10/7/2009	5976.19	10.77
23296	1/22/2009	5854.96	2.53
23296	4/9/2009	5855.42	2.07
23296	4/29/2009	5856.08	1.41
23296	7/14/2009	5855.84	1.65
23296	10/6/2009	5855.94	1.55
23296	10/26/2009	5856.28	1.21
30002	1/8/2009	5913.03	16.81
30002	4/9/2009	5913.43	16.41
30002	5/13/2009	5920.31	9.53
30002	7/13/2009	5927.19	2.65
30002	10/7/2009	5922.95	6.89
30002	10/13/2009	5922.72	7.12
30900	1/6/2009	5990.31	16.84

Table A−24. Groundwater Elevation Data: CY 2009

Location Code	Log Date	Water Elevation (feet)	Depth from TOC (feet)
30900	4/8/2009	5994.1	13.05
30900	7/7/2009	6002.76	4.39
30900	10/7/2009	5993.94	13.21
33502	1/8/2009	6012.71	9.45
33502	4/13/2009	6014.6	7.56
33502	6/24/2009	6017.54	4.62
33502	10/7/2009	6013.3	8.86
33502	7/15/2009	6022.16	5.28
33604	1/8/2009	6008.97	9.85
33604	4/13/2009	6009	9.82
33604	6/24/2009	6013.73	5.09
33604	10/7/2009	6010.2	8.62
33604	7/15/2009	6018.82	5.66
33703	1/21/2009	5995.01	21.7
33703	4/13/2009	5994.58	22.13
33703	5/1/2009	5997.3	19.41
33703	5/13/2009	6003.54	13.17
33703	10/7/2009	5999.11	17.6
33703	10/12/2009	5998.96	17.75
33905	1/21/2009	5986.24	21.18
33905	4/13/2009	5990.91	16.51
33905	5/1/2009	5998.64	8.78
33905	10/7/2009	5988.47	18.95
37105	1/8/2009	6002.23	11.91
37105	4/13/2009	6002.35	11.79
37105	10/7/2009	6003.38	10.76
37105	7/15/2009	6014.14	6.66
37405	1/8/2009	5983.69	26.02
37405	4/13/2009	5983.4	26.31
37405	5/6/2009	5988.45	21.26
37405	10/7/2009	5985.76	23.95
37405	10/12/2009	5985.76	23.95
37405	7/15/2009	6009.71	20.36
37505	1/8/2009	5990.05	21.77
37505	4/13/2009	5989.26	22.56
37505	5/7/2009	5993.34	18.48
37505	10/7/2009	5996.92	14.9
37505	10/12/2009	5996.9	14.92
37505	7/15/2009	6011.82	11.92
37591	1/14/2009	5979.4	14.14
37591	4/9/2009	5978.41	15.13
37591	10/1/2009	5980.72	12.82
37591	7/15/2009	5993.54	7.82
37691	1/14/2009	5967.42	18.89
37691	4/9/2009	5967.4	18.91
37691	10/1/2009	5967.98	18.33
37691	7/15/2009	5986.31	17.12

Table A−24. Groundwater Elevation Data: CY 2009

Location Code	Log Date	Water Elevation (feet)	Depth from TOC (feet)
37705	1/21/2009	5967.09	42.25
37705	4/13/2009	5967.77	41.57
37705	5/6/2009	5967.87	41.47
37705	10/7/2009	5970.93	38.41
37705	10/14/2009	5971.24	38.1
39605	1/14/2009	5991.78	16.75
39605	4/9/2009	5991.43	17.1
39605	10/1/2009	5996.18	12.35
39605	7/15/2009	6008.53	10.85
40005	1/21/2009	6005.26	33.07
40005	4/8/2009	6005.73	32.6
40005	10/6/2009	6006.63	31.7
40005	7/15/2009	6038.33	27.42
40205	1/8/2009	6003.44	32.32
40205	4/8/2009	6004.22	31.54
40205	10/6/2009	6003.95	31.81
40205	7/15/2009	6035.76	30.15
40305	1/8/2009	6003.04	21.51
40305	4/8/2009	6006.62	17.93
40305	5/27/2009	6010	14.55
40305	10/6/2009	6004.27	20.28
40305	11/4/2009	6006.25	18.3
40305	7/15/2009	6024.55	15.24
41691	1/6/2009	5631.72	14.06
41691	4/13/2009	5632.08	13.7
41691	4/13/2009	5632.08	13.7
41691	10/9/2009	5633.06	12.72
41691	7/15/2009	5645.78	9.05
42505	1/21/2009	5928.54	11.35
42505	4/9/2009	5928.86	11.03
42505	5/13/2009	5929.18	10.71
42505	7/13/2009	5930.47	9.42
42505	10/7/2009	5930.15	9.74
42505	10/13/2009	5930.09	9.8
45608	1/15/2009	5952.29	0
45608	4/9/2009	5952.29	0
45608	5/11/2009	5952.29	0
45608	7/14/2009	5952.29	0
45608	10/6/2009	5952.29	0
45608	11/3/2009	5952.29	0
50299	1/14/2009	5913.5	12.41
50299	3/13/2009	5913.22	12.69
50299	4/8/2009	5913.54	12.37
50299	10/1/2009	5921.62	4.29
50299	7/15/2009	5925.91	4.11
51605	1/13/2009	5835.06	7.05
51605	4/8/2009	5836.87	5.24

Table A−24. Groundwater Elevation Data: CY 2009

Location Code	Log Date	Water Elevation (feet)	Depth from TOC (feet)
51605	10/7/2009	5834.38	7.73
52505	1/21/2009	5941.38	4.41
52505	4/9/2009	5942.02	3.77
52505	5/4/2009	5943.04	2.75
52505	7/13/2009	5941.07	4.72
52505	10/7/2009	5940.85	4.94
52505	10/13/2009	5940.99	4.8
55905	1/8/2009	5981.35	16.1
55905	4/9/2009	5983.48	13.97
55905	5/1/2009	5986.44	11.01
55905	7/14/2009	5983.94	13.51
55905	10/7/2009	5982.34	15.11
56305	1/8/2009	5985.6	14.59
56305	4/9/2009	5988.22	11.97
56305	5/1/2009	5992.57	7.62
56305	7/14/2009	5990.48	9.71
56305	10/7/2009	5987.25	12.94
70099	1/21/2009	5875.65	23.87
70099	4/8/2009	5876.17	23.35
70099	6/4/2009	5876.37	23.15
70099	10/7/2009	5876.88	22.64
70099	10/14/2009	5877.01	22.51
70193	1/6/2009	5975.7	16.51
70193	2/24/2009	5975.5	16.71
70193	4/8/2009	5977.36	14.85
70193	4/14/2009	5977.14	15.07
70193	7/7/2009	5980.65	11.56
70193	9/10/2009	5978.28	13.93
70193	10/7/2009	5976.26	15.95
70193	11/5/2009	5975.3	16.91
70393	1/15/2009	5984.75	15.34
70393	3/3/2009	5984.59	15.5
70393	4/8/2009	5986.35	13.74
70393	4/14/2009	5986.79	13.3
70393	9/10/2009	5989.14	10.95
70393	10/7/2009	5987.98	12.11
70393	11/9/2009	5987.64	12.45
70693	1/6/2009	5970.52	22.1
70693	3/3/2009	5970.19	22.43
70693	4/8/2009	5978.12	14.5
70693	4/15/2009	5975.11	17.51
70693	7/7/2009	5980.71	11.91
70693	9/9/2009	5974.71	17.91
70693	10/7/2009	5973.82	18.8
70693	11/9/2009	5975.33	17.29
70705	1/21/2009	5981.53	12.01
70705	4/9/2009	5982.87	10.67

Table A−24. Groundwater Elevation Data: CY 2009

Location Code	Log Date	Water Elevation (feet)	Depth from TOC (feet)
70705	5/1/2009	5985.93	7.61
70705	7/14/2009	5984.73	8.81
70705	10/7/2009	5982.59	10.95
71099	1/13/2009	5875.27	25.68
73005	1/6/2009	5915.7	24.41
73005	2/26/2009	5916.7	23.41
73005	4/8/2009	5914.91	25.2
73005	4/15/2009	5915.21	24.9
73005	7/7/2009	5917.73	22.38
73005	10/7/2009	5915.47	24.64
73005	11/10/2009	5916.5	23.61
73105	1/15/2009	5917.9	10.65
73105	2/25/2009	5917.56	10.99
73105	4/8/2009	5915.53	13.02
73105	4/14/2009	5916.01	12.54
73105	10/7/2009	5914.66	13.89
73105	11/10/2009	5916.83	11.72
73205	1/6/2009	5922.1	17.81
73205	3/2/2009	5921.78	18.13
73205	4/8/2009	5919.26	20.65
73205	4/15/2009	5919.68	20.23
73205	7/7/2009	5923.62	16.29
73205	8/27/2009	5923.67	16.24
73205	9/9/2009	5926.81	13.1
73205	10/7/2009	5923.33	16.58
73205	11/10/2009	5923.3	16.61
79102	1/21/2009	5947.93	20.95
79102	4/8/2009	5947.98	20.9
79102	7/14/2009	5949.68	19.2
79102	10/7/2009	5948.37	20.51
79202	1/8/2009	5942.59	28.1
79202	4/8/2009	5942.29	28.4
79202	7/14/2009	5945.49	25.2
79202	10/7/2009	5943.87	26.82
79302	1/21/2009	5941.22	18.59
79302	4/8/2009	5940.39	19.42
79302	7/14/2009	5943.75	16.06
79302	10/7/2009	5943.4	16.41
79402	1/8/2009	5953.19	8.42
79402	4/8/2009	5955.93	5.68
79402	7/14/2009	5956.12	5.49
79402	10/7/2009	5953.41	8.2
79502	1/8/2009	5960.75	9.51
79502	4/9/2009	5961.56	8.7
79502	7/14/2009	5962.21	8.05
79502	10/7/2009	5960.72	9.54
79605	1/21/2009	5947.58	17.09

Table A−24. Groundwater Elevation Data: CY 2009

Location Code	Log Date	Water Elevation (feet)	Depth from TOC (feet)
79605	4/9/2009	5948.63	16.04
79605	7/14/2009	5957.83	6.84
79605	10/7/2009	5954.71	9.96
80005	1/14/2009	5950.99	9.2
80005	3/2/2009	5950.98	9.21
80005	4/8/2009	5952.89	7.3
80005	5/19/2009	5952.87	7.32
80005	7/7/2009	5953.04	7.15
80005	8/12/2009	5952.25	7.94
80005	10/1/2009	5951.7	8.49
80005	11/11/2009	5952.55	7.64
80105	1/14/2009	5938.96	3.01
80105	3/3/2009	5937.32	4.65
80105	4/8/2009	5936.76	5.21
80105	5/19/2009	5936.76	5.21
80105	7/7/2009	5937.92	4.05
80105	8/13/2009	5938.81	3.16
80105	10/1/2009	5940	1.97
80105	11/11/2009	5940.32	1.65
80205	1/21/2009	5931.49	10.18
80205	3/2/2009	5931.68	9.99
80205	4/8/2009	5932.22	9.45
80205	5/20/2009	5932.98	8.69
80205	8/11/2009	5932.7	8.97
80205	10/1/2009	5932	9.67
80205	11/11/2009	5931.95	9.72
80205	11/24/2009	5931.98	9.69
88104	1/21/2009	5941.41	20.68
88104	4/9/2009	5943.26	18.83
88104	6/1/2009	5944.22	17.87
88104	10/1/2009	5943.68	18.41
88104	10/27/2009	5944.28	17.81
88205	1/21/2009	5966.72	9.13
88205	4/9/2009	5969.04	6.81
88205	10/1/2009	5970.12	5.73
89104	1/21/2009	5851.82	6.39
89104	4/8/2009	5852.14	6.07
89104	5/27/2009	5852.79	5.42
89104	10/1/2009	5851.6	6.61
89104	10/27/2009	5851.9	6.31
90299	1/13/2009	Dry	Dry
90299	4/8/2009	Dry	Dry
90299	4/30/2009	Dry	Dry
90299	10/1/2009	Dry	Dry
90299	7/15/2009	Dry	Dry
90399	1/13/2009	5819.37	20.53
90399	4/8/2009	5819.15	20.75

Table A−24. Groundwater Elevation Data: CY 2009

Location Code	Log Date	Water Elevation (feet)	Depth from TOC (feet)
90399	4/30/2009	5824.1	15.8
90399	10/1/2009	5819.68	20.22
90399	10/27/2009	5819.68	20.22
90399	7/15/2009	5839.9	17.91
90402	1/14/2009	5936.94	16.26
90402	4/9/2009	5937.19	16.01
90402	10/1/2009	5937.05	16.15
90402	7/15/2009	5953.2	5.01
90804	1/21/2009	5851.07	44.02
90804	4/8/2009	5850.84	44.25
90804	10/1/2009	5851.24	43.85
91105	1/15/2009	5942.81	12.32
91105	4/9/2009	5942.91	12.22
91105	7/14/2009	5948.29	6.84
91105	10/6/2009	5947.38	7.75
91203	1/15/2009	5929.43	8.71
91203	4/9/2009	5929.74	8.4
91203	5/11/2009	5933.97	4.17
91203	7/14/2009	5934.47	3.67
91203	10/6/2009	5933.06	5.08
91203	11/3/2009	5932.83	5.31
91305	1/15/2009	5925.29	6.23
91305	4/9/2009	5925.96	5.56
91305	5/12/2009	5926.47	5.05
91305	7/14/2009	5928.47	3.05
91305	10/6/2009	5927.86	3.66
91305	11/3/2009	5927.91	3.61
95099	1/15/2009	5848.46	14.92
95099	4/9/2009	5849.13	14.25
95099	4/22/2009	5849.28	14.1
95099	7/7/2009	5849.34	14.04
95099	10/6/2009	5849.72	13.66
95099	10/26/2009	5849.8	13.58
95199	1/22/2009	5870.35	10.9
95199	4/9/2009	5869.1	12.15
95199	4/28/2009	5869.47	11.78
95199	7/7/2009	5869.95	11.3
95199	10/6/2009	5869.66	11.59
95199	10/20/2009	5869.9	11.35
95299	1/15/2009	Dry	Dry
95299	4/9/2009	Dry	Dry
95299	4/22/2009	Dry	Dry
95299	7/7/2009	Dry	Dry
95299	10/6/2009	Dry	Dry
95799	7/7/2009	5881.2	9.2
95899	1/15/2009	5886.91	21.4
99305	1/21/2009	5927.09	12.45

Table A−24. Groundwater Elevation Data: CY 2009

Location Code	Log Date	Water Elevation (feet)	Depth from TOC (feet)
99305	4/9/2009	5926.92	12.62
99305	5/12/2009	5928.83	10.71
99305	7/14/2009	5929.49	10.05
99305	10/7/2009	5929.63	9.91
99305	10/15/2009	5929.58	9.96
99405	1/21/2009	5927.71	7.45
99405	4/9/2009	5928.19	6.97
99405	5/18/2009	5928.61	6.55
99405	7/14/2009	5928.35	6.81
99405	10/7/2009	5929.53	5.63
99405	10/15/2009	5929.25	5.91
891WEL	1/21/2009	5913.56	13.24
891WEL	4/9/2009	5913.78	13.02
891WEL	10/1/2009	5914.13	12.67
891WEL	7/15/2009	5926.8	11.14
B206989	1/15/2009	5863.57	20.61
B206989	4/8/2009	5865.9	18.28
B206989	4/22/2009	5866.33	17.85
B206989	10/7/2009	5865.93	18.25
B206989	11/10/2009	5866.9	17.28
B210489	1/21/2009	5854.77	3.9
B210489	4/8/2009	5855.16	3.51
B210489	6/16/2009	5856.23	2.44
B210489	10/7/2009	5856.28	2.39
P114389	1/8/2009	5984.6	8.46
P114389	4/13/2009	5985.16	7.9
P114389	10/7/2009	5984.97	8.09
P114389	7/15/2009	5993.06	7.45
P114689	1/8/2009	5992.92	12.61
P114689	4/9/2009	5996.92	8.61
P114689	5/1/2009	6000.98	4.55
P114689	7/13/2009	5999.27	6.26
P114689	10/7/2009	5995.17	10.36
P115589	1/21/2009	6002.43	11.35
P115589	4/13/2009	6006.23	7.55
P115589	5/1/2009	6010.91	2.87
P115589	7/14/2009	6010.01	3.77
P115589	10/7/2009	6004.73	9.05
P208989	1/21/2009	5947.98	16.32
P208989	4/8/2009	5948.8	15.5
P208989	7/14/2009	5951.56	12.74
P208989	10/7/2009	5949.16	15.14
P210089	1/21/2009	5889.32	14.87
P210089	4/8/2009	5891.52	12.67
P210089	6/11/2009	5898.32	5.87
P210089	10/7/2009	5895.99	8.2
P210089	10/14/2009	5897.64	6.55

Table A−24. Groundwater Elevation Data: CY 2009

Location Code	Log Date	Water Elevation (feet)	Depth from TOC (feet)
P210189	1/8/2009	5965.71	16.45
P210189	4/9/2009	5964.47	17.69
P210189	5/1/2009	5968.85	13.31
P210189	7/14/2009	5970.95	11.21
P210189	10/7/2009	5968.27	13.89
P416589	1/8/2009	6010.51	32.16
P416589	3/3/2009	6010.18	32.49
P416589	4/8/2009	6010.2	32.47
P416589	5/21/2009	6016.12	26.55
P416589	10/6/2009	6013.03	29.64
P416589	11/11/2009	6012.52	30.15
P416589	7/15/2009	6042.67	23.63
P416889	1/8/2009	5998.55	20.37
P416889	4/8/2009	5998.94	19.98
P416889	10/6/2009	6000.06	18.86
P416889	7/15/2009	6018.92	14.74
P419689	1/21/2009	6001.19	22.05
P419689	4/8/2009	6002.53	20.71
P419689	10/6/2009	6002.41	20.83
P419689	7/15/2009	6023.24	16.61

A.4 Groundwater Hydrographs

Hydrographs were constructed by first assembling all 2009 water level data for the RFLMA wells (DOE 2008d) and other groundwater locations existing through 2009. These data were then reviewed and prepared for display by merging them with water level data compiled for the 2008 Annual Report (DOE 2008b). The resulting hydrographs show water levels for current wells together with historic water levels for their predecessors, as applicable. (A separate set of hydrographs were prepared that include automated water level data; see separate description preceding those files.)

Data were adjusted as described in Table A–25 below.

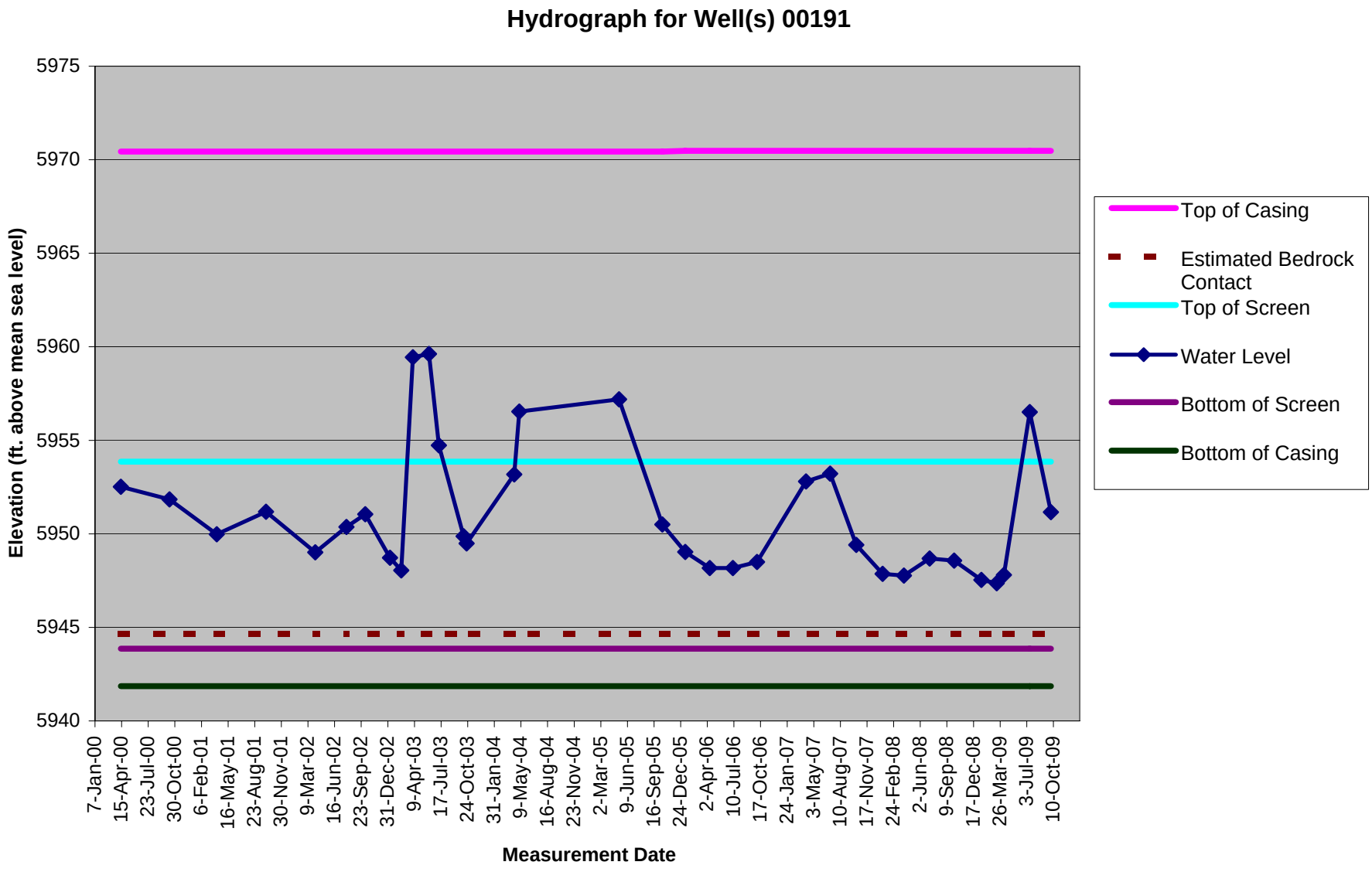
Table A–25. Adjustments to Groundwater Level Data for Hydrograph Generation

Original Entry	Converted To	Rationale
"D" or "Dry"	Calculated well TD	The actual water level may be as shallow as the bottom of the screened interval, but equating it to the bottom of the well is standard practice.
"Technically dry", or water level equivalent to technically dry	Calculated well TD	The actual water level may be as shallow as the bottom of the screened interval, but considering "technically dry" to be equivalent to "dry" is standard practice.
"Dry to the top of the pump"*	Calculated well TD	The actual water level may have been within the screened interval, but there is no way of determining the actual level based on the water level data recorded. Therefore, because wells that were dry to the top of the pump were often shown to be truly dry during later sampling, by convention the well was considered "dry".
Blank or N/A*	Record deleted	Non-entries and entries of "N/A" often referred to instances in which performing the water level measurement was not possible because of downhole tooling in the well, inaccessibility of the well, etc.
Water level below calculated TD*	Record deleted	Calculated TDs are based on measurements made during well construction, which may not be as accurate as those made during water level measurement. However, the latter show variability from one measurement to another. Calculated TDs were therefore selected to represent the bottom of the well. Because some water level records indicated a water level significantly deeper than the calculated TD, all were considered spurious data and were removed from the dataset.
Data for wells that had already been replaced*	Record deleted	Several wells replacements were installed before the original wells were abandoned. As soon as the replacement was deemed appropriate for use, the original well was removed from the program. Any water level measurements collected from the original on or after that date were removed from the hydrograph dataset.
Multiple entries on same day*	Redundant records deleted	On occasion, the water level in a well was measured more than once in the same day. Although usually the water levels were identical or within a few hundredths of a foot, the later water level measurements were deleted to clean up the dataset and resulting hydrographs.

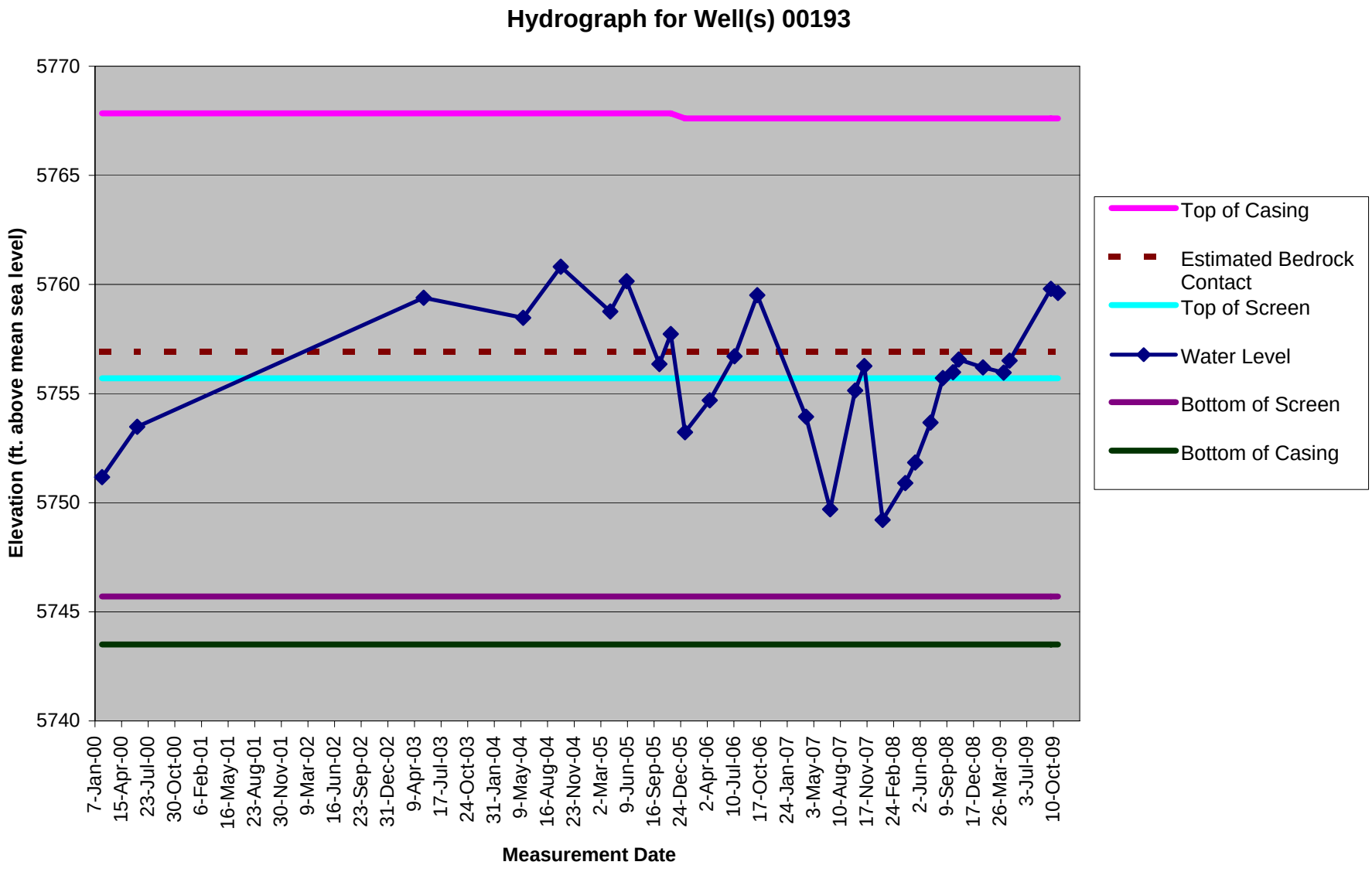
TD = total depth of well.
"Technically dry" is the condition in which all water within a well is within the (non-perforated) sump below the base of the screened interval, and therefore does not reflect and is isolated from the local groundwater.
* = results were adjusted for the 2005 Annual Report (DOE 2006e) and needed no additional adjustment for the current report. See the 2005 report for additional explanation.

A.4.1 Hydrographs for Manually Collected Water Level Data

The following hydrographs were generated using 2009 water level data collected manually.



From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)



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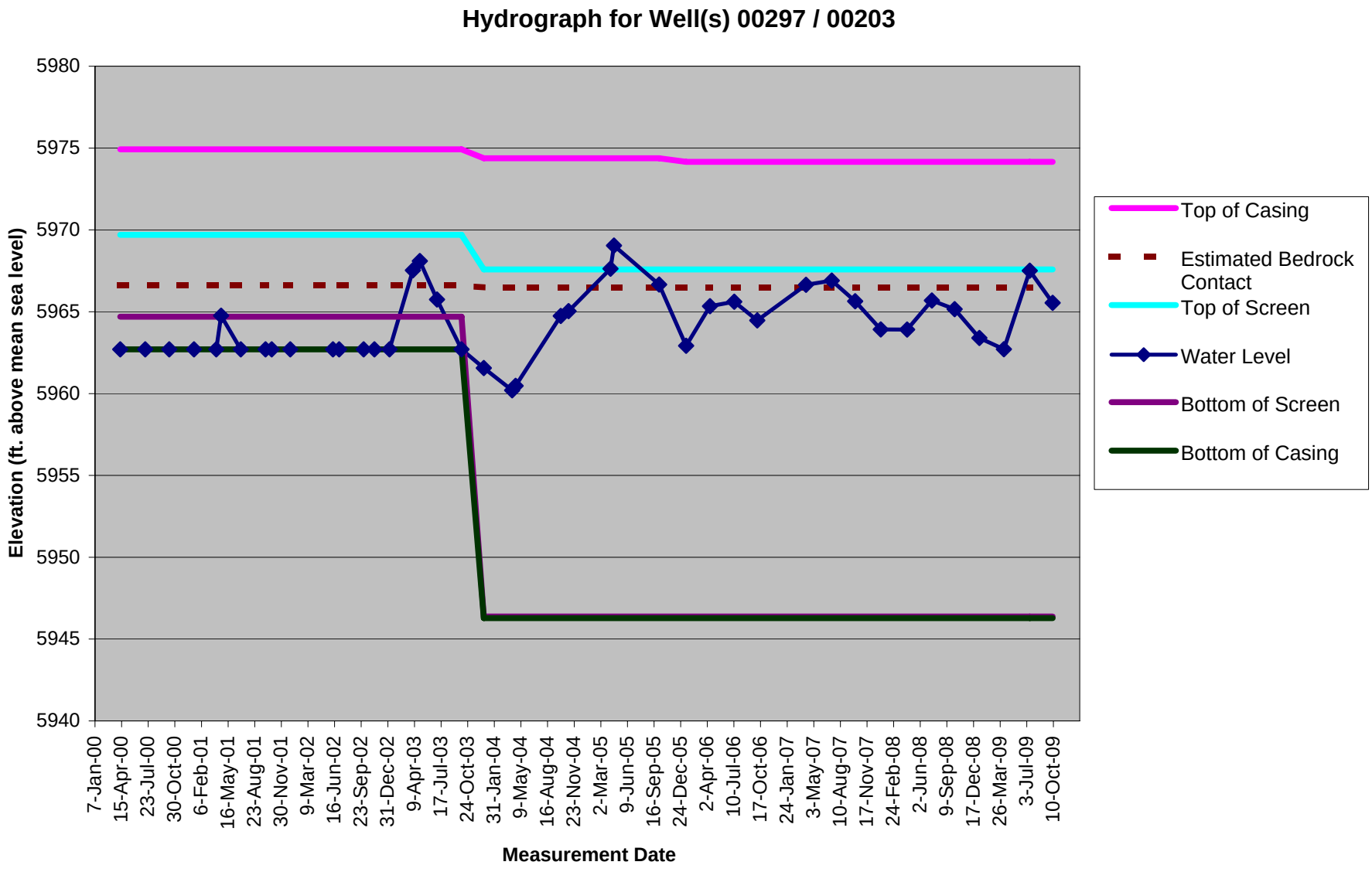

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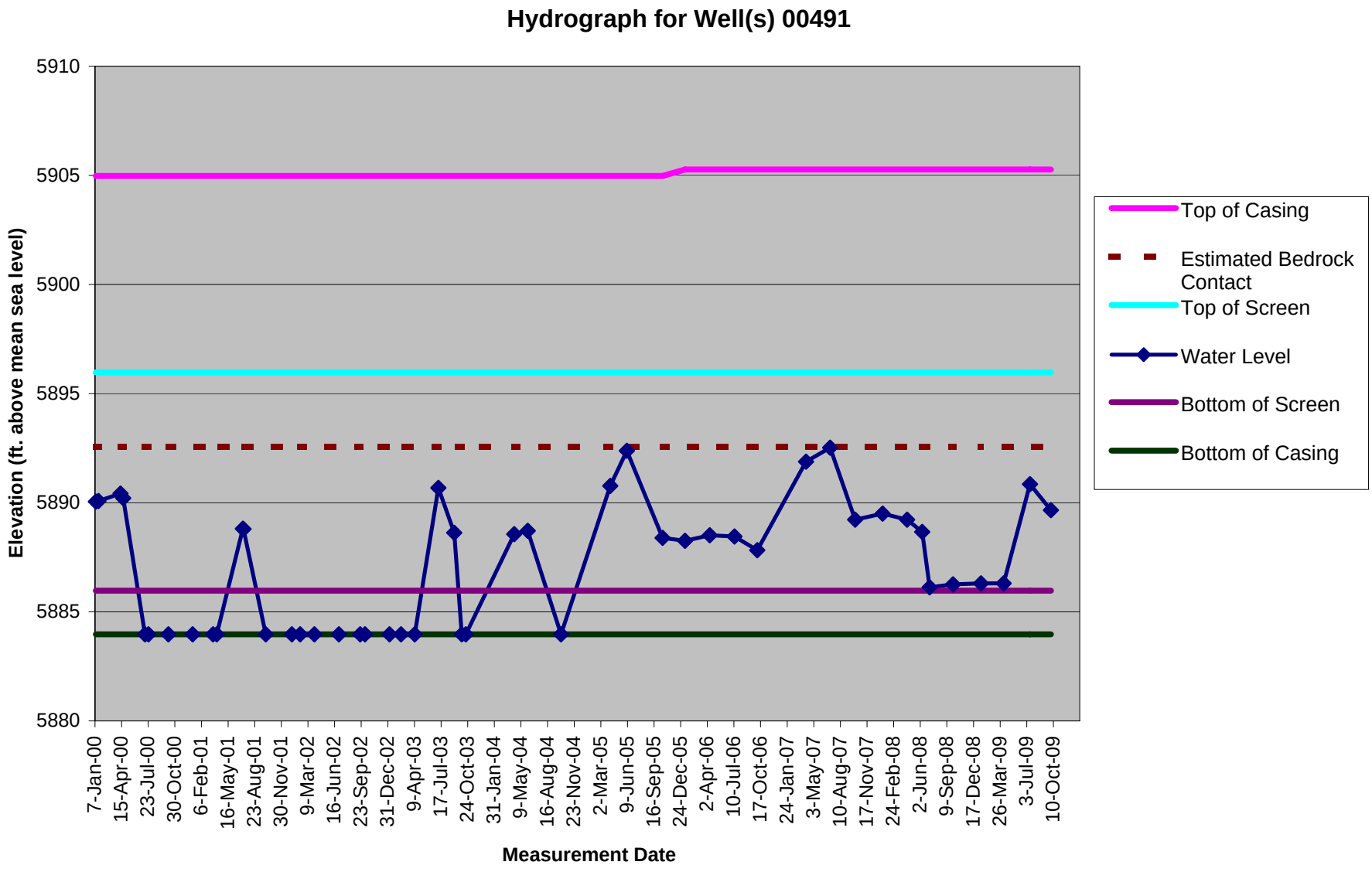

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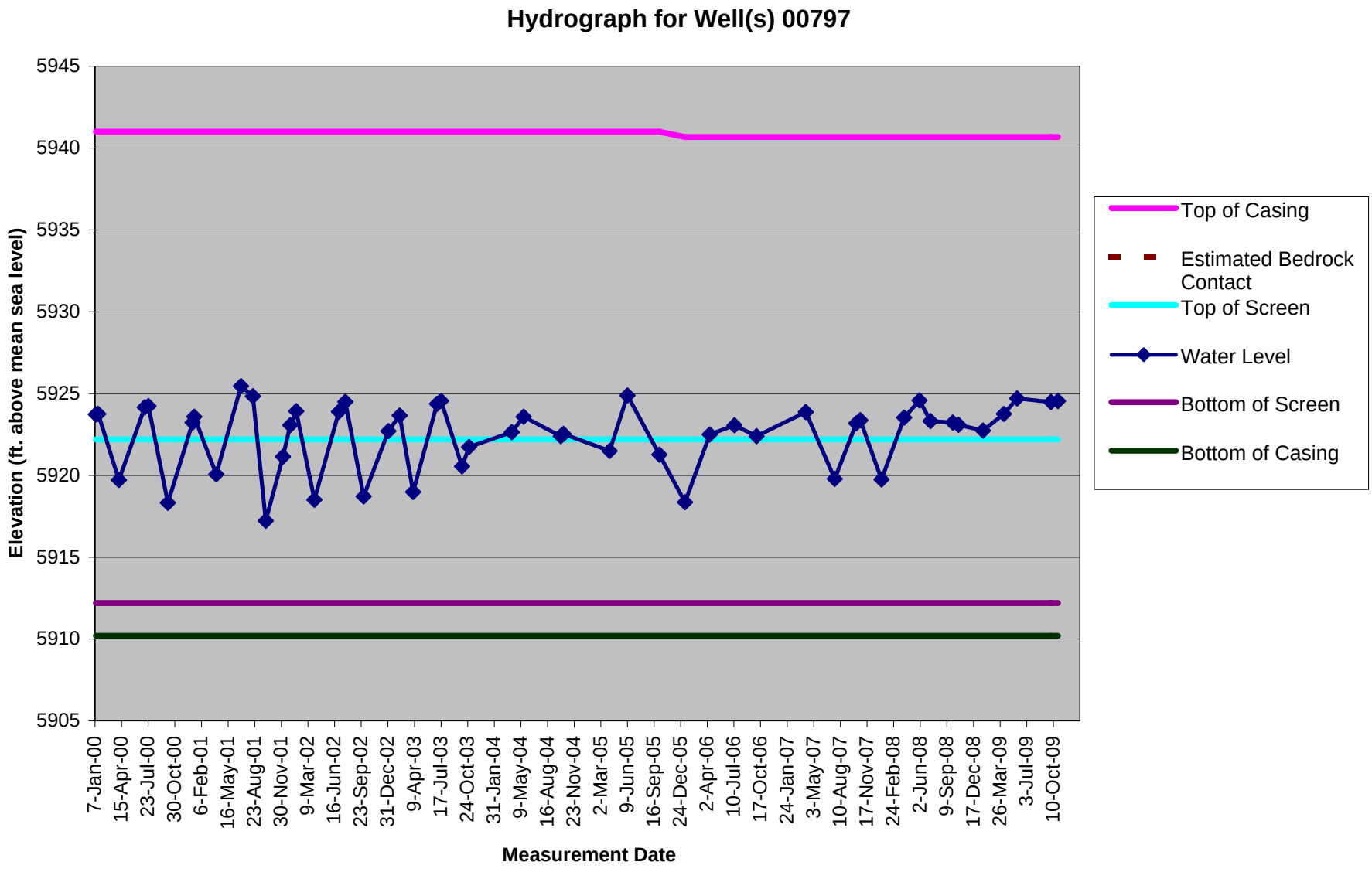

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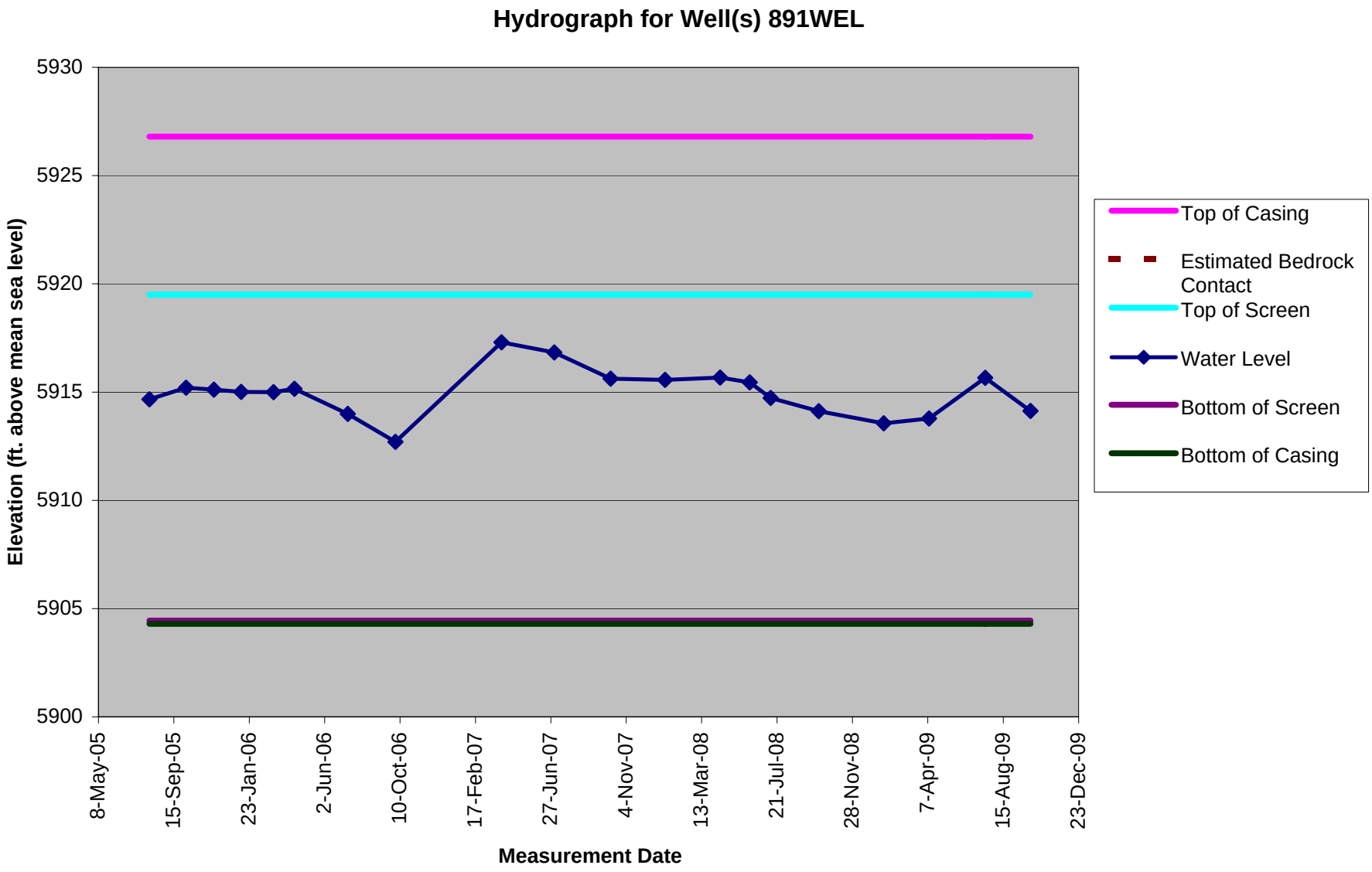

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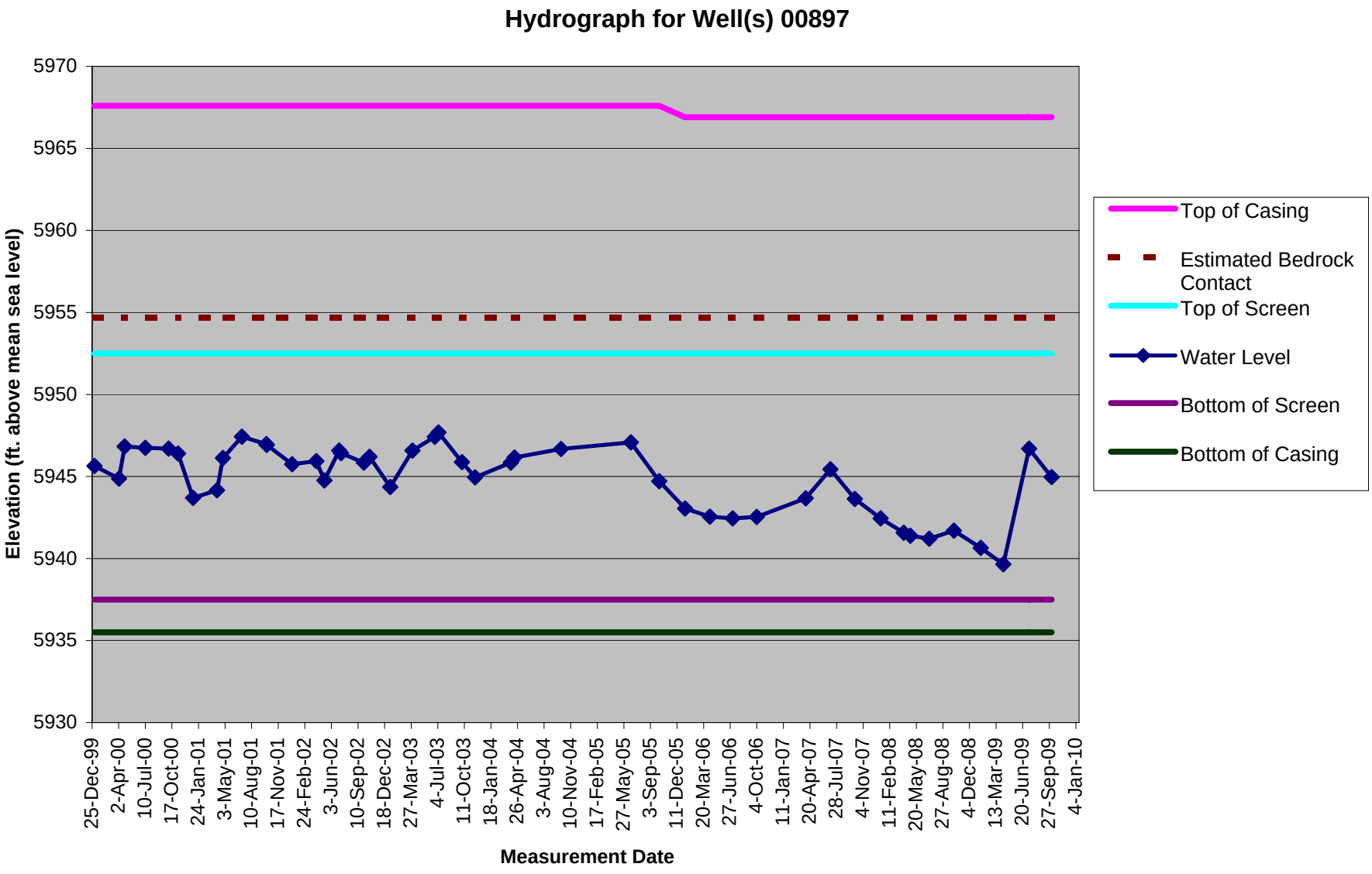

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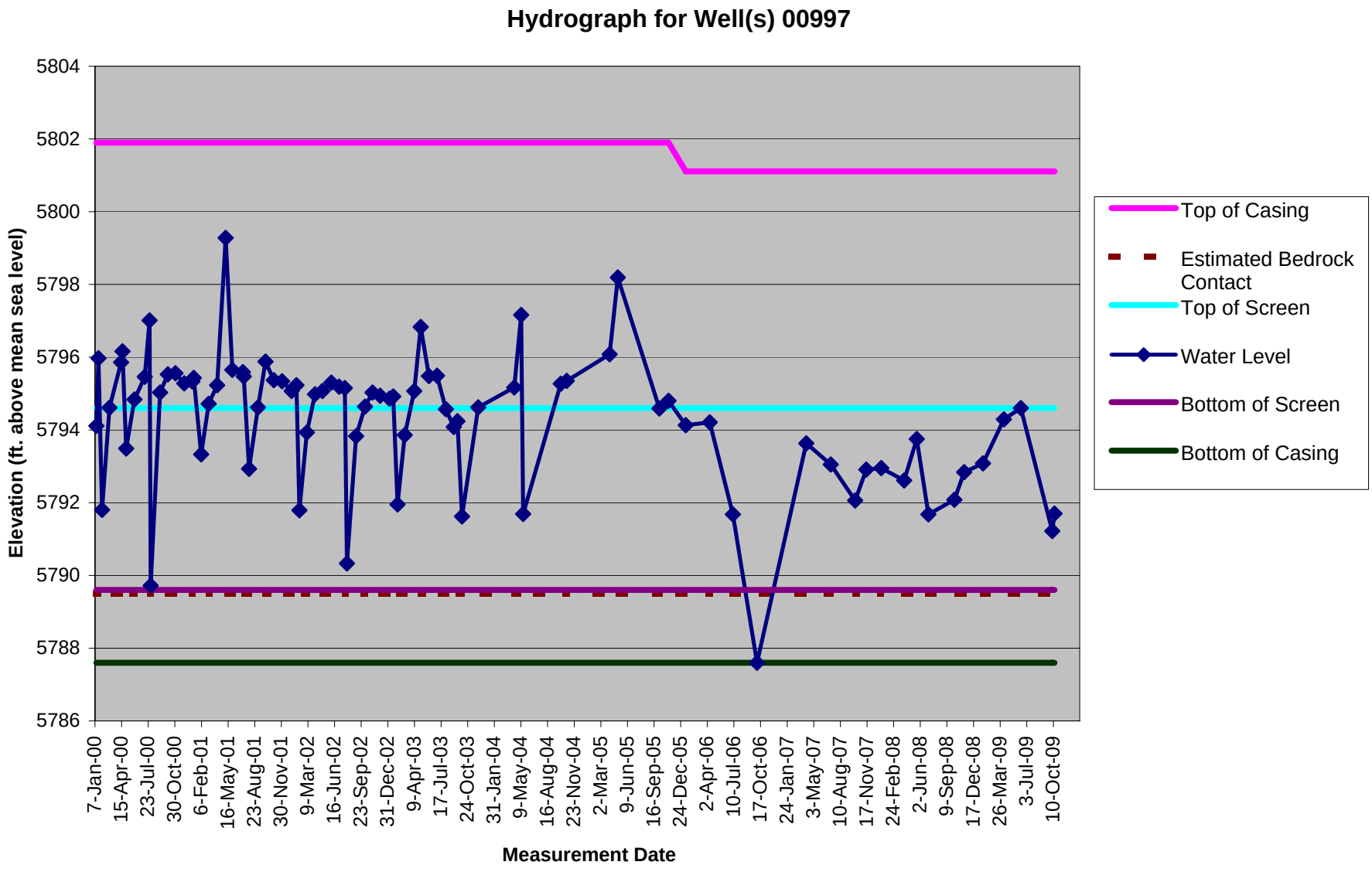

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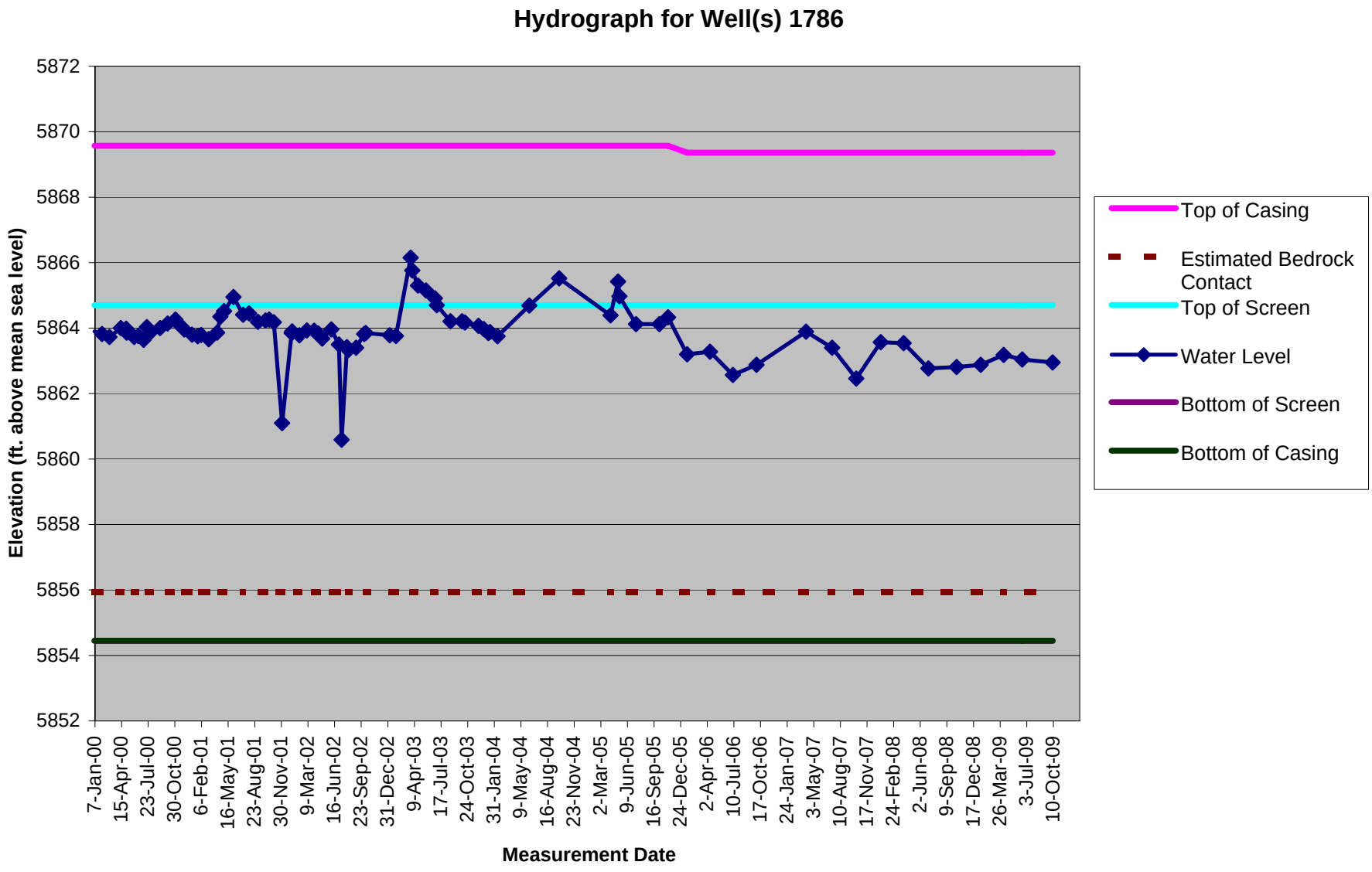

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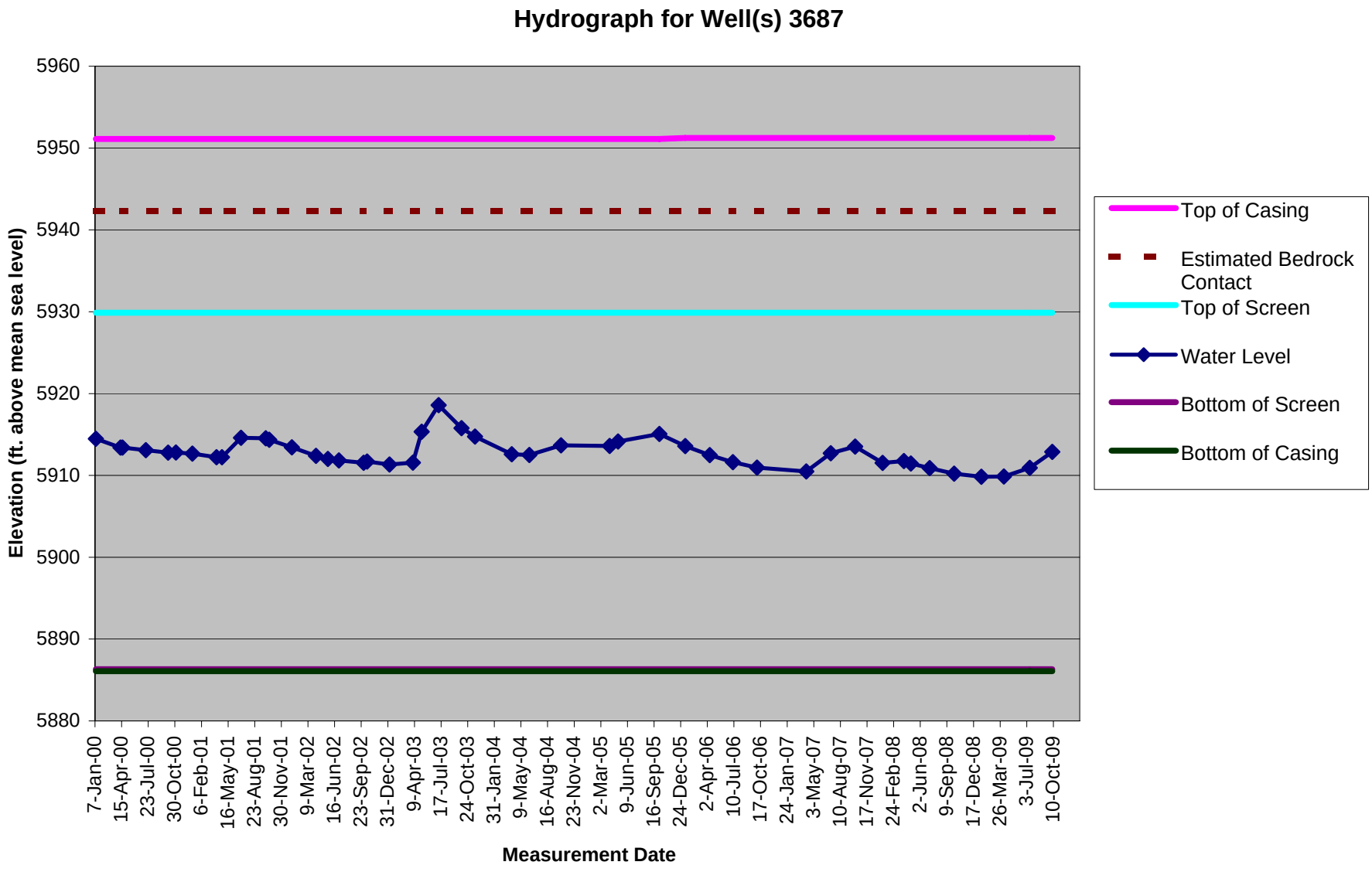

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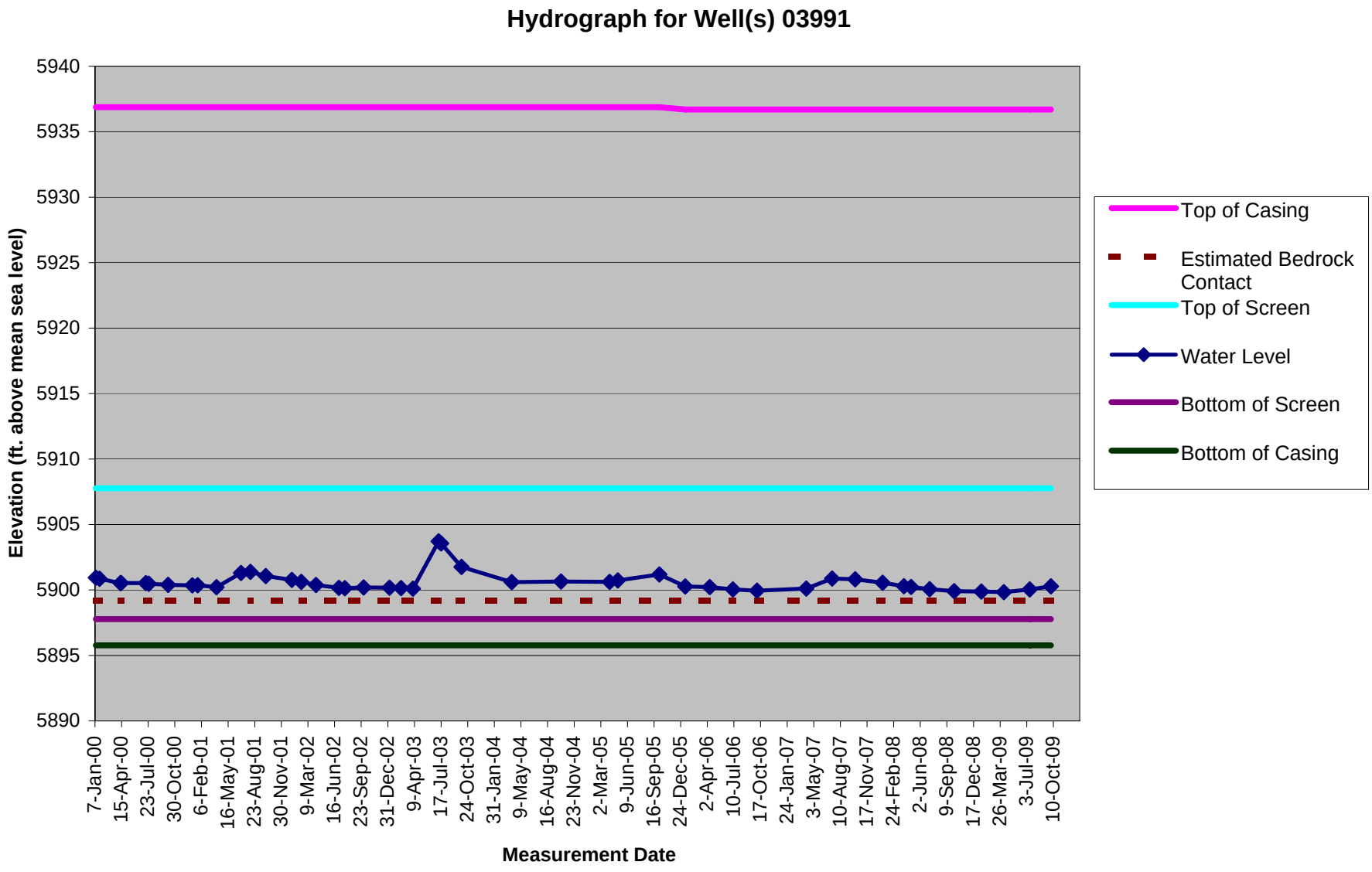

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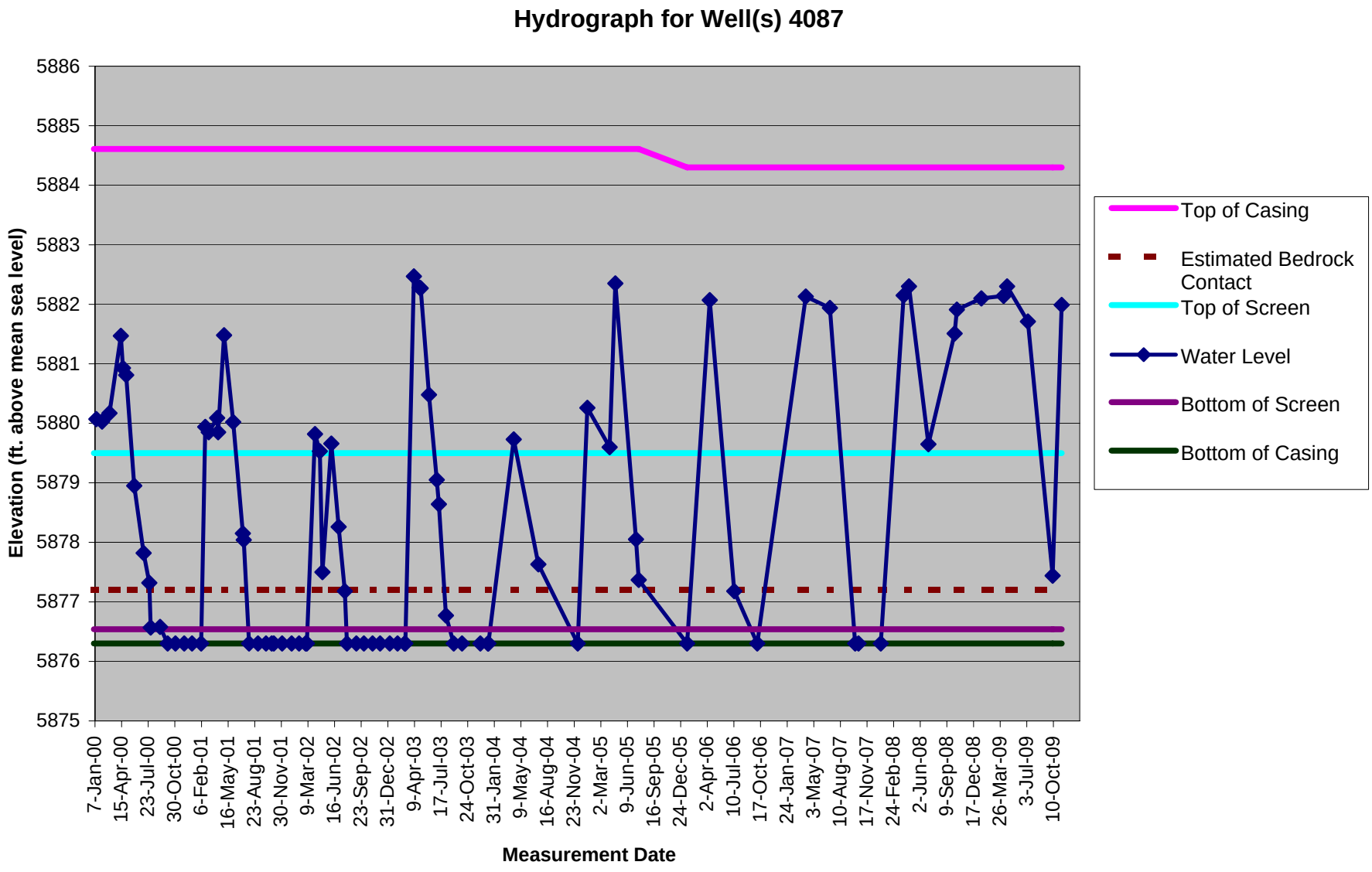

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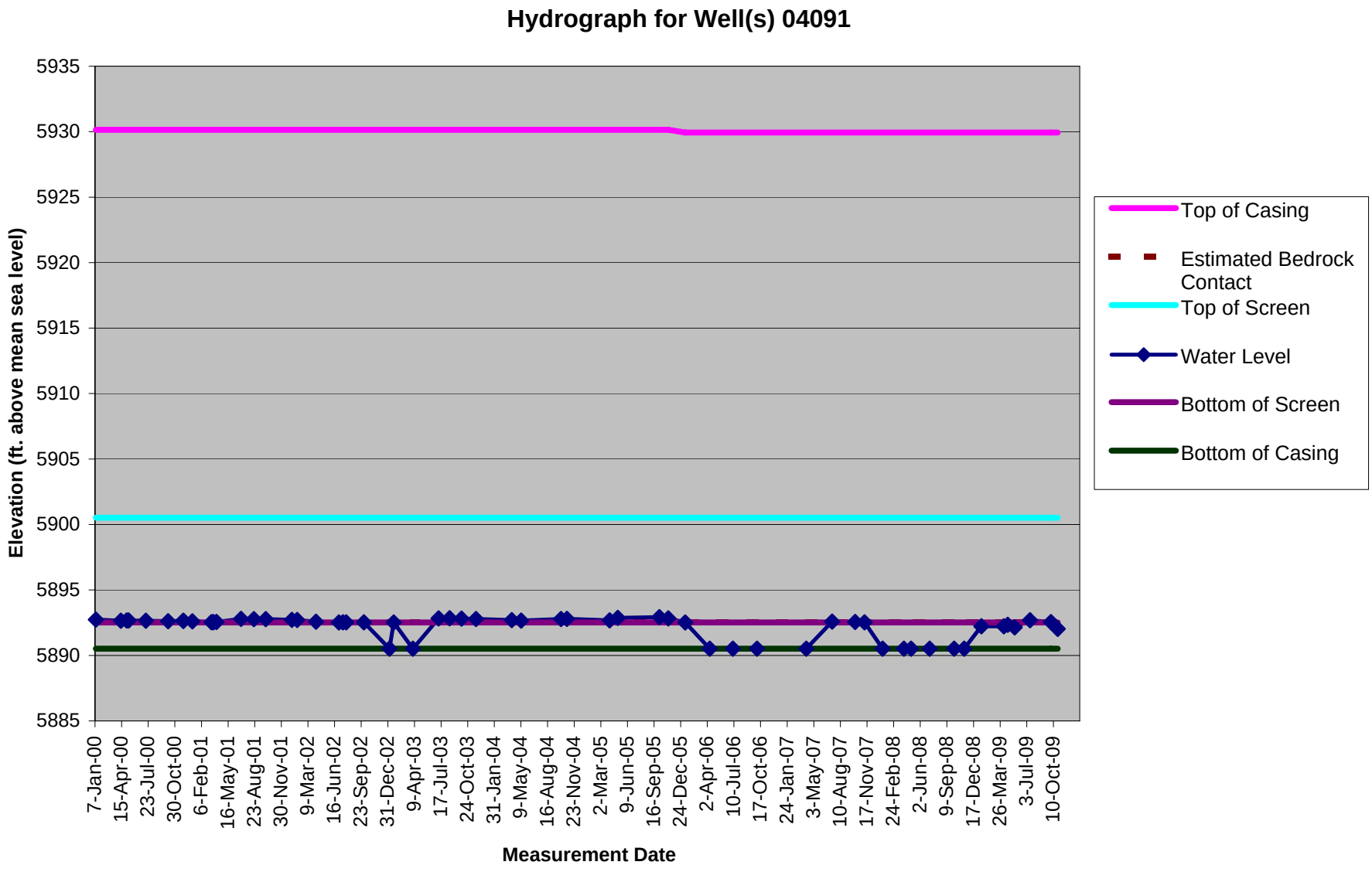

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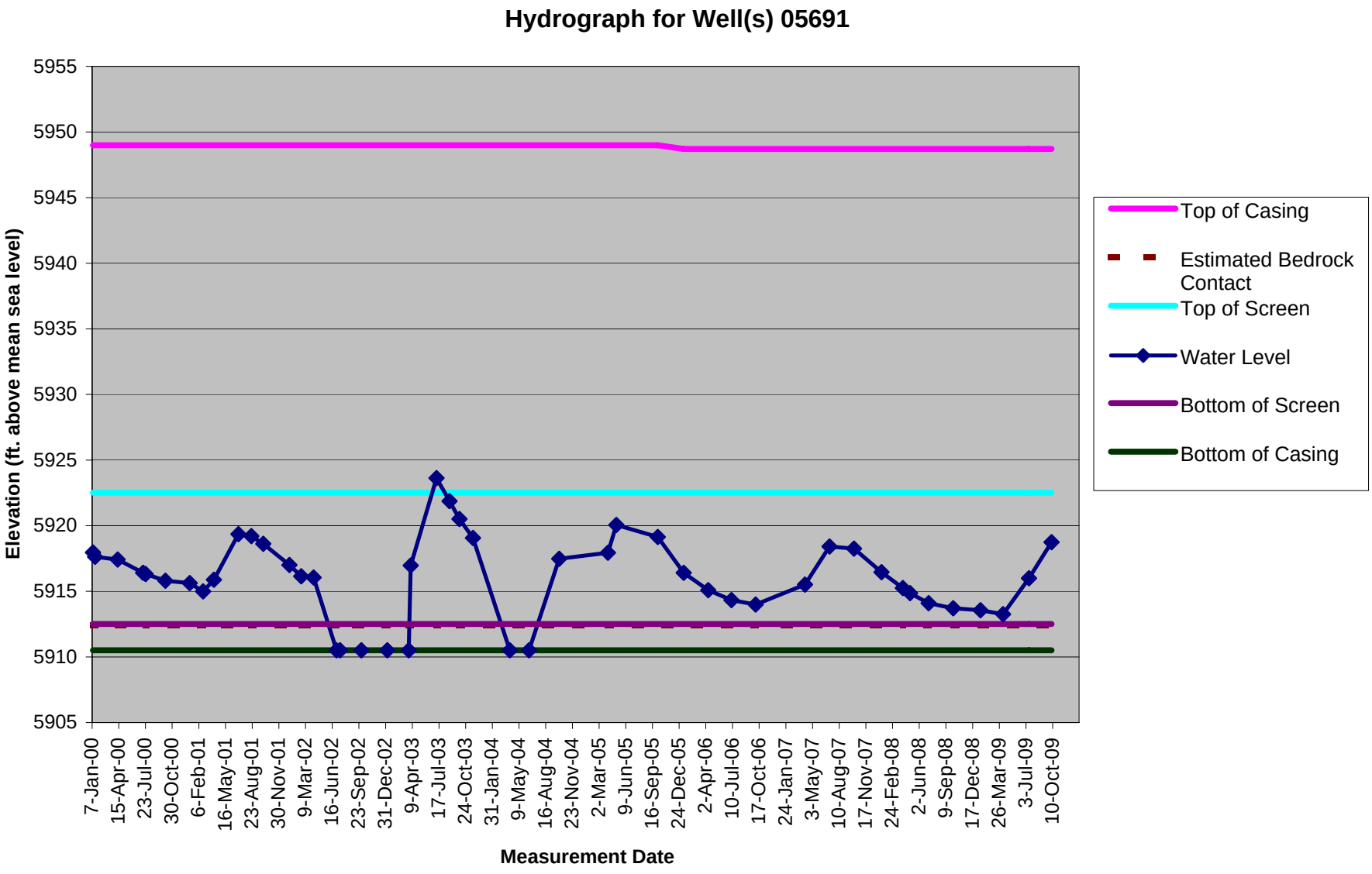

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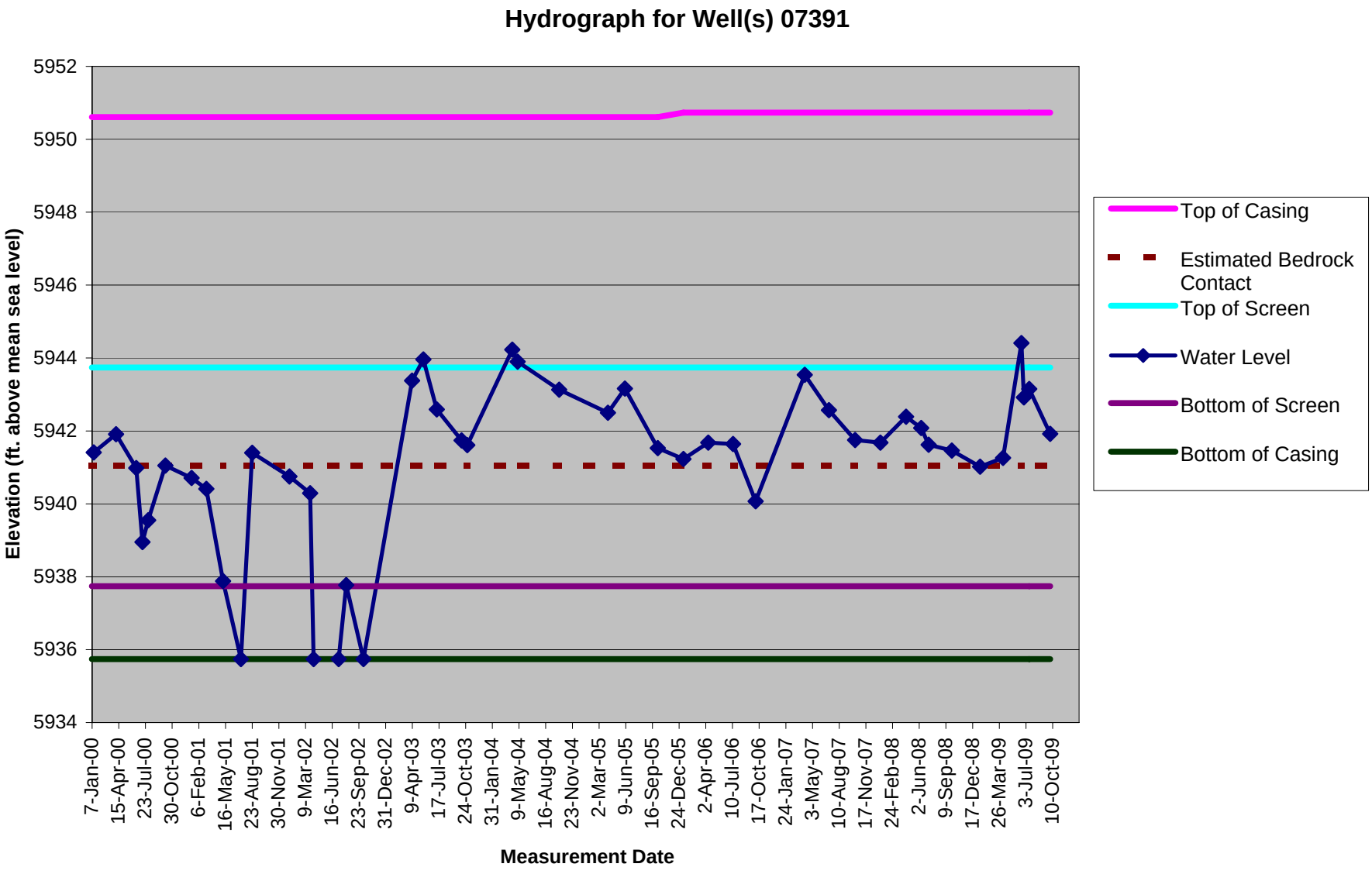

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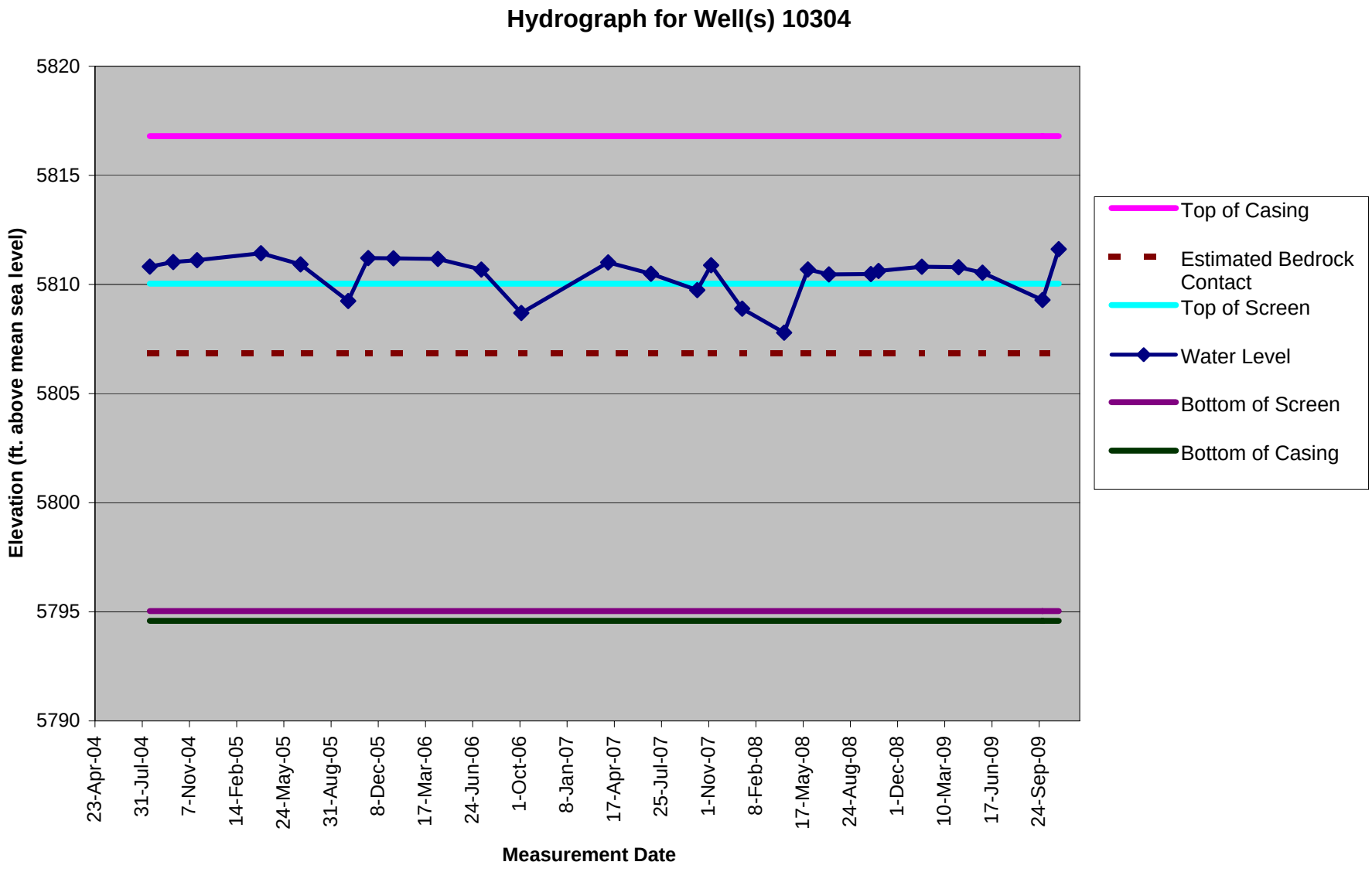

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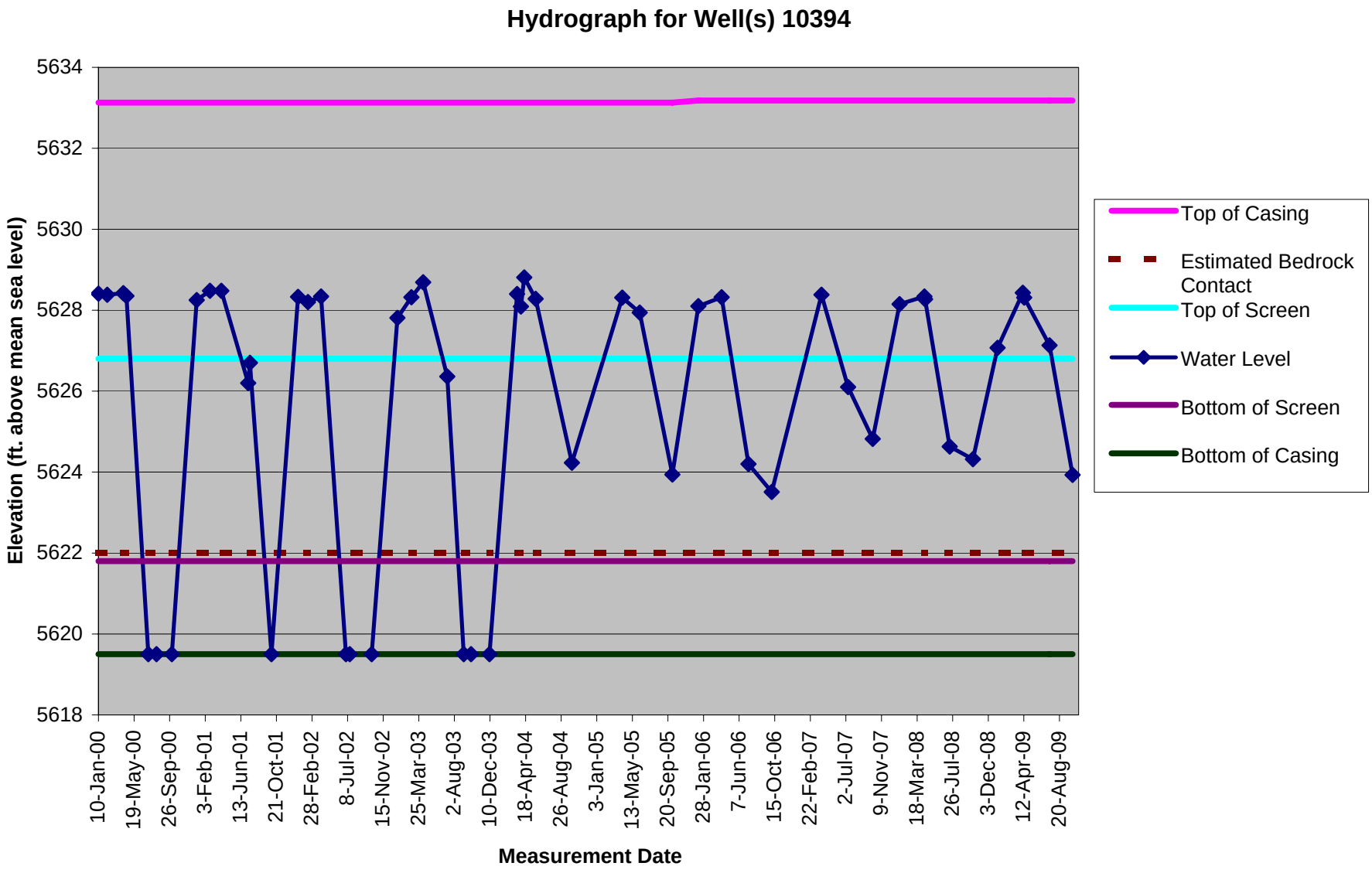

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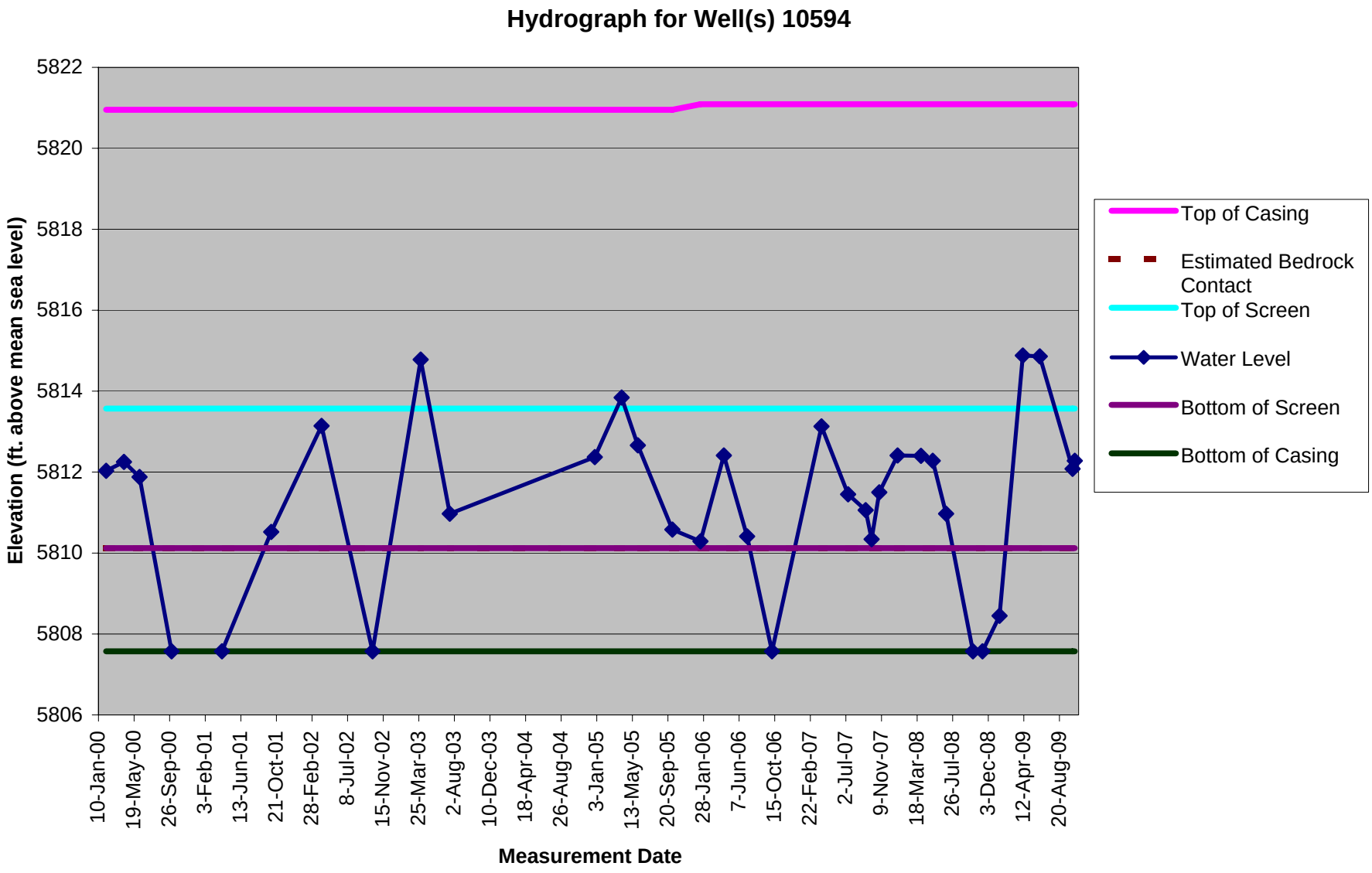

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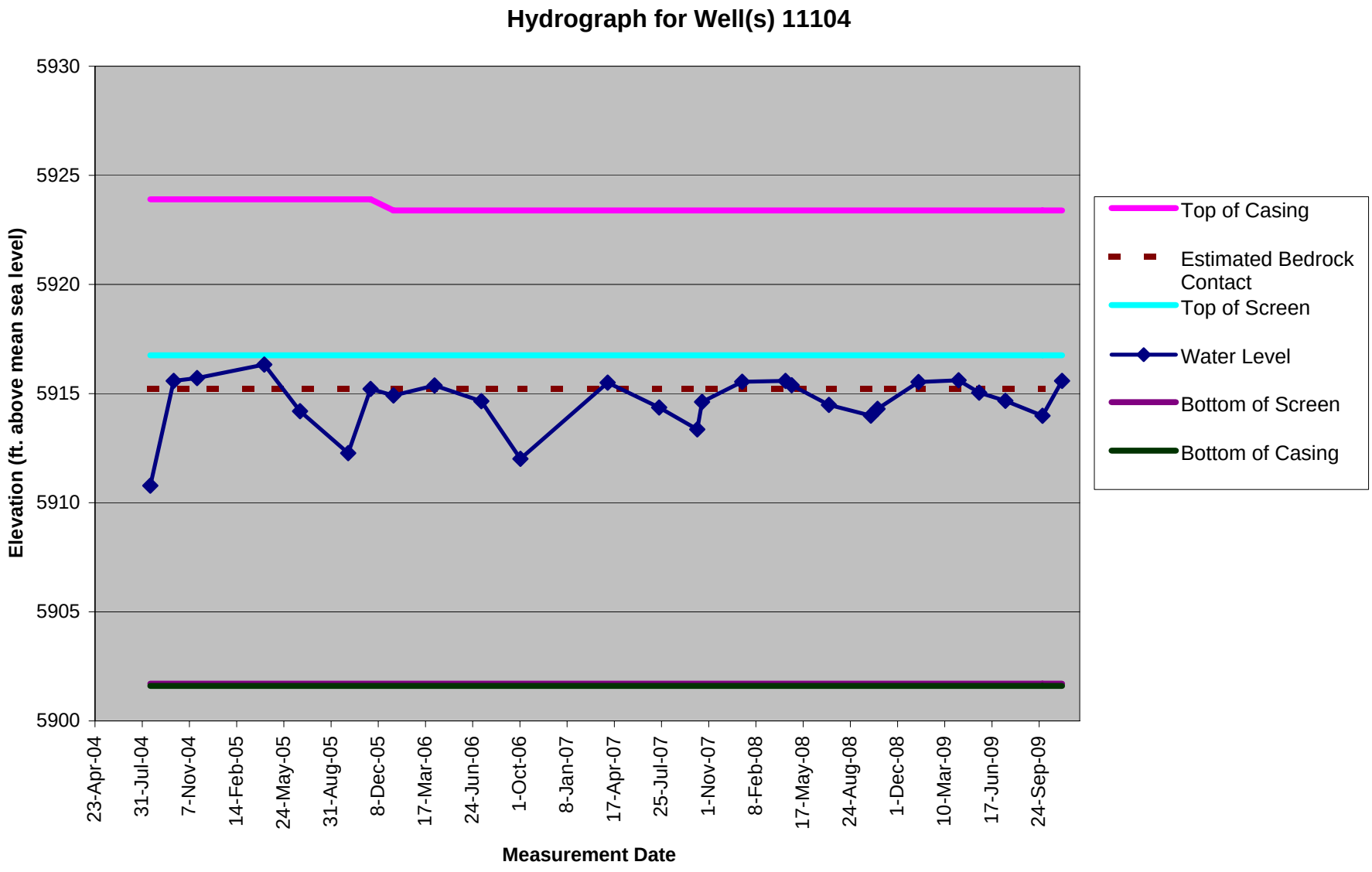

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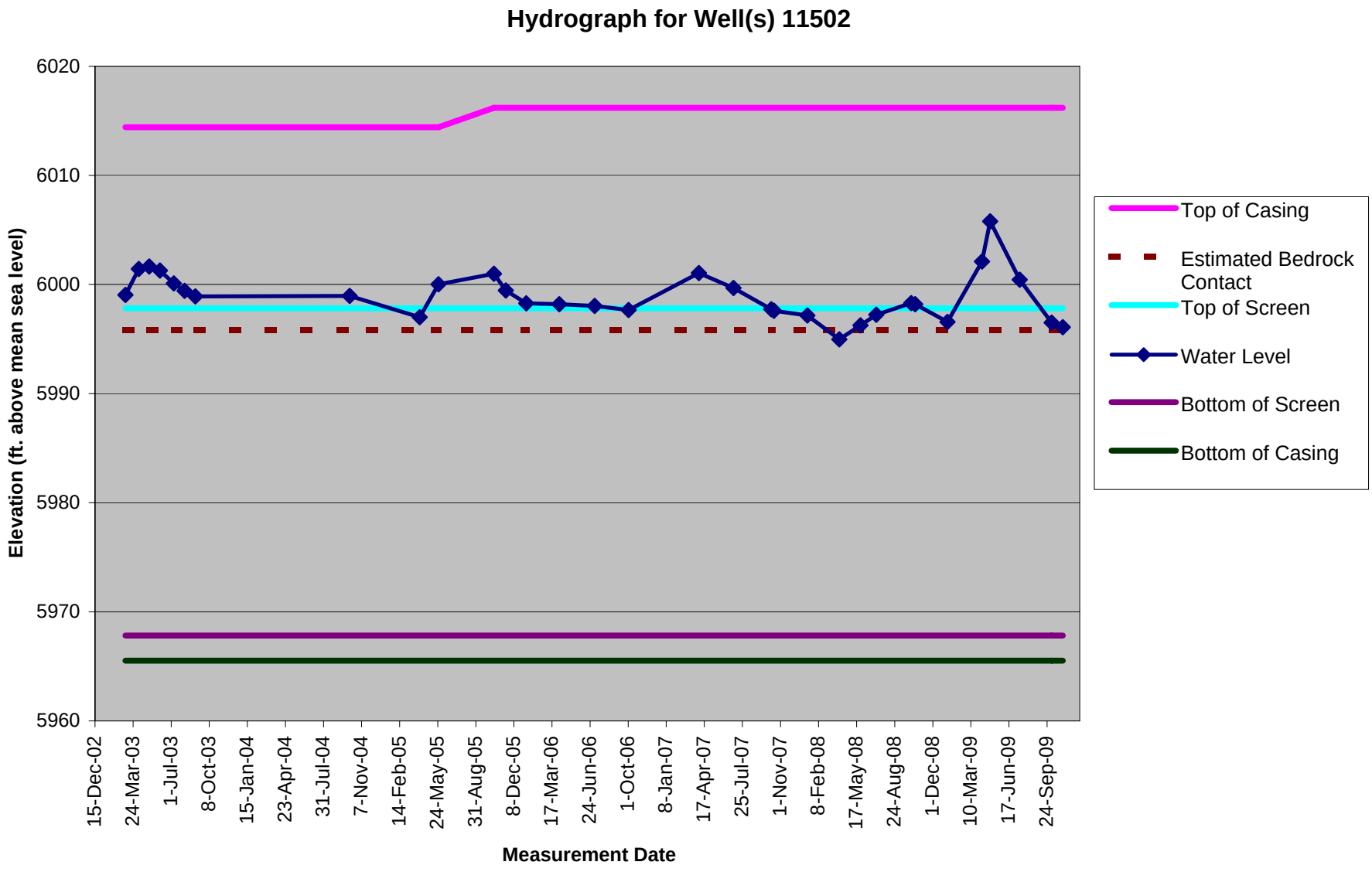

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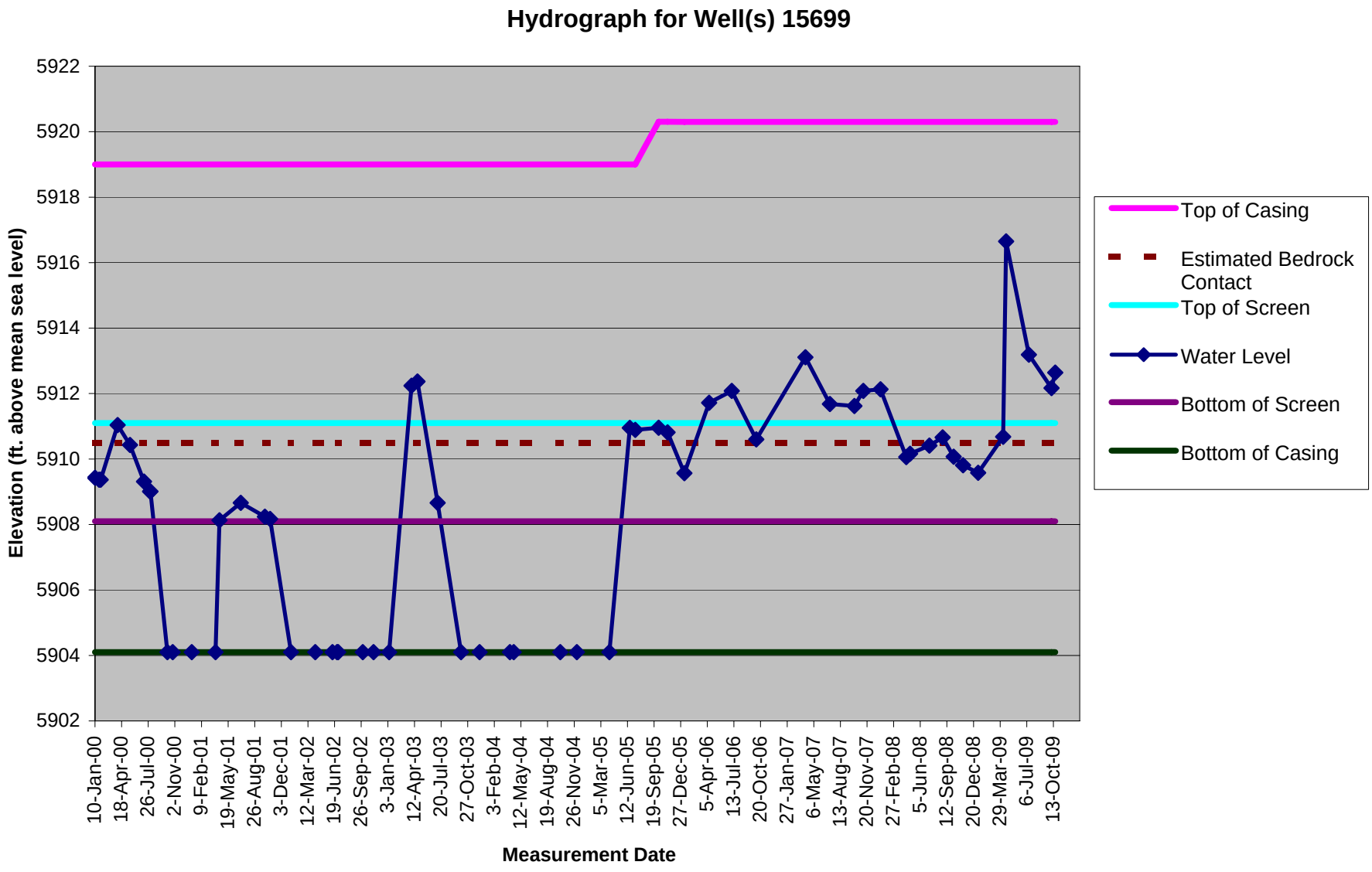

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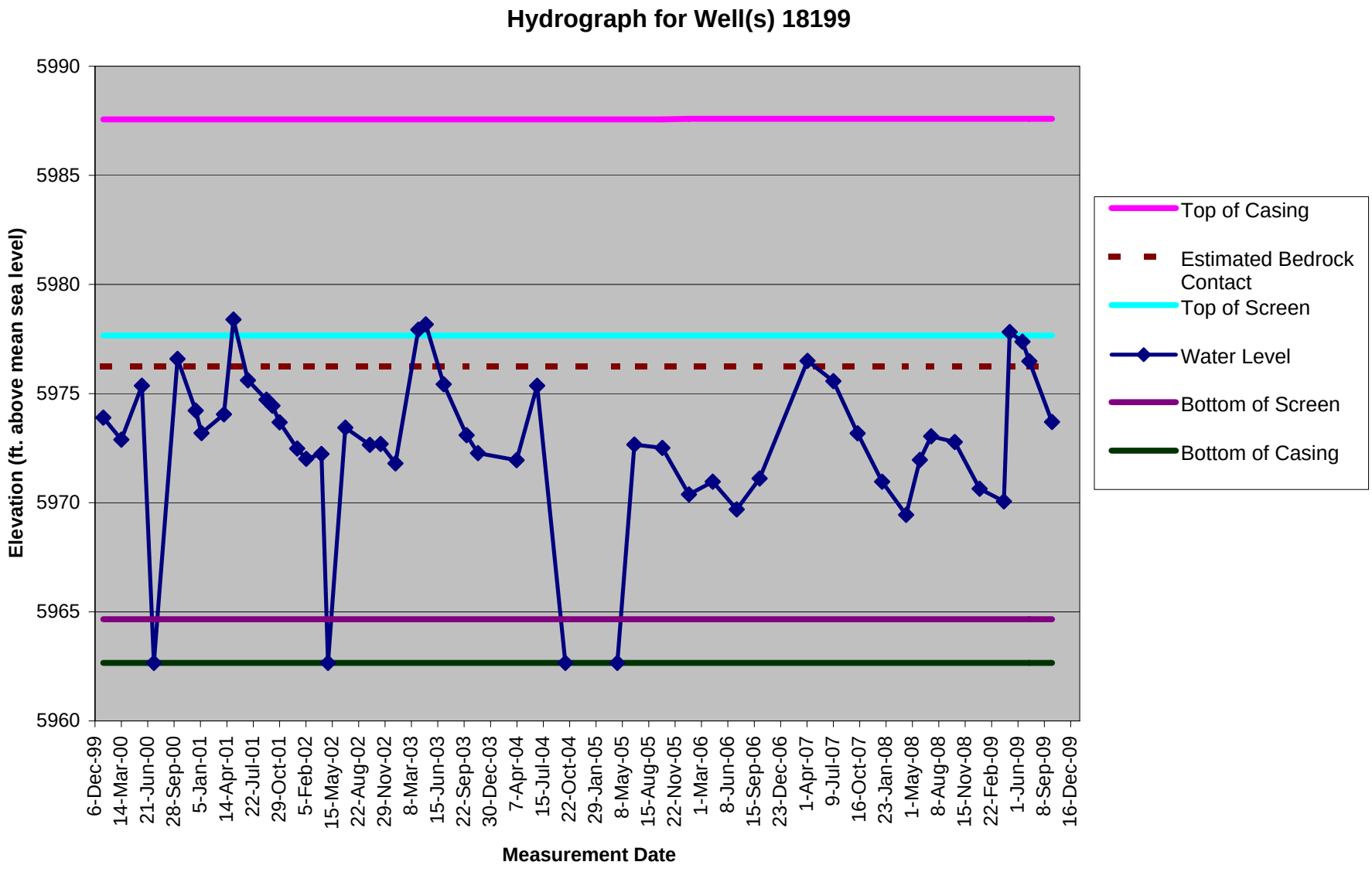

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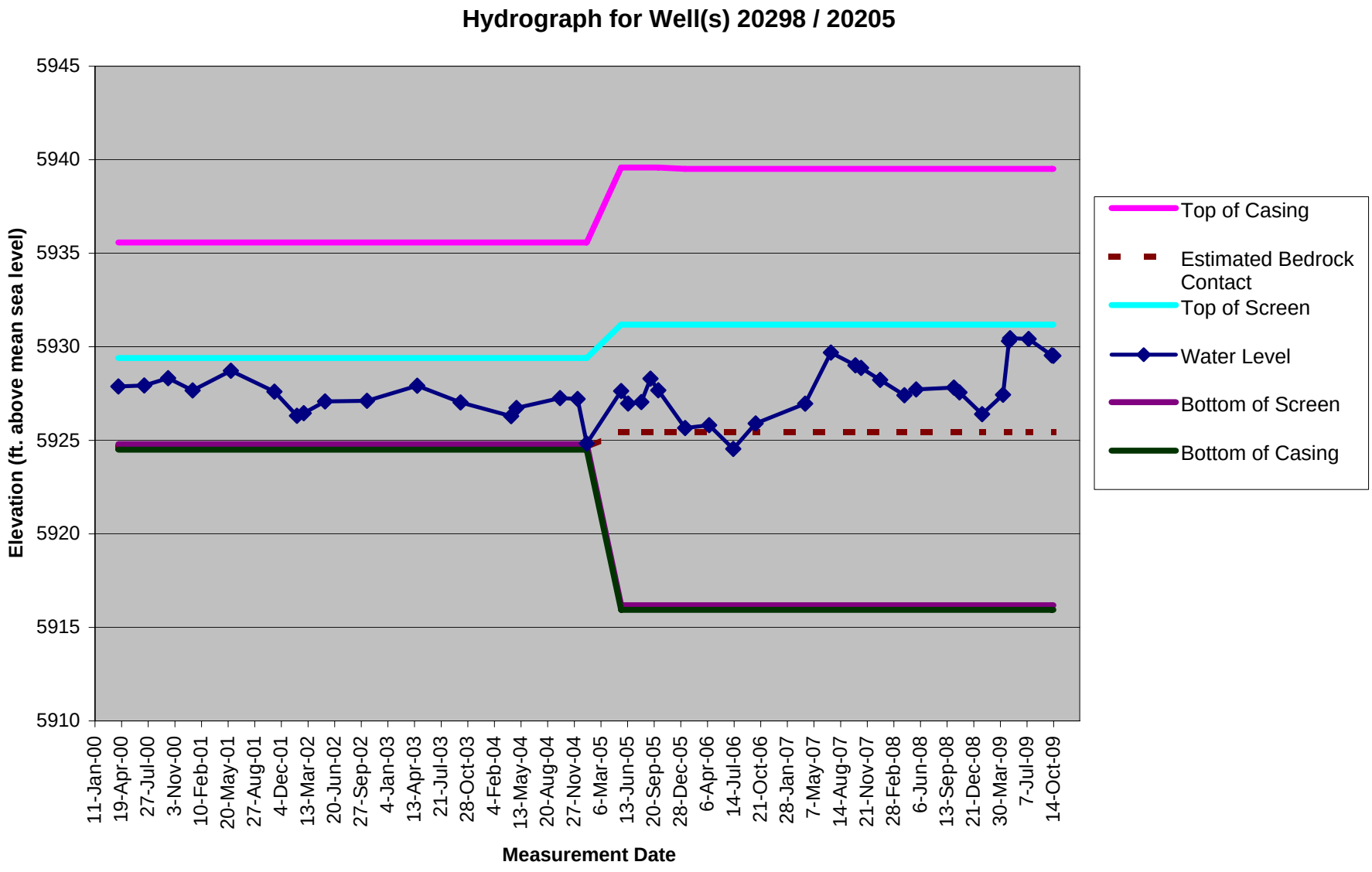

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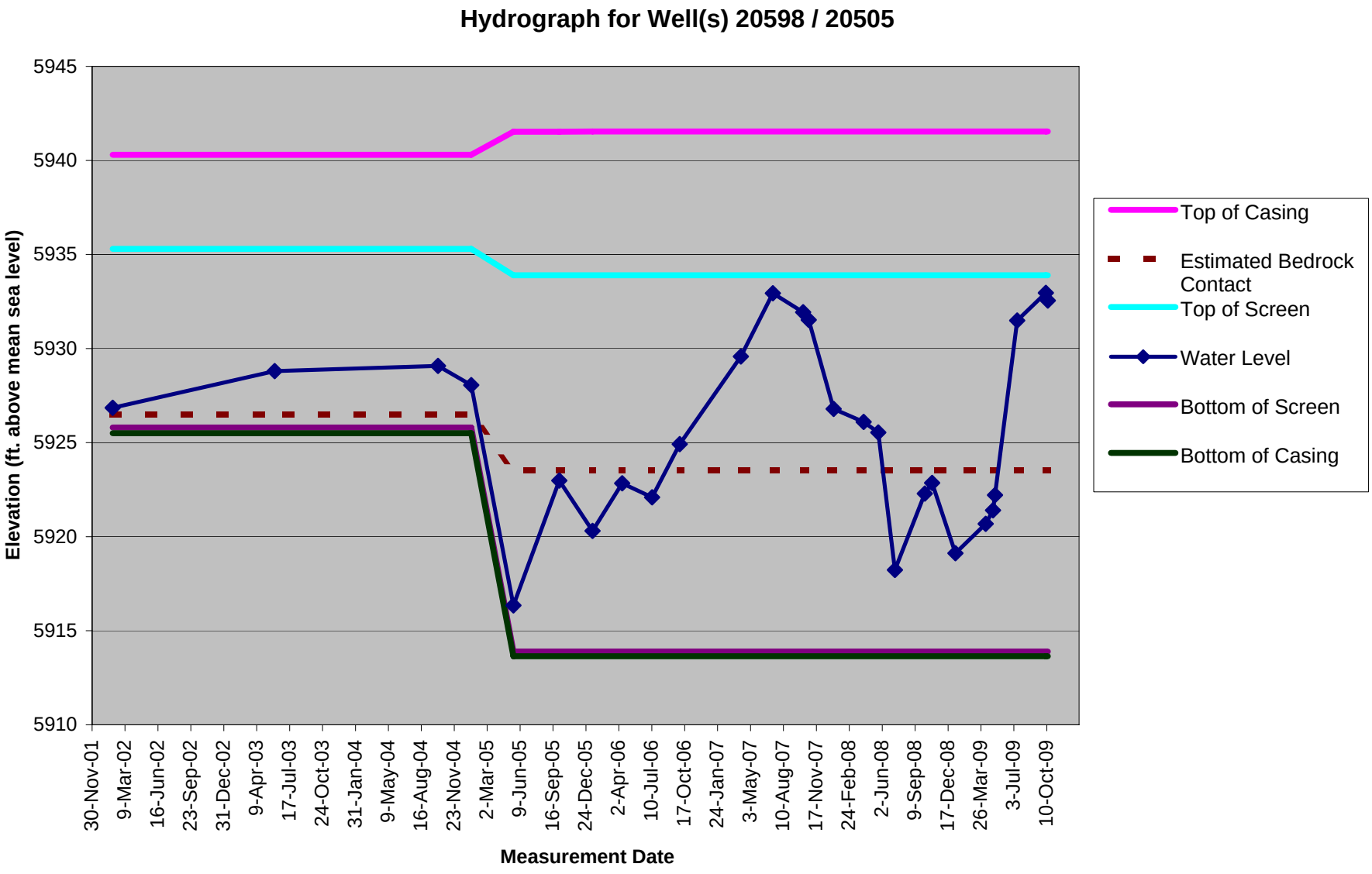

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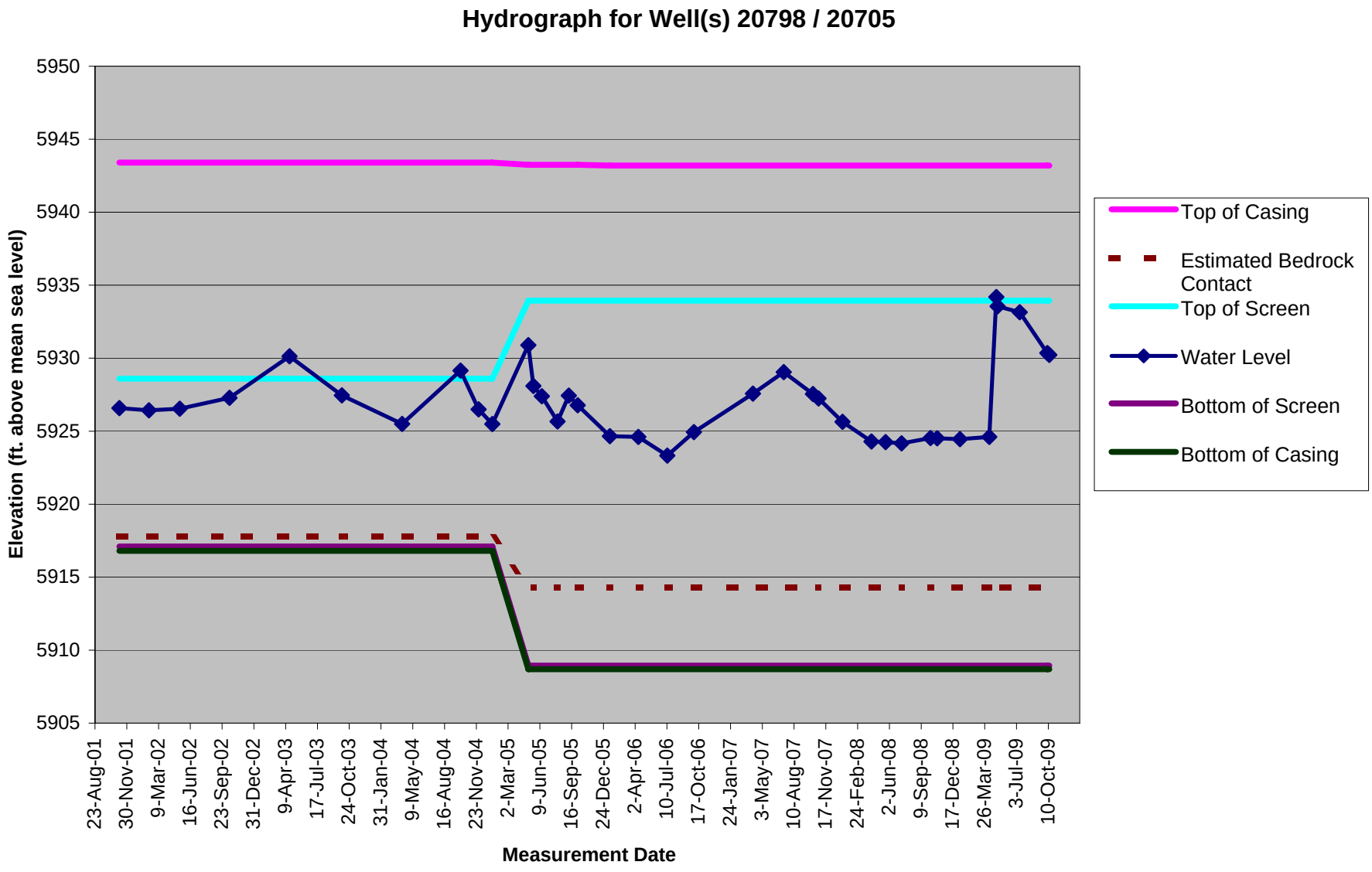

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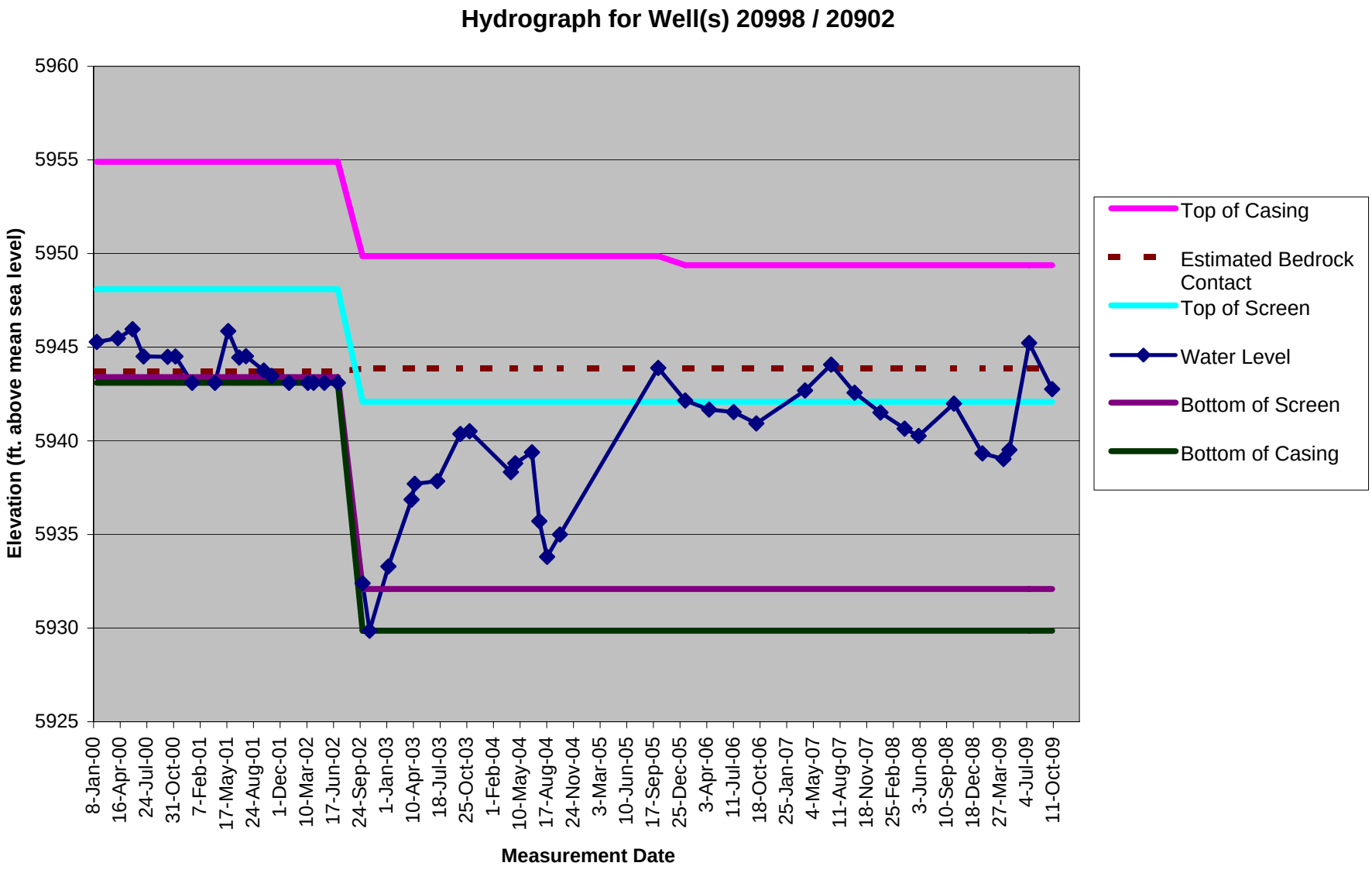

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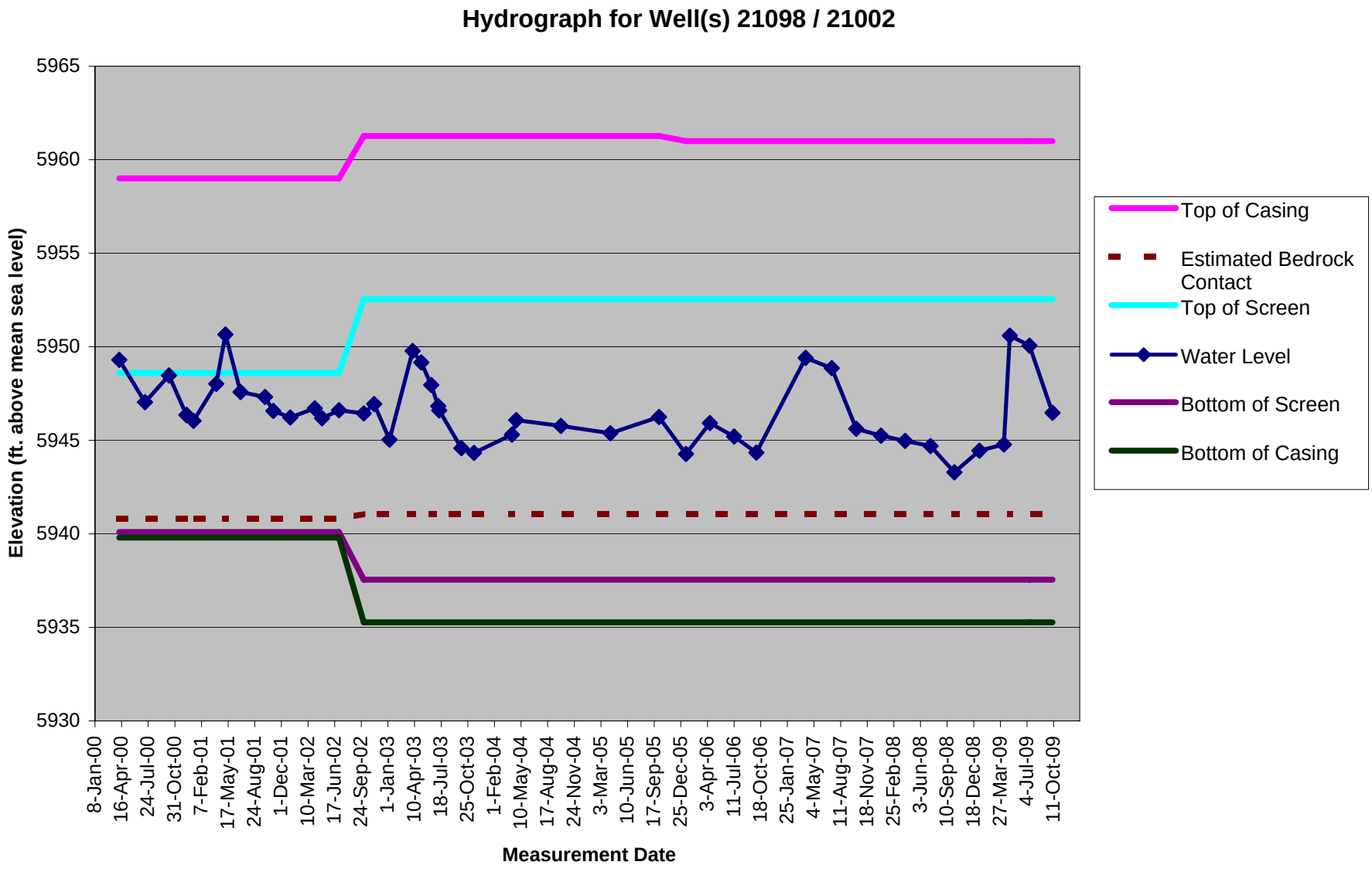

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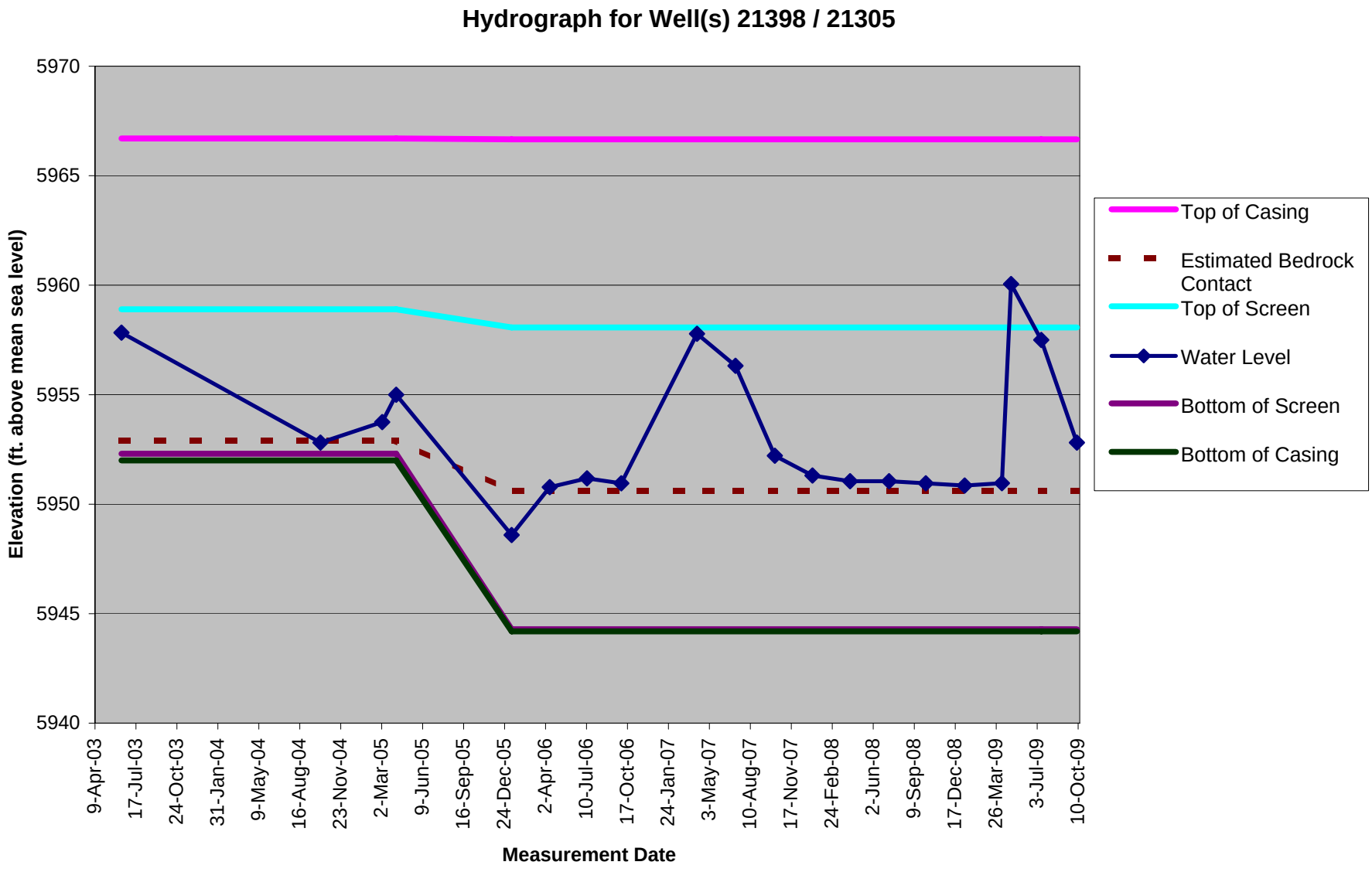

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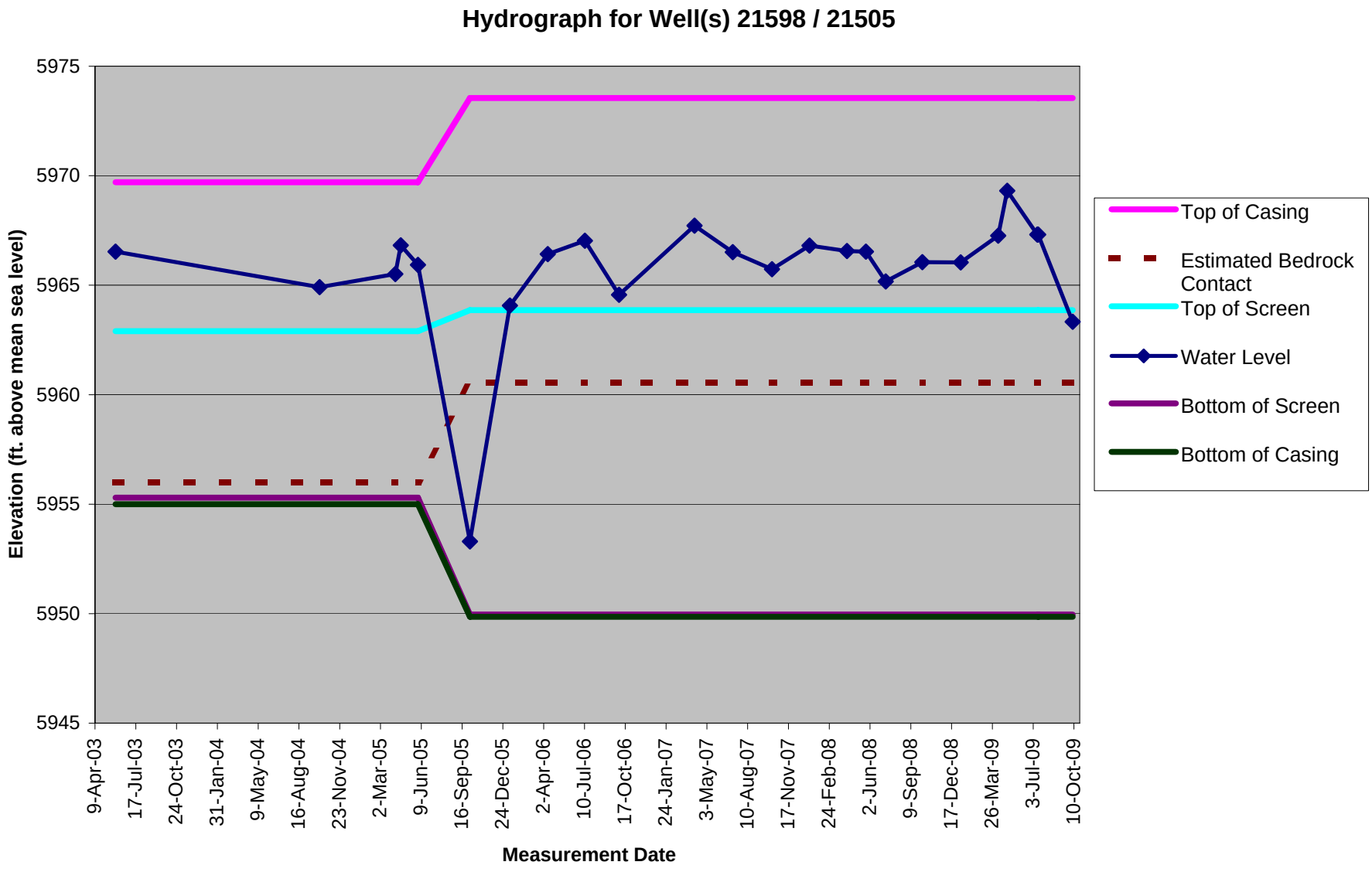

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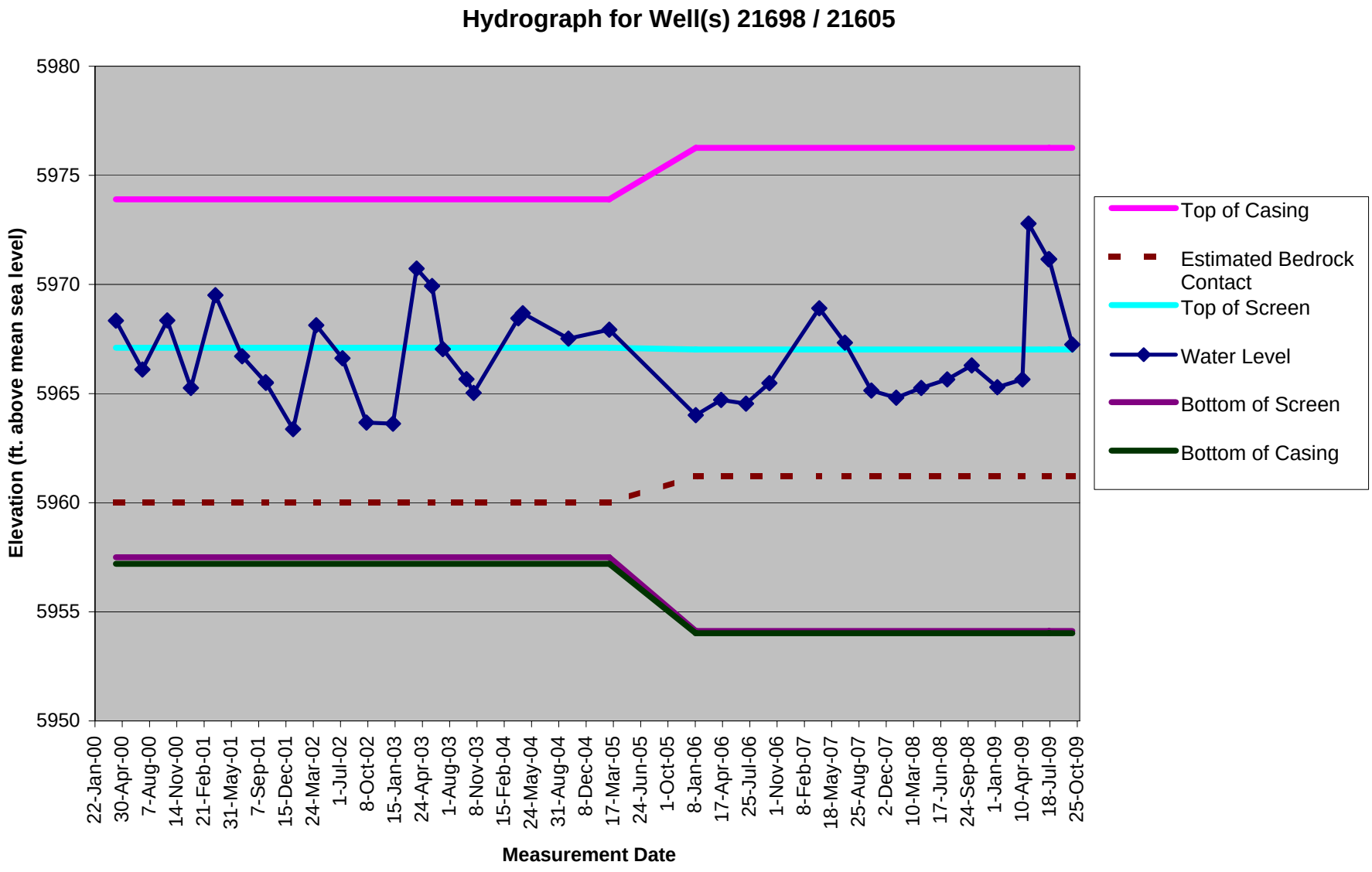

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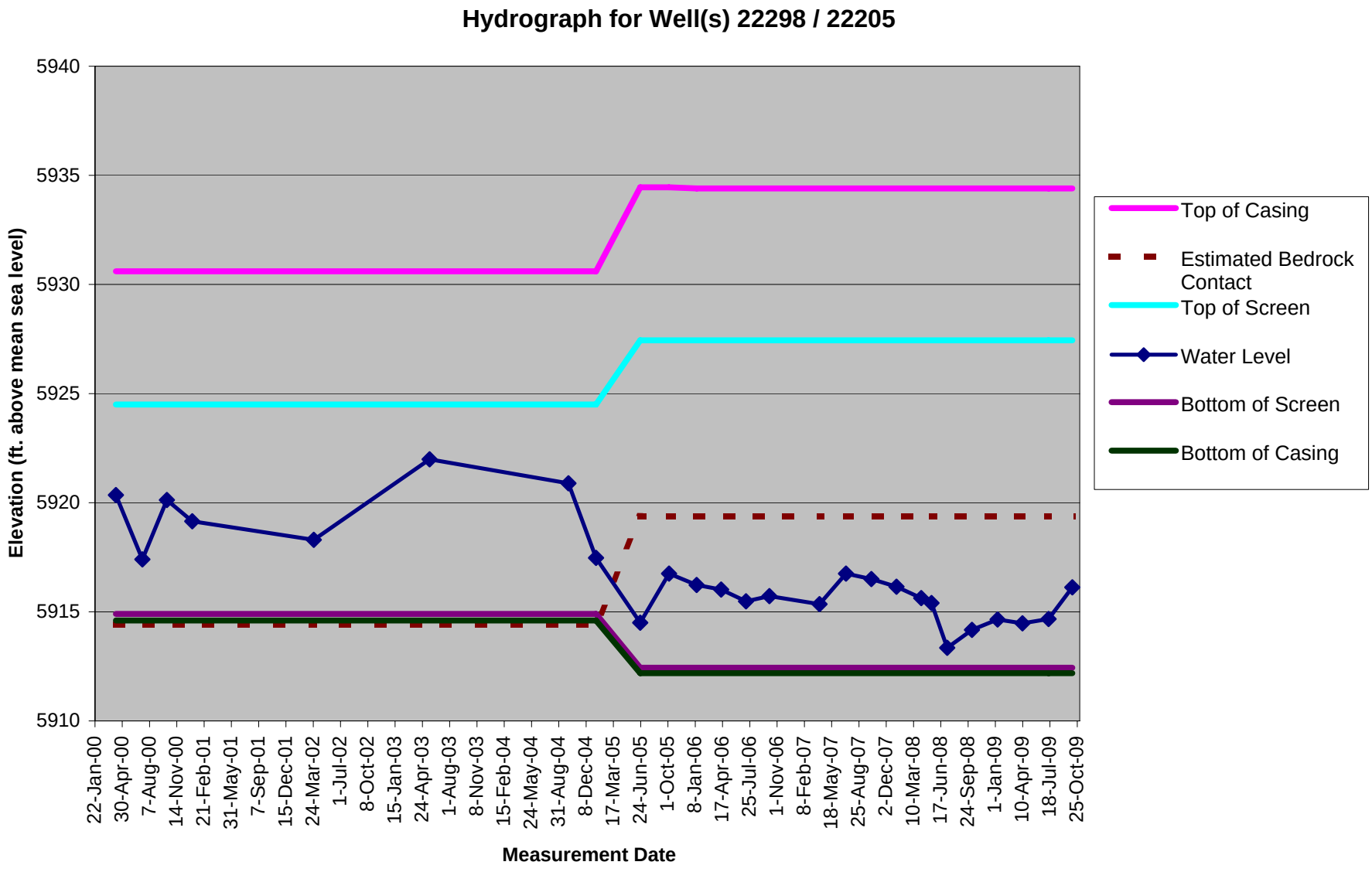

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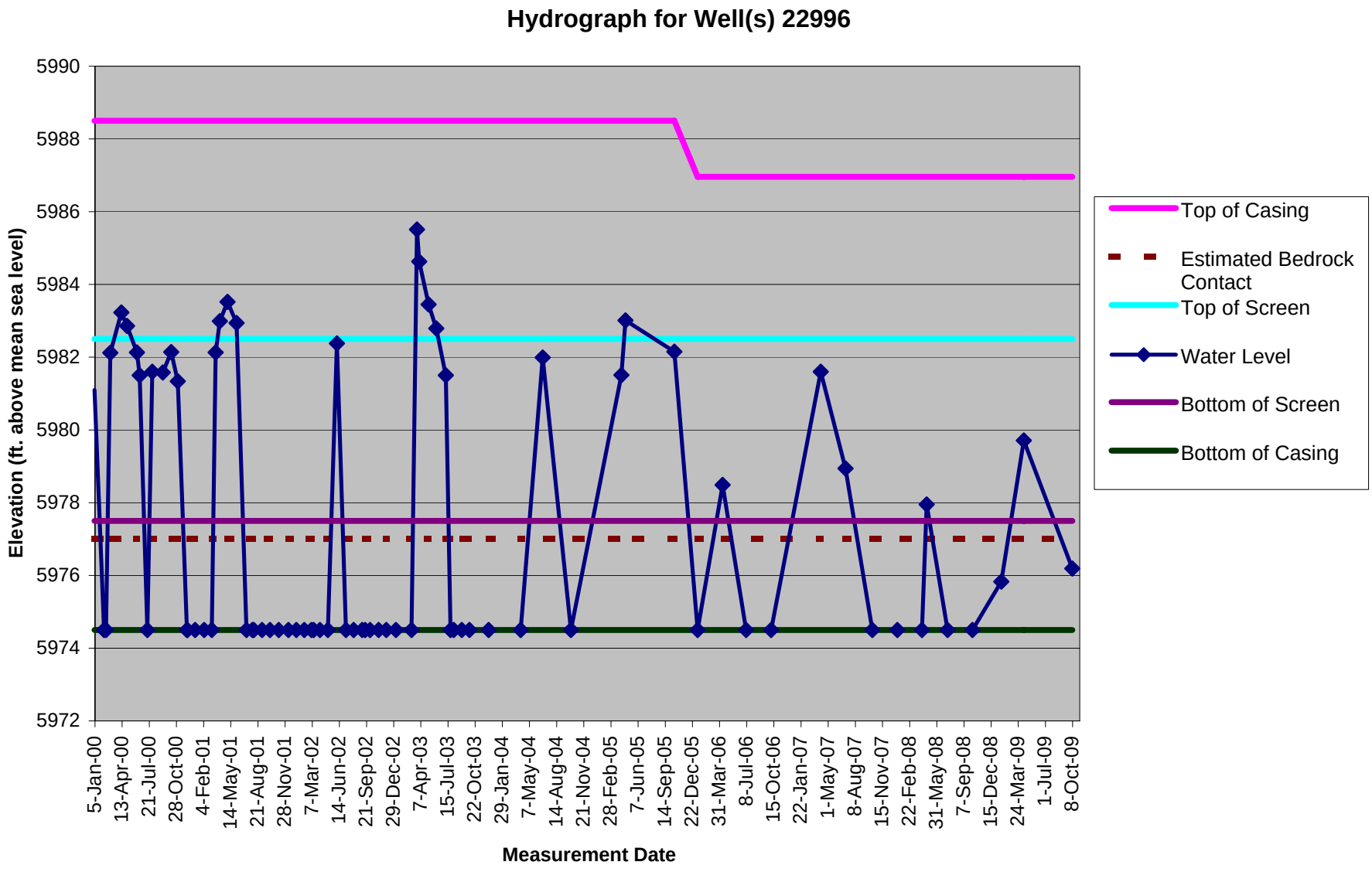

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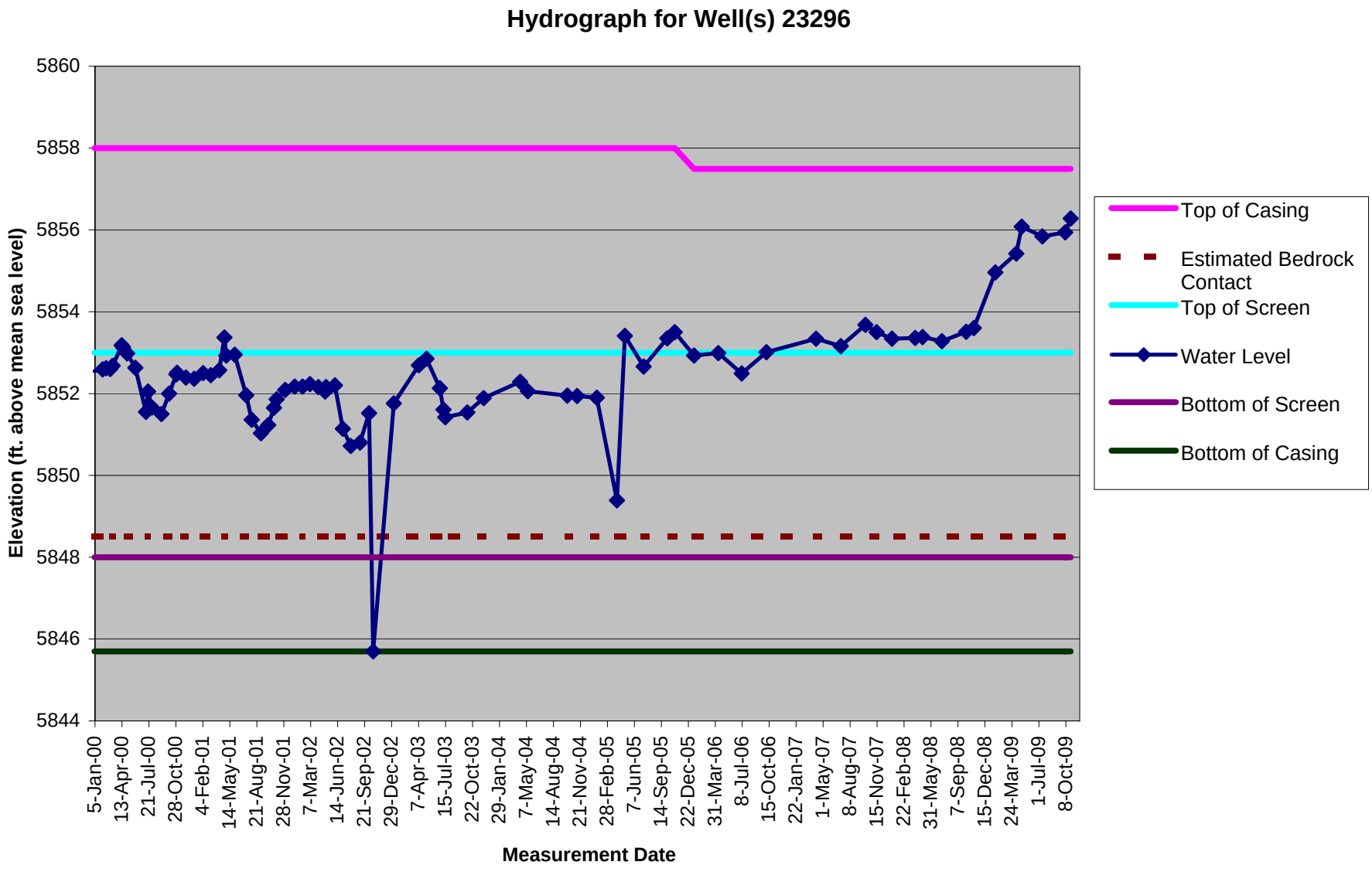

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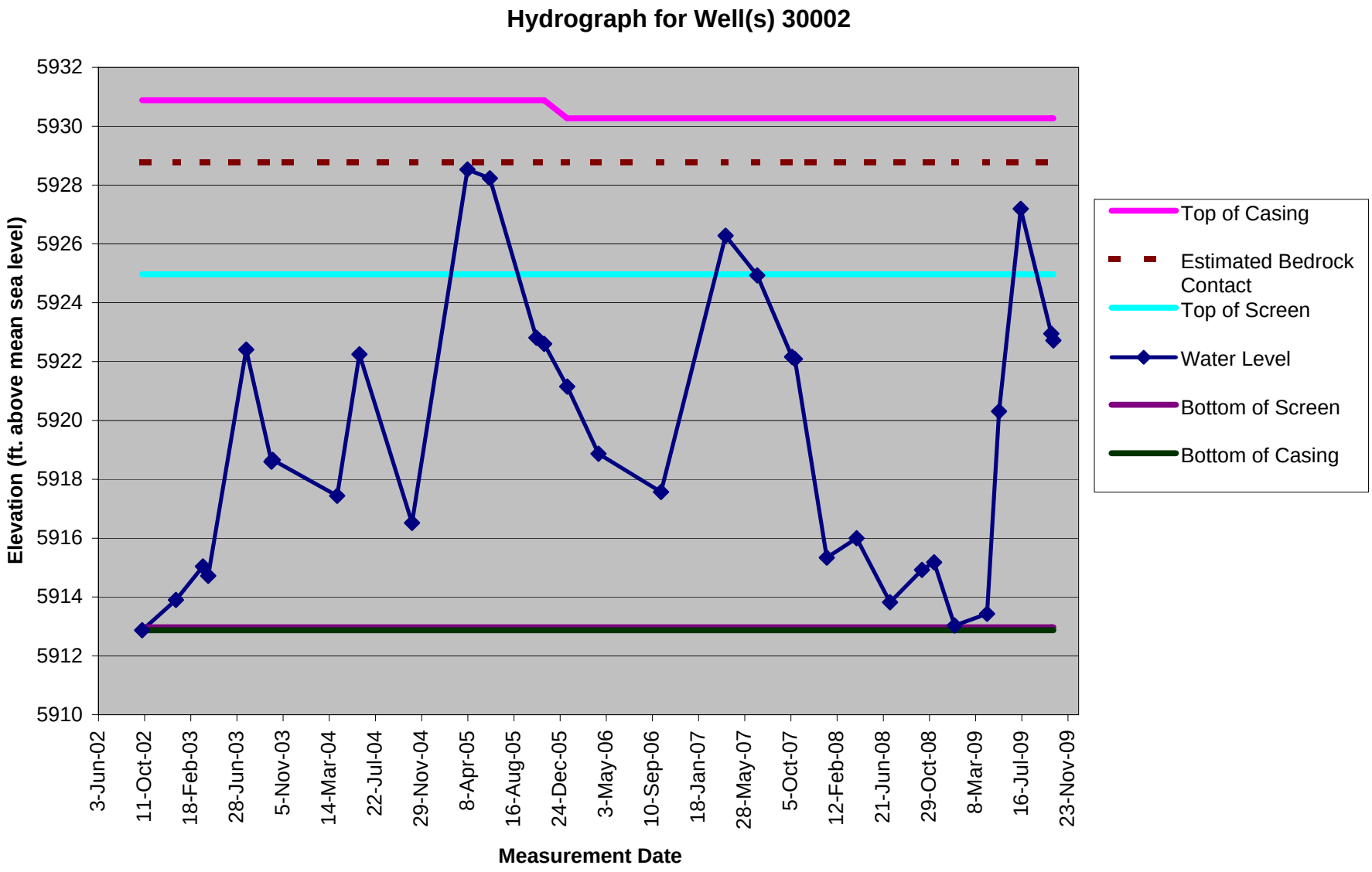

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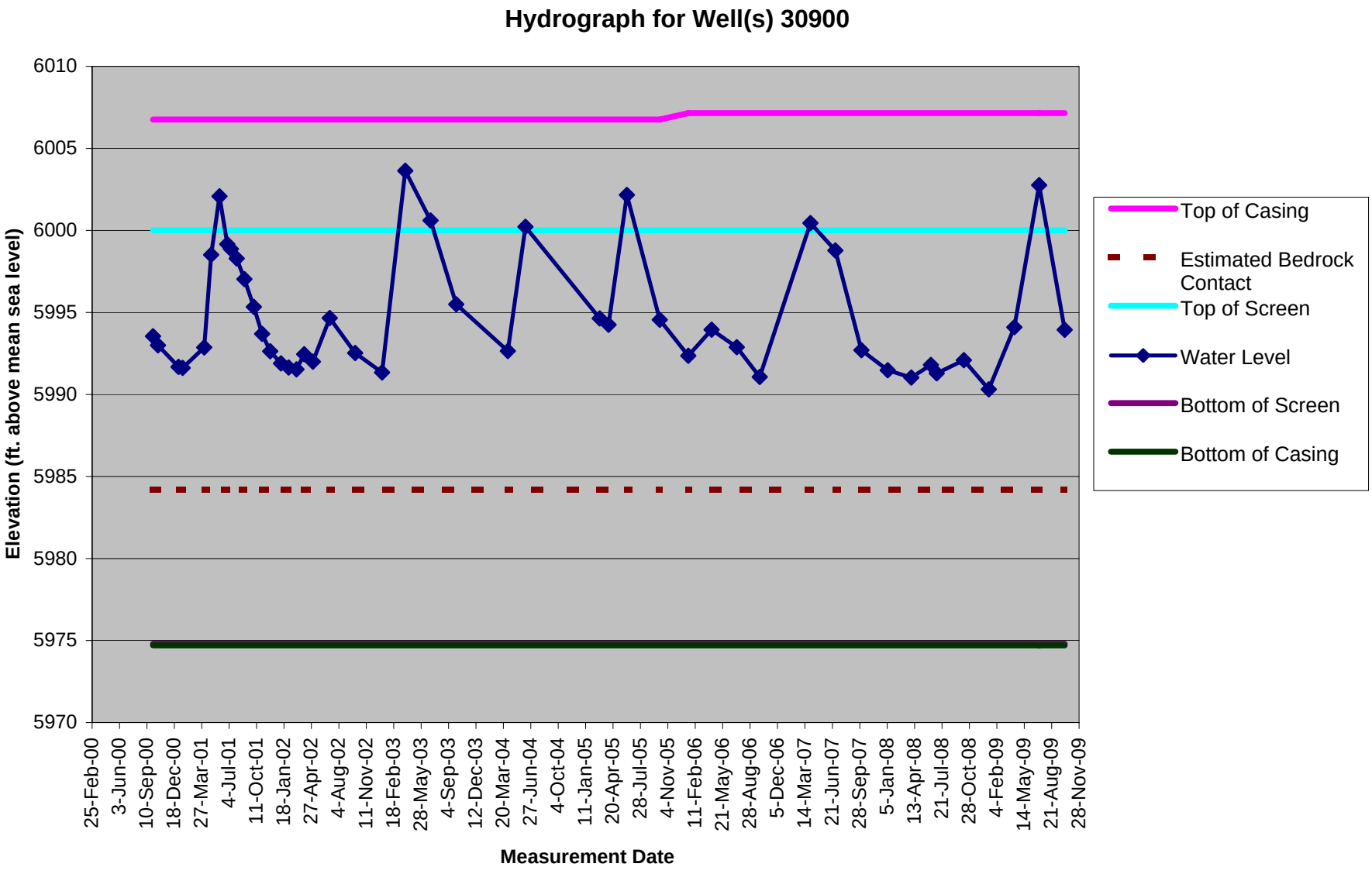

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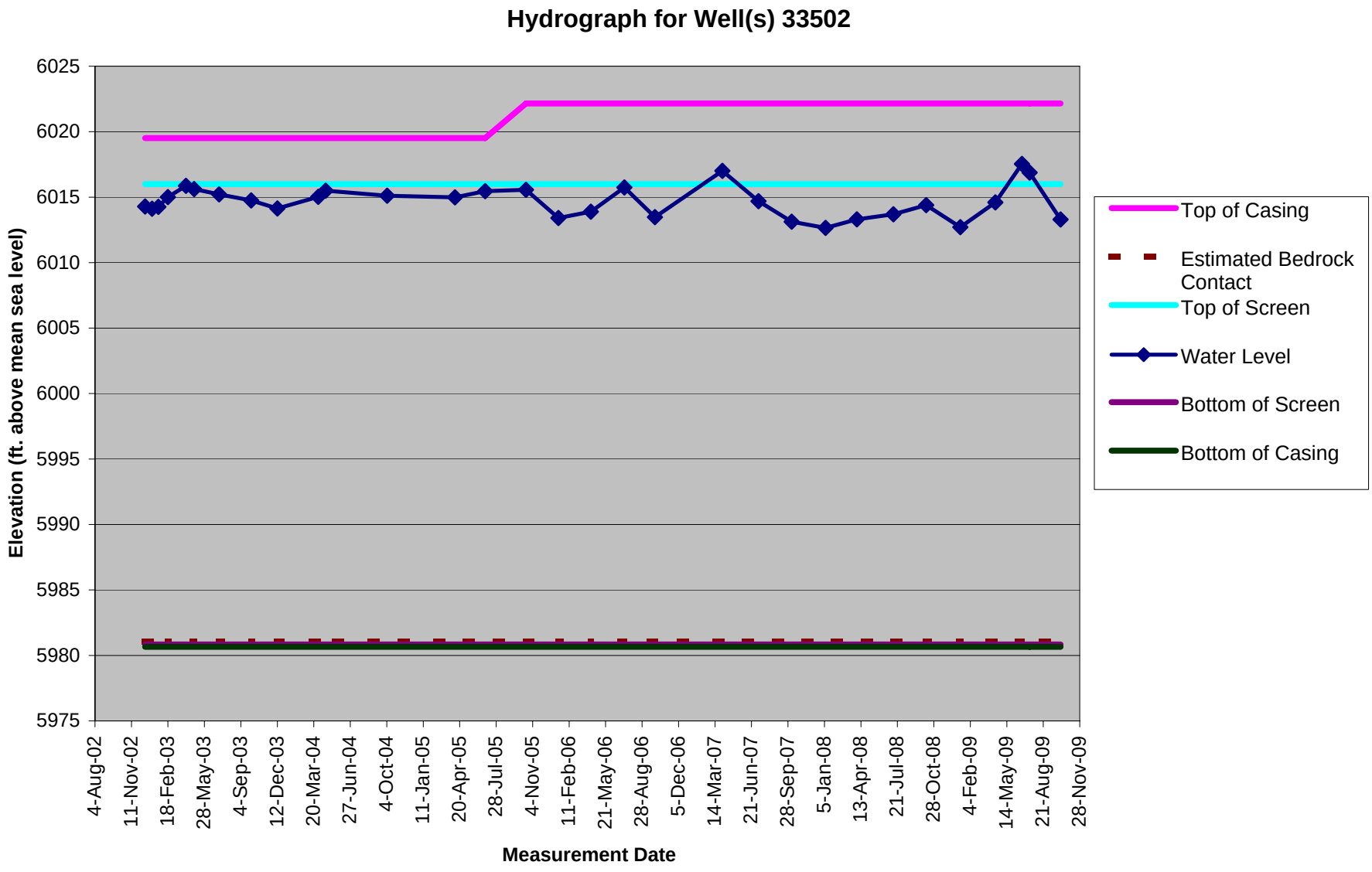

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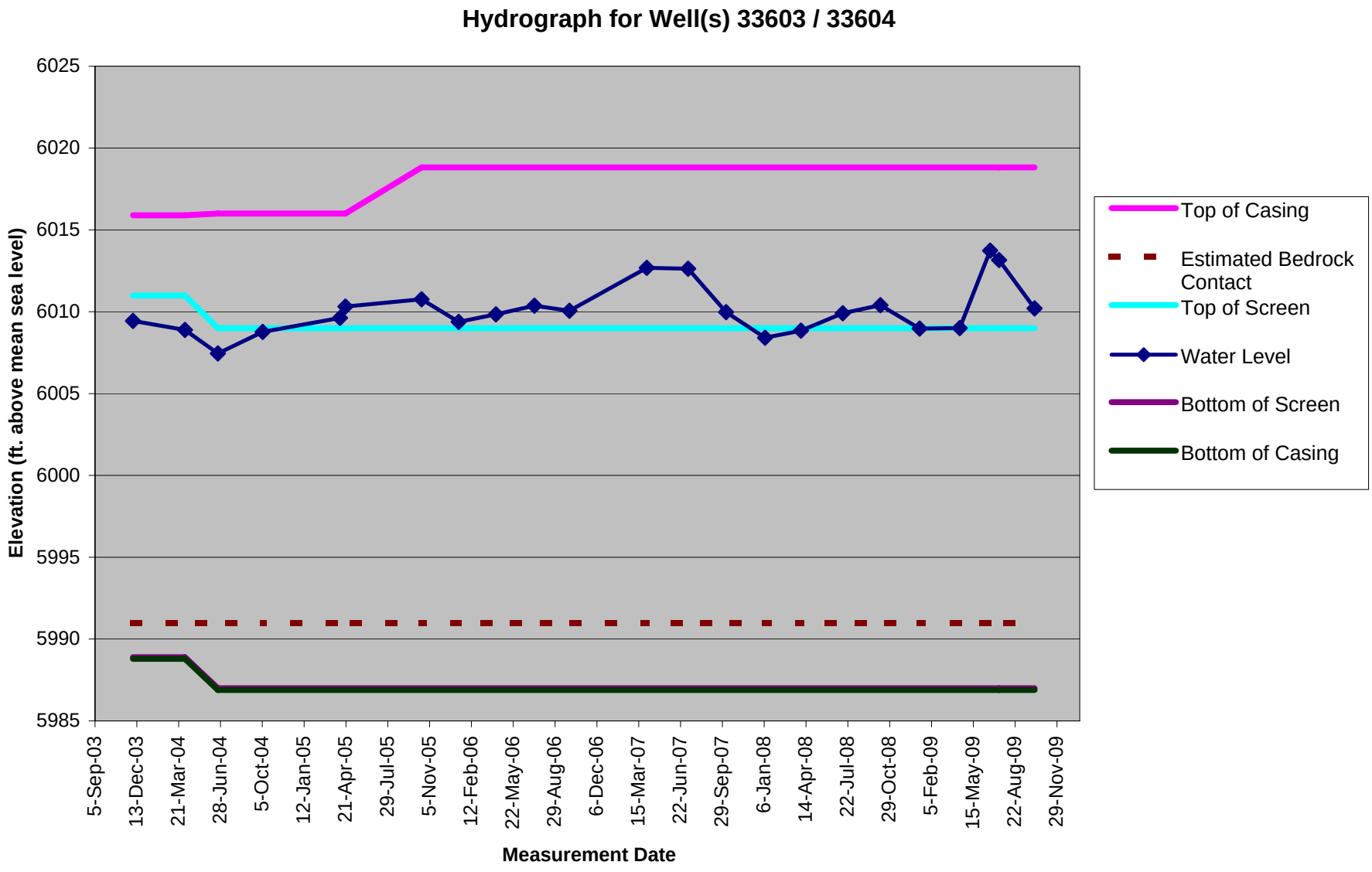

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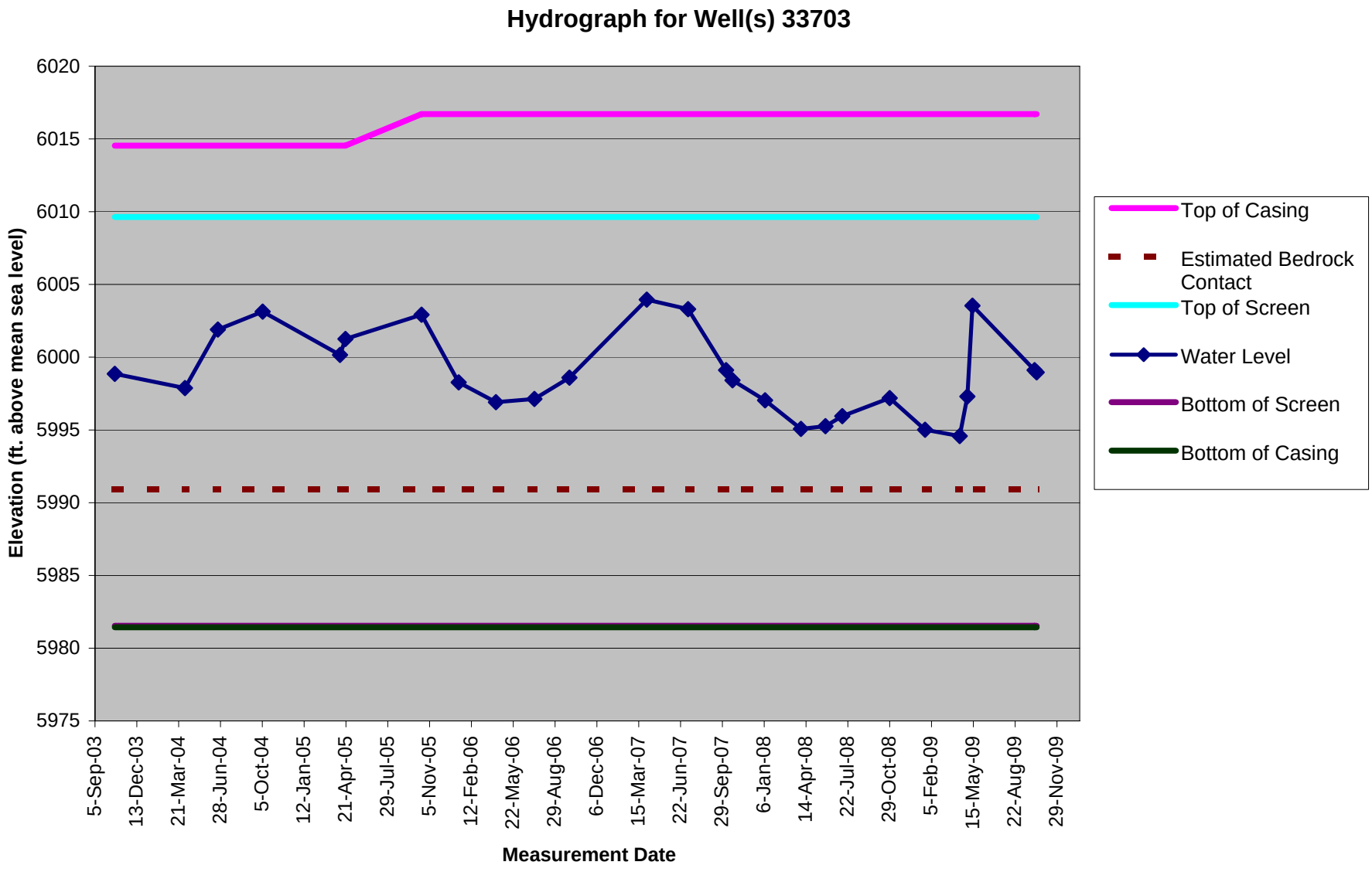

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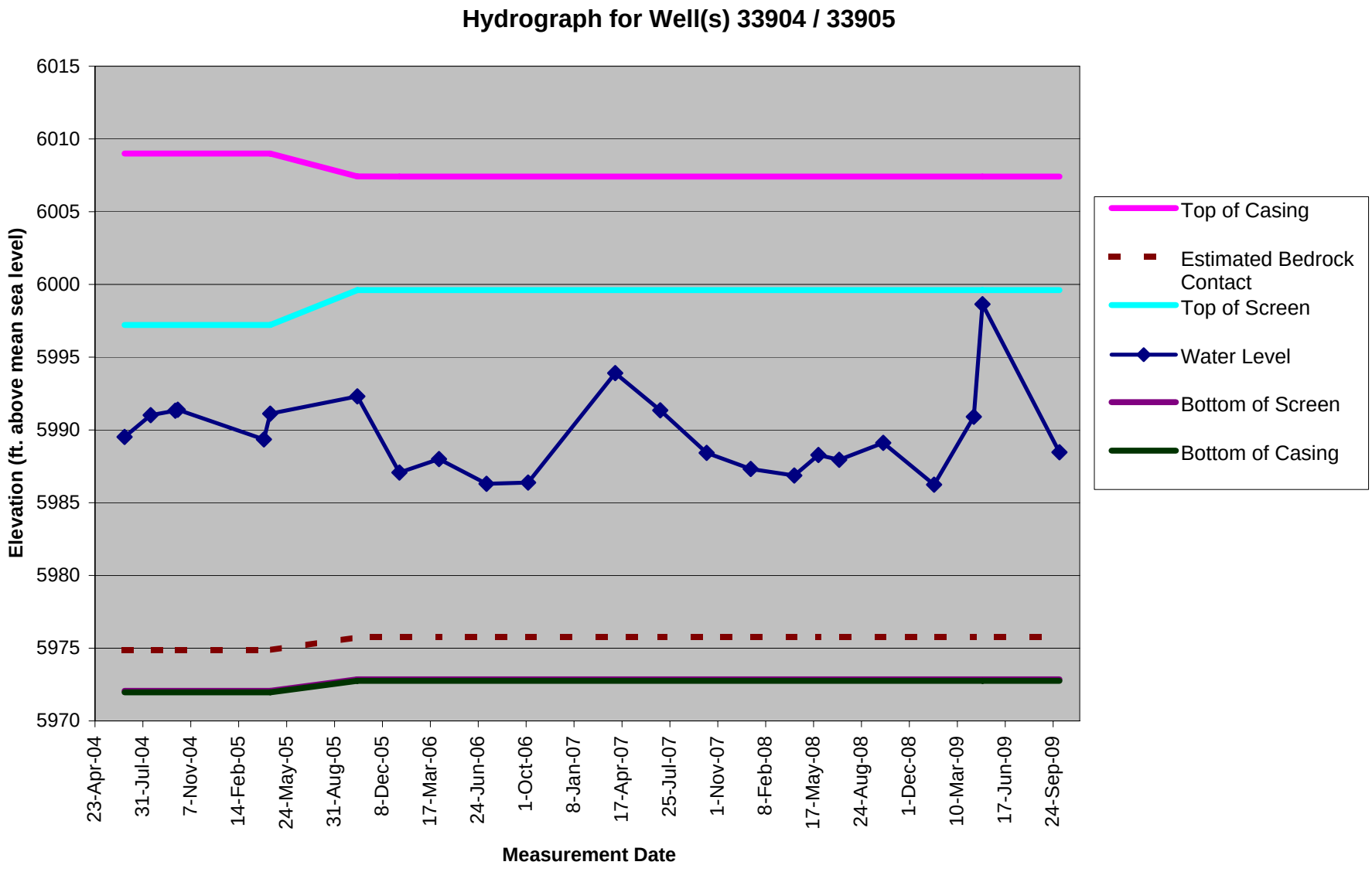

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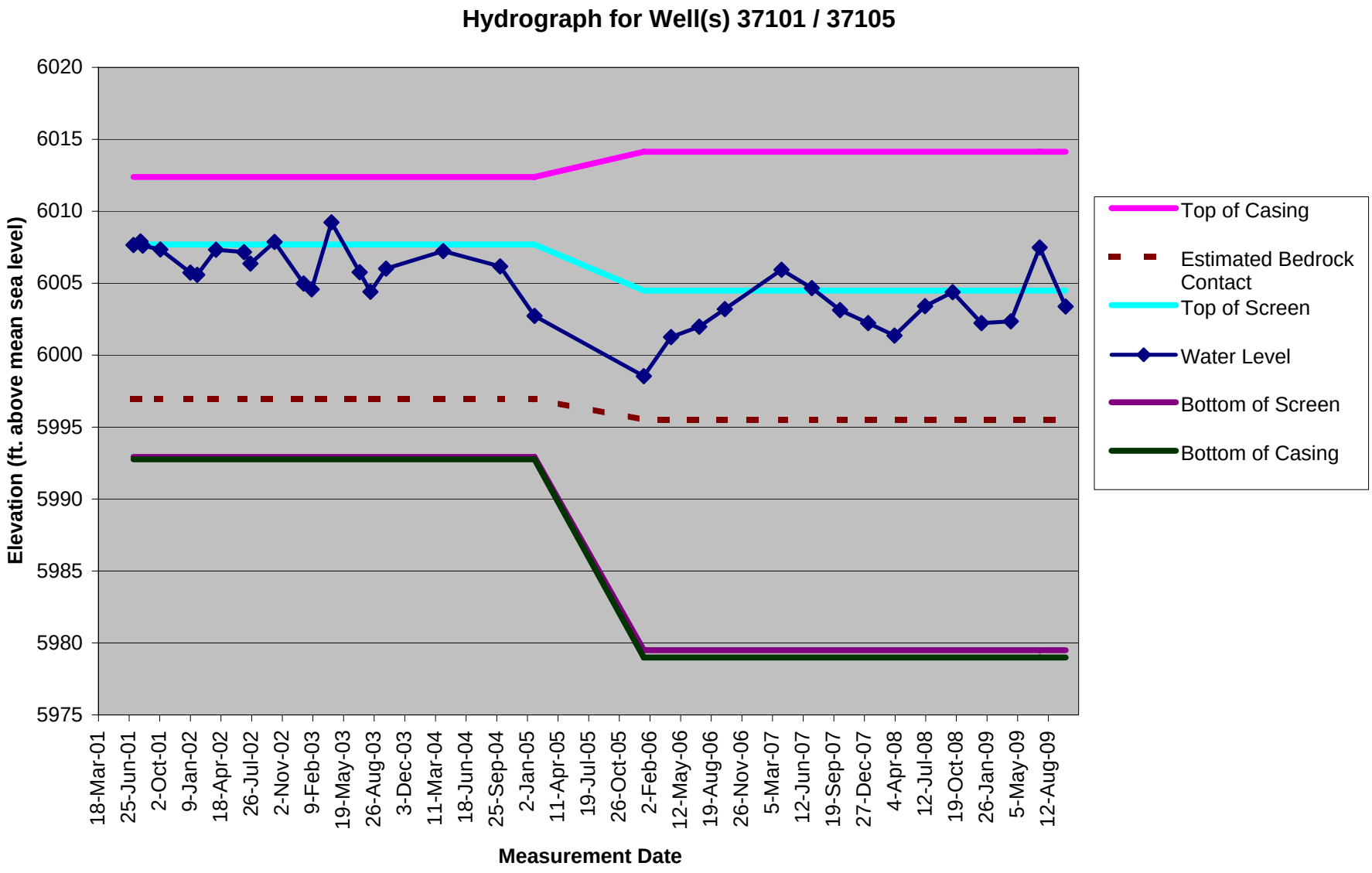

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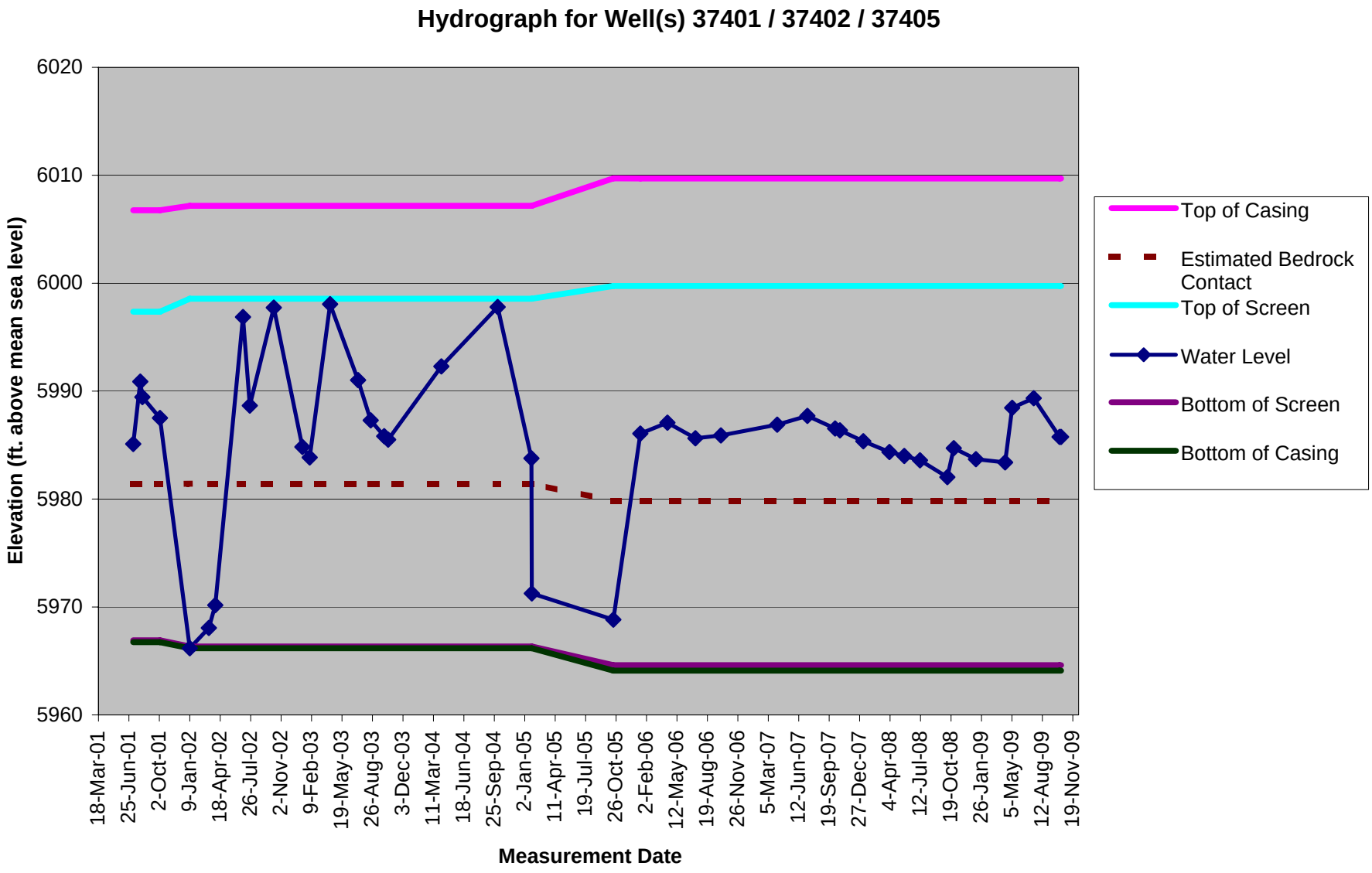

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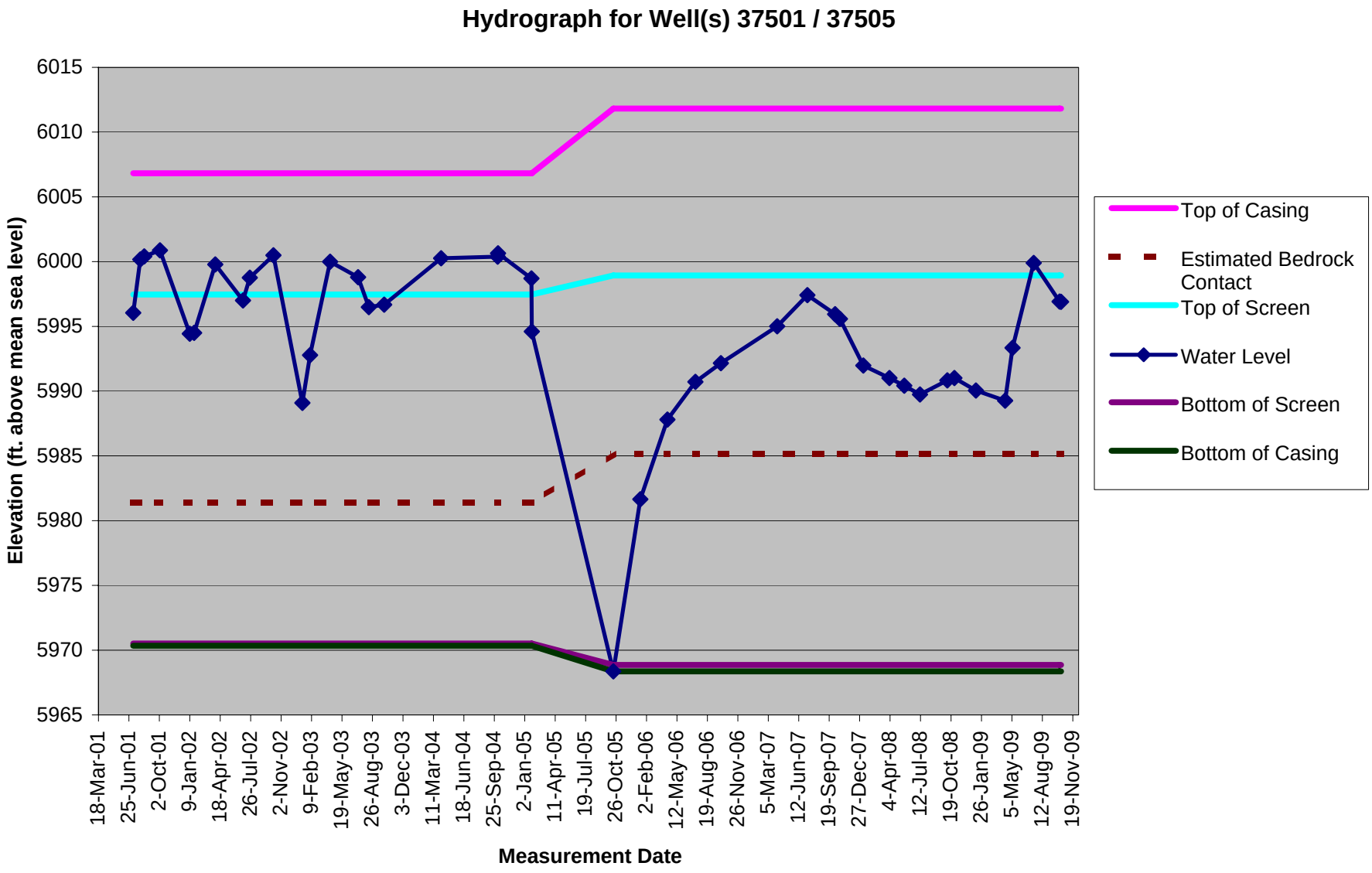

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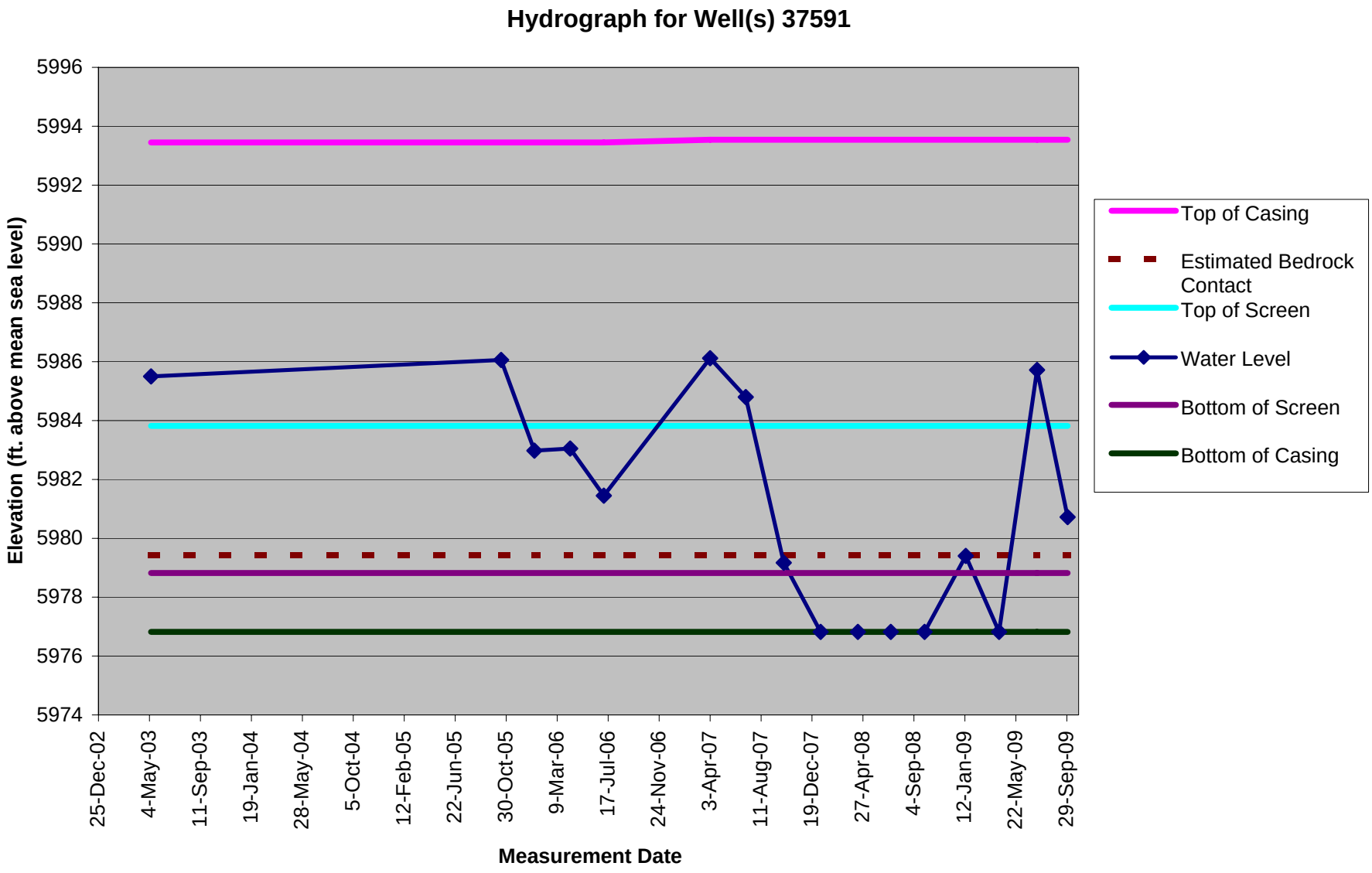

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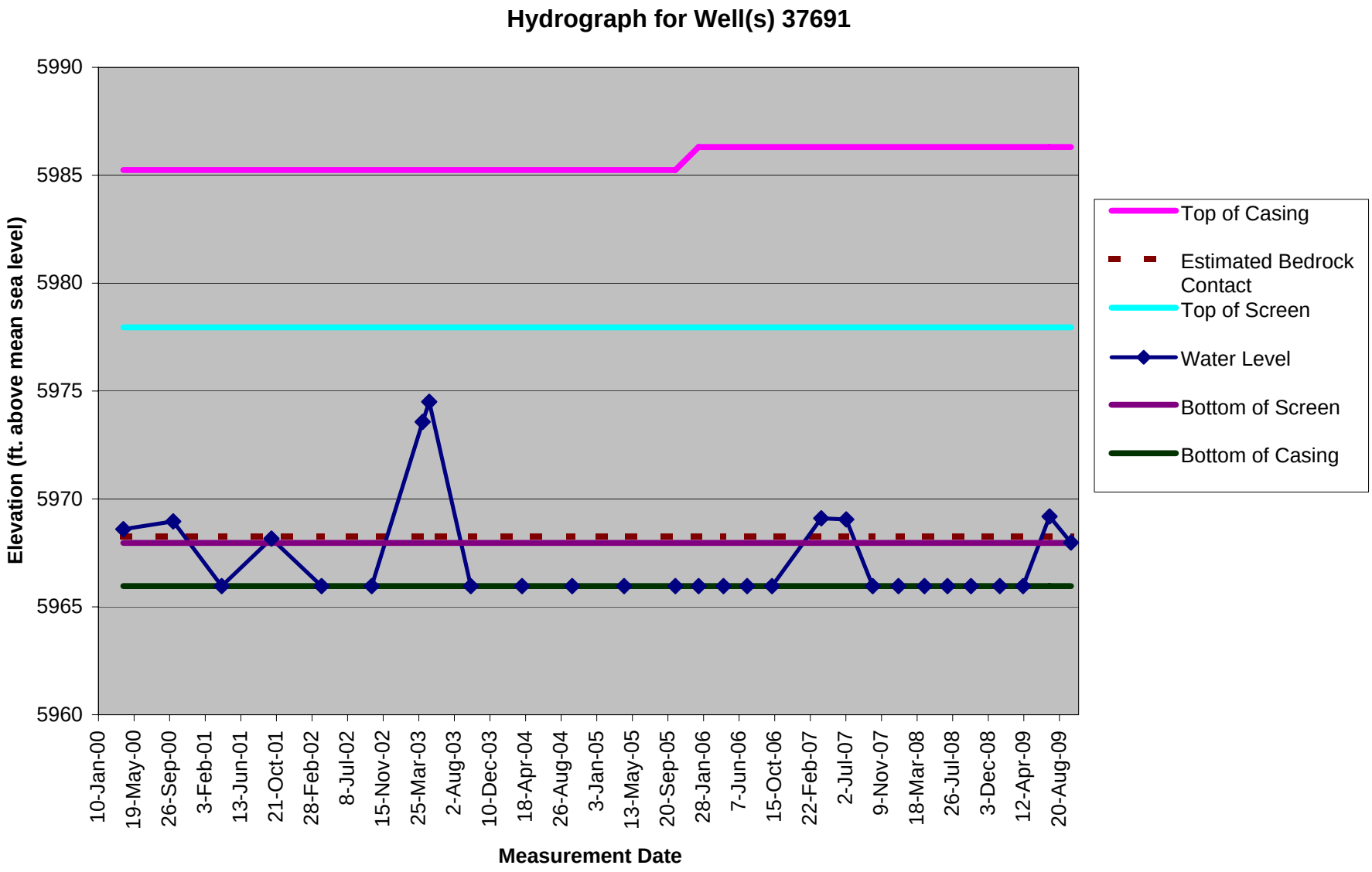

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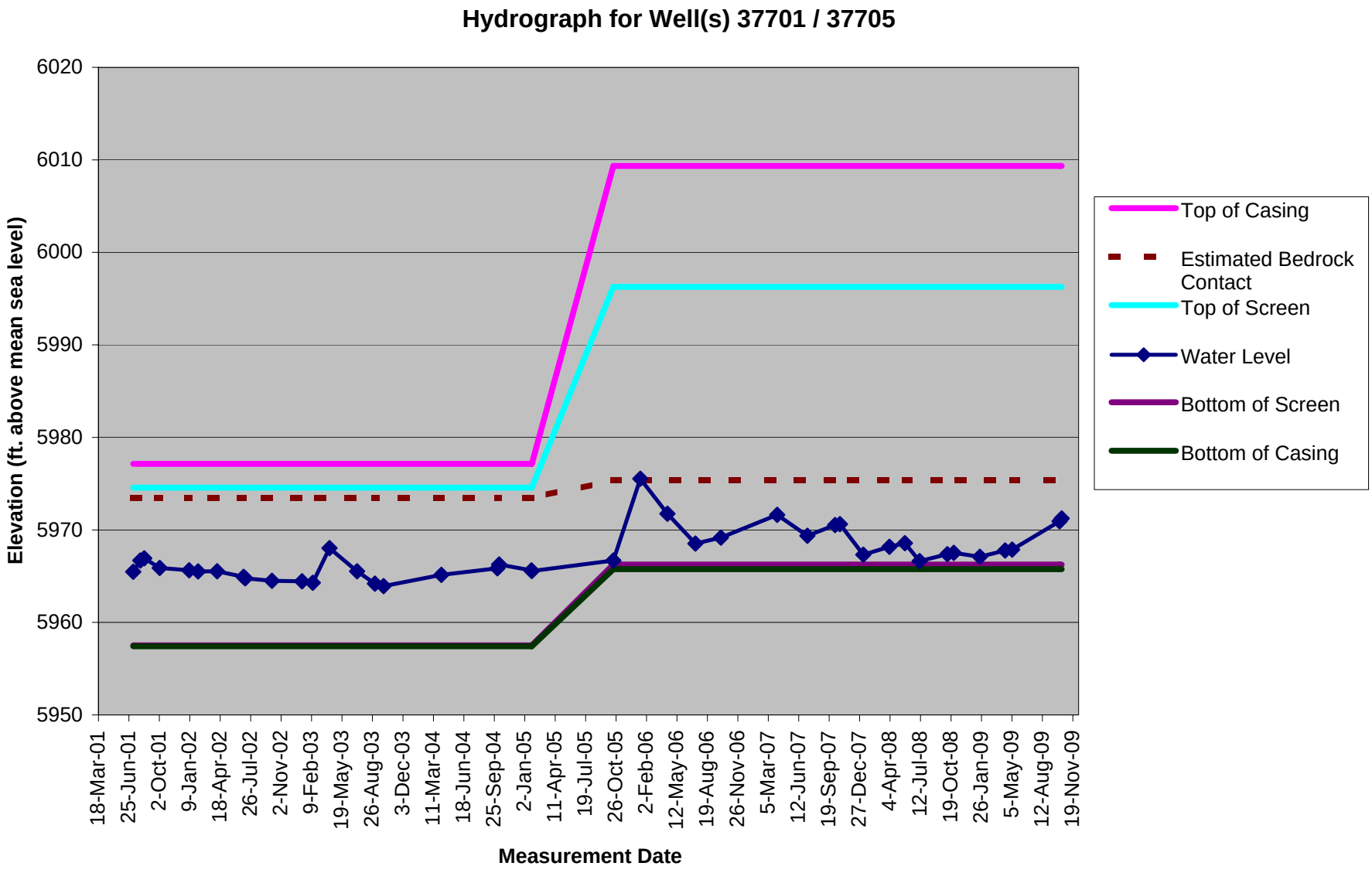

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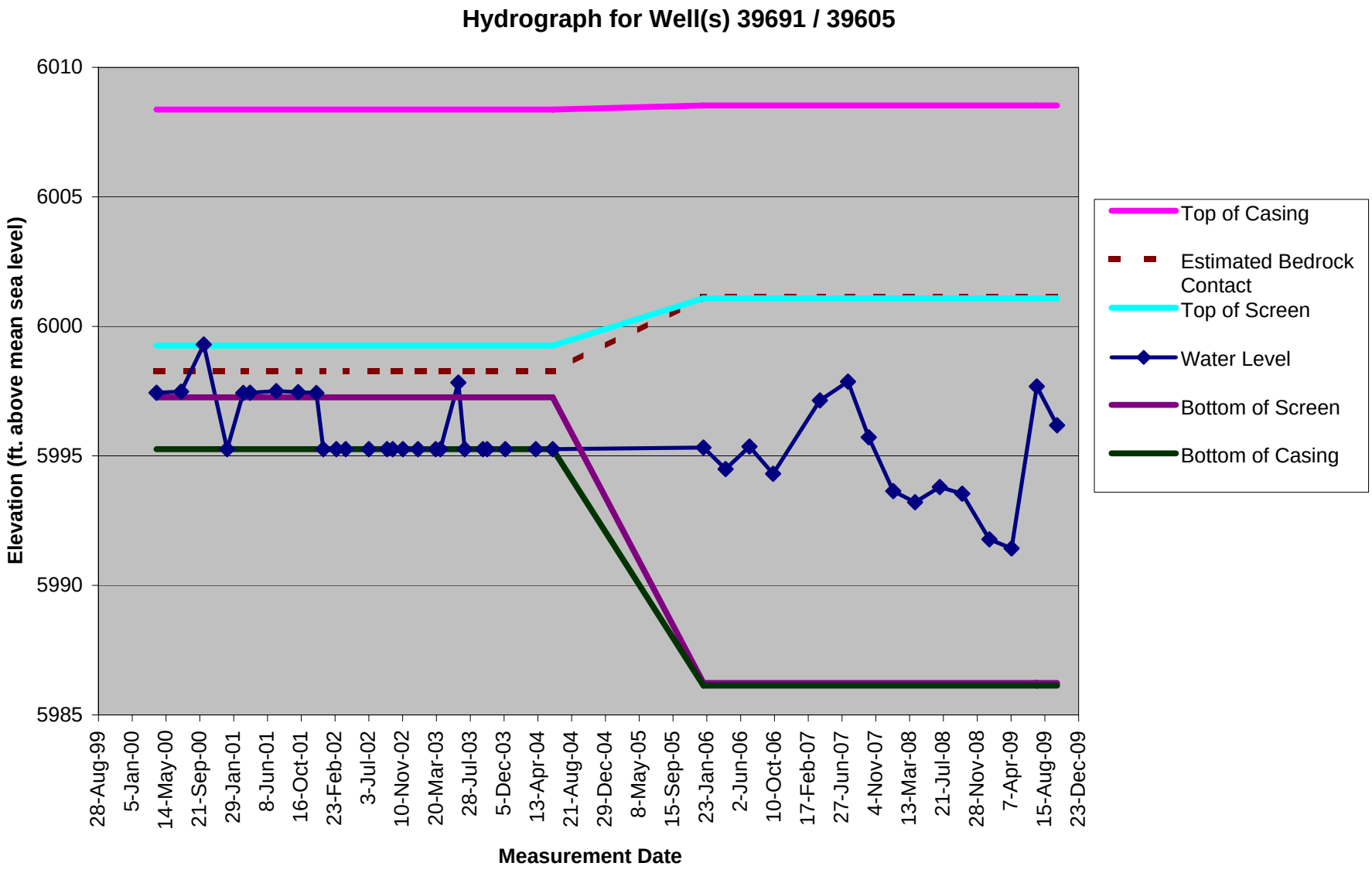

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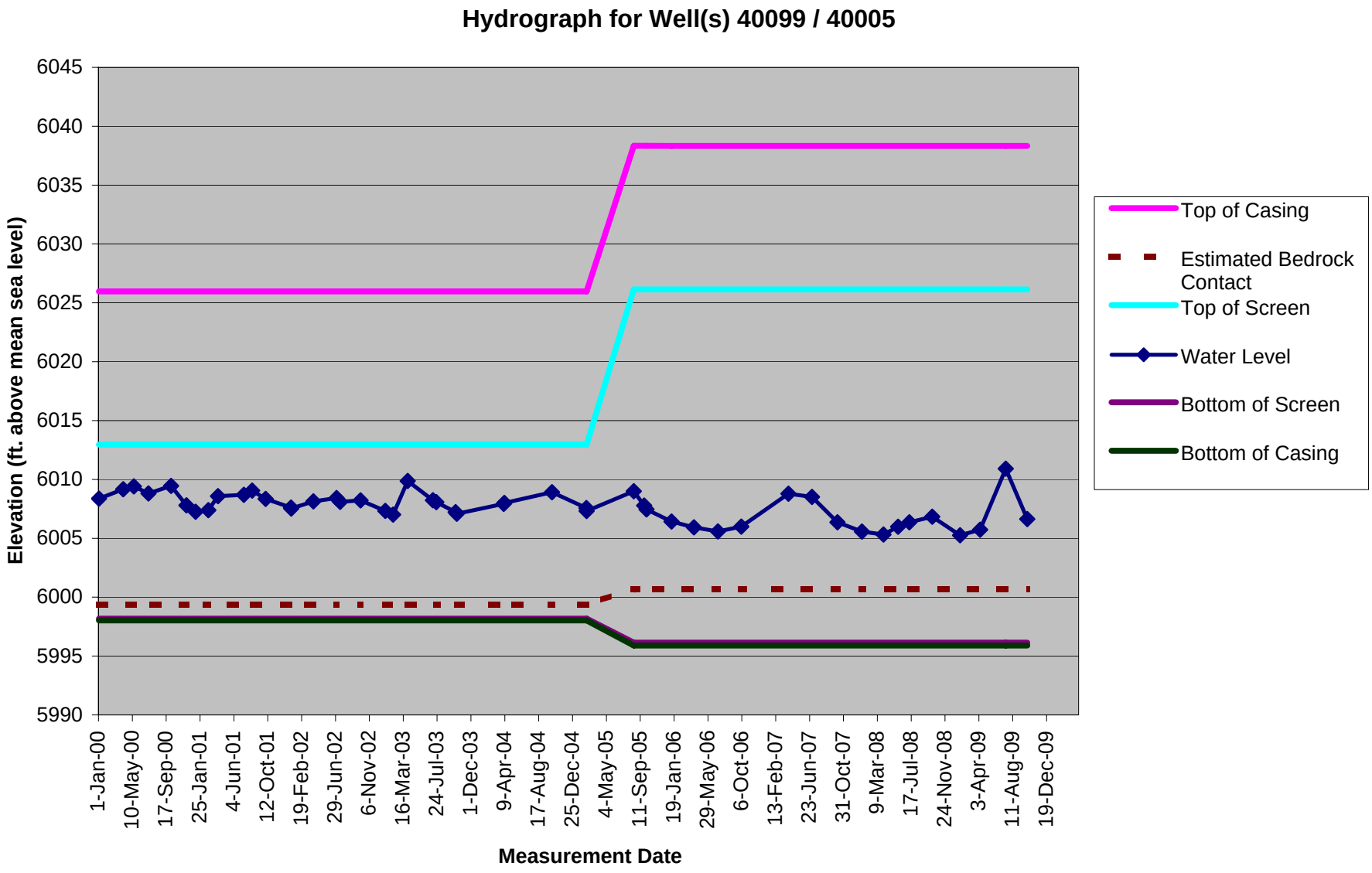

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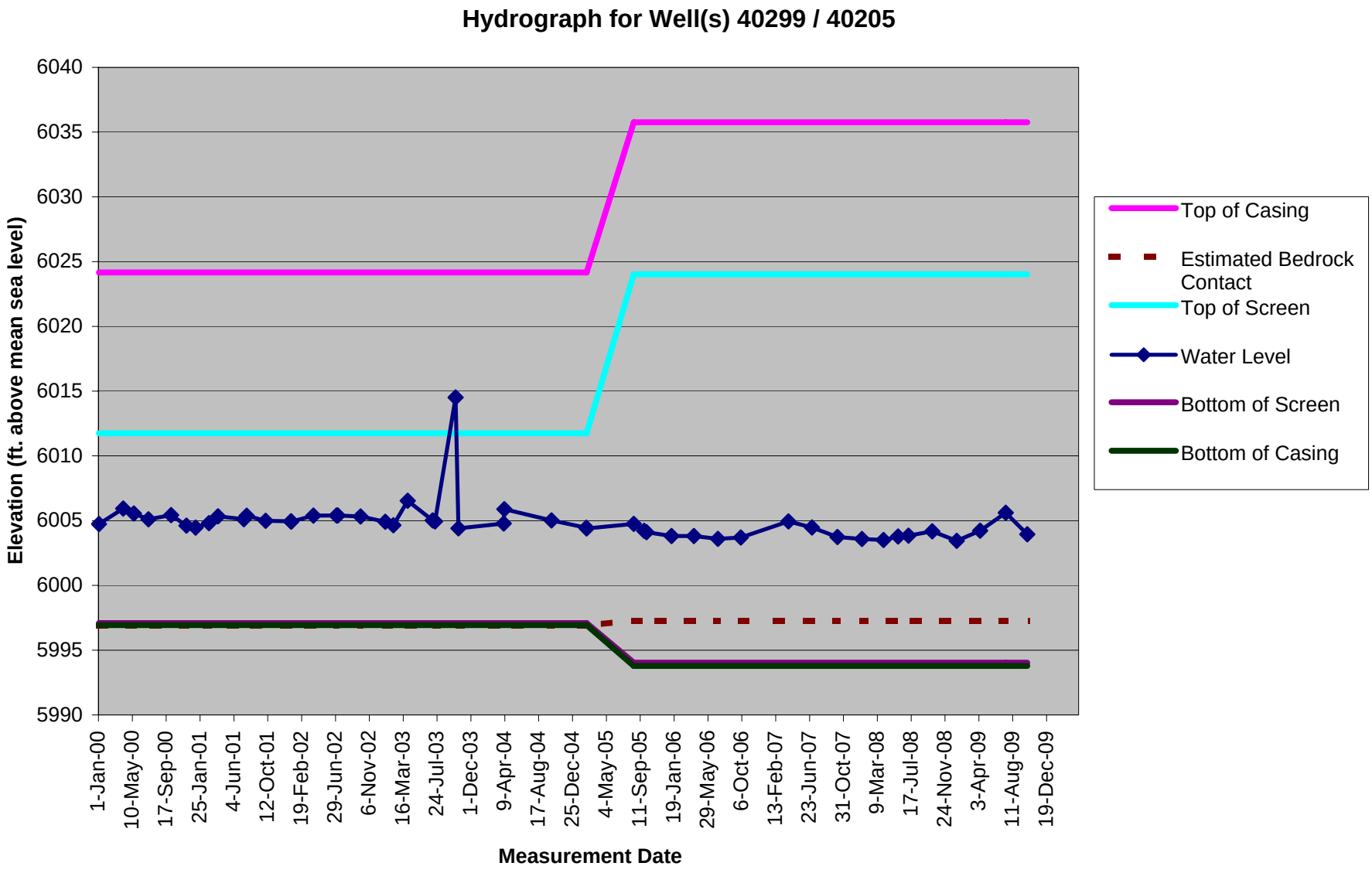

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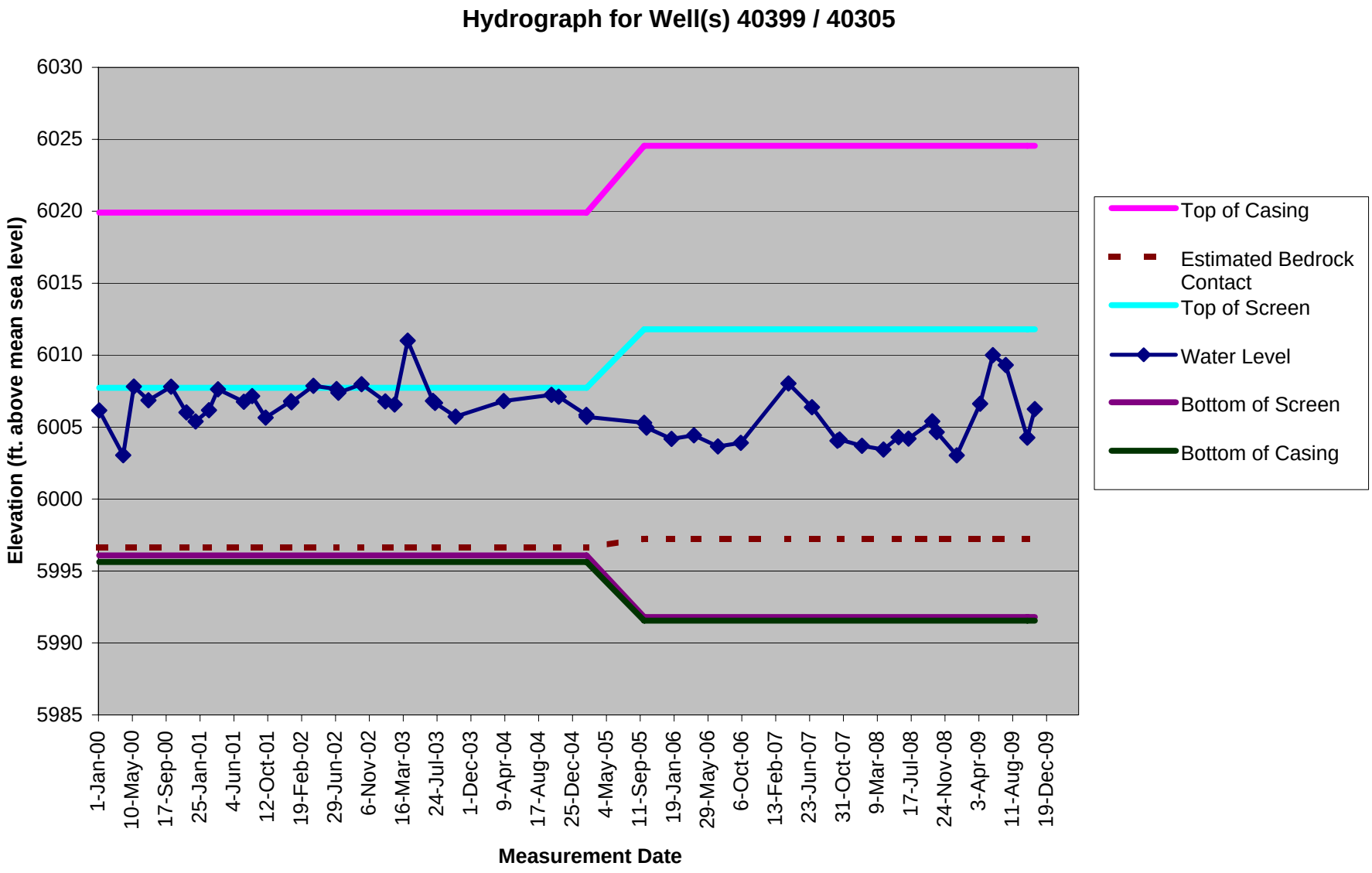

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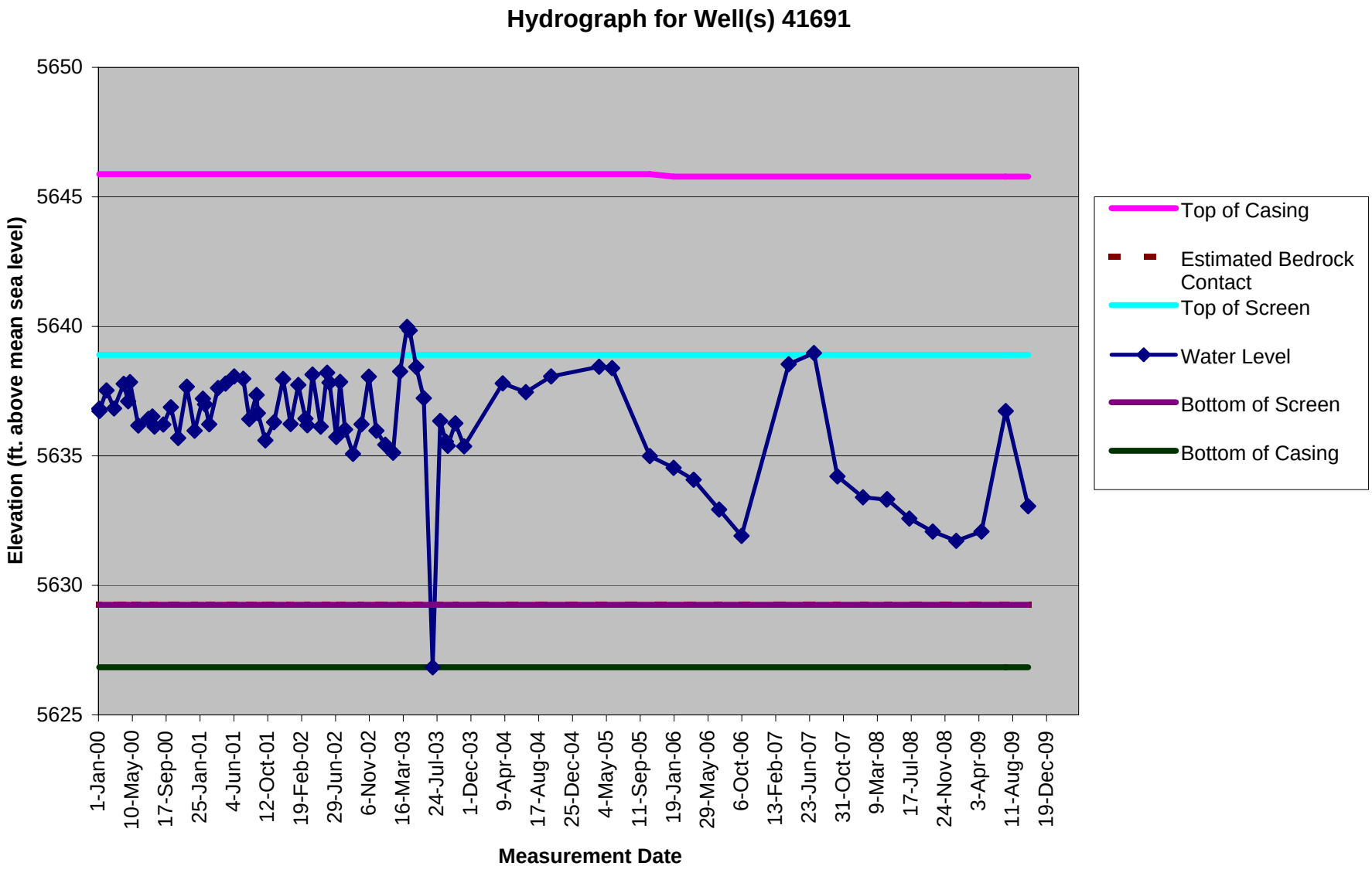

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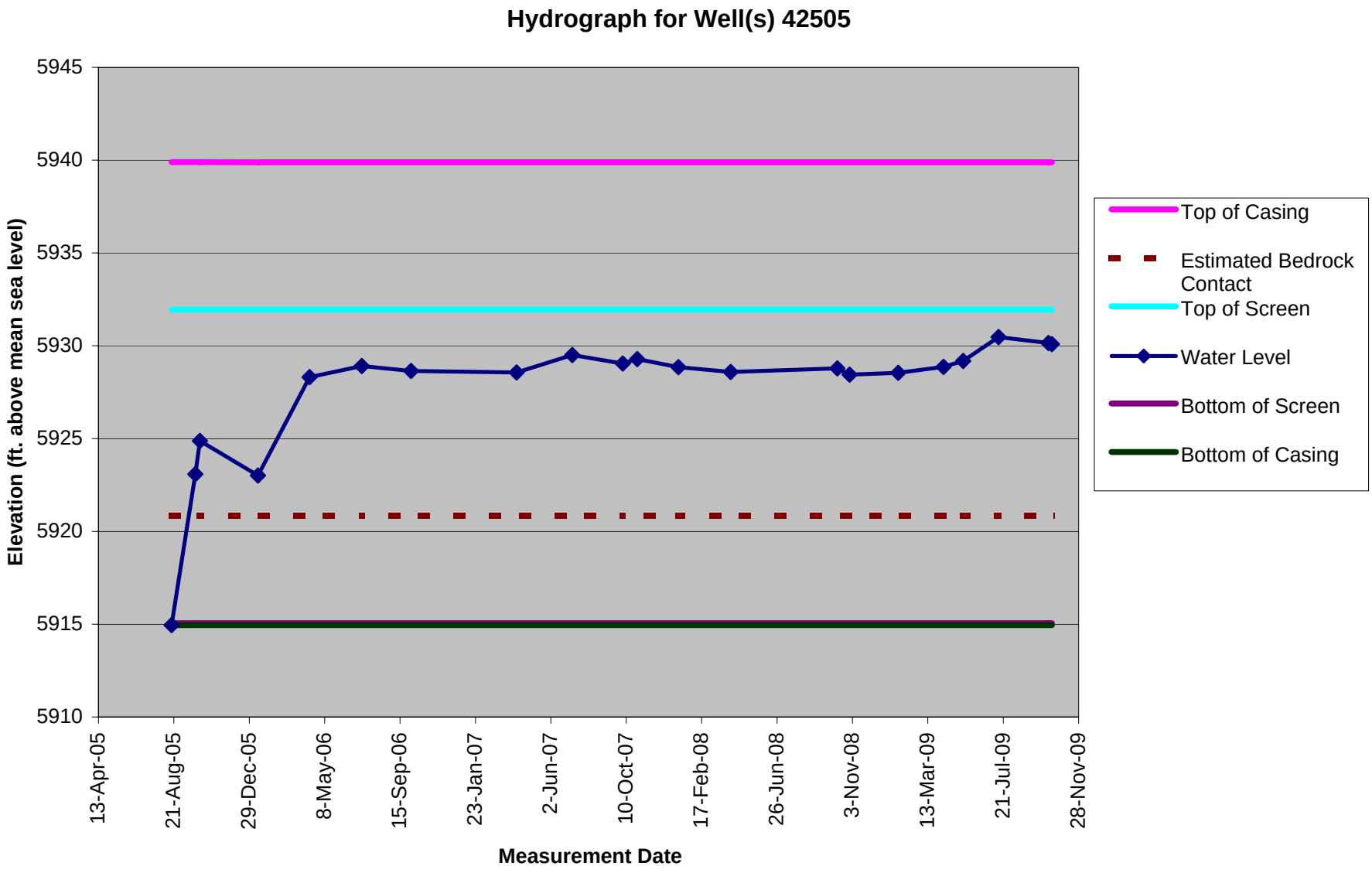

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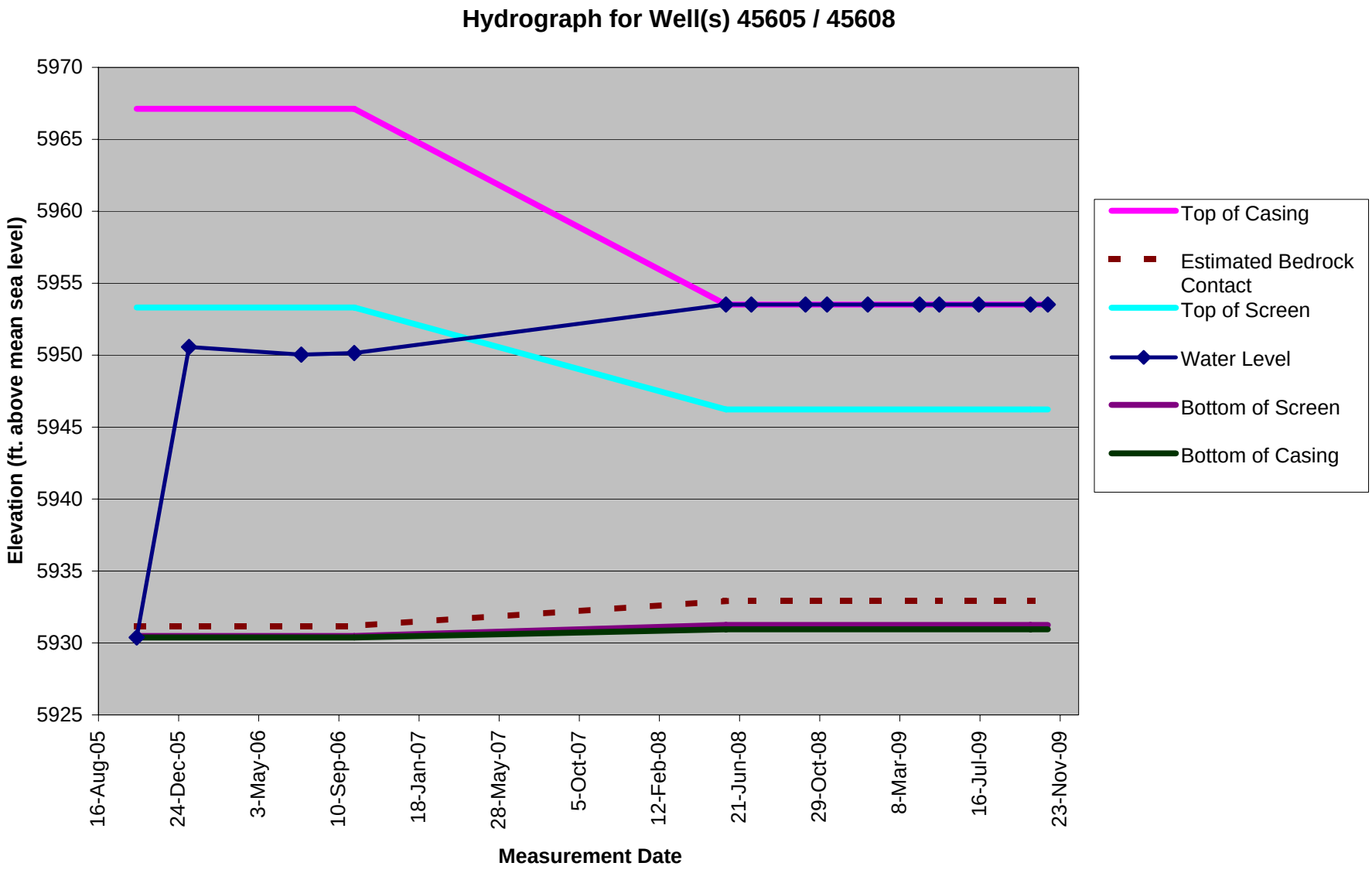

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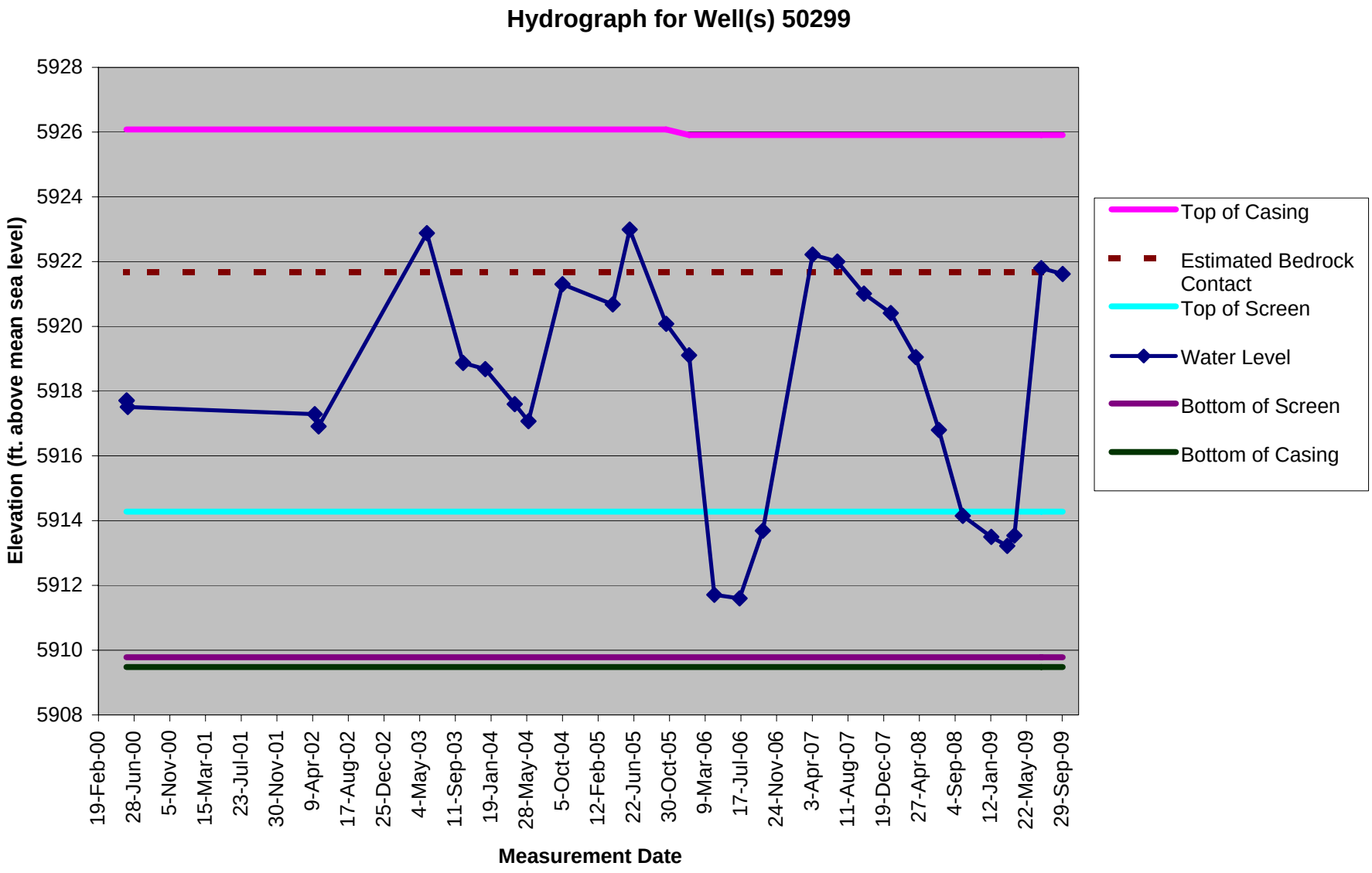

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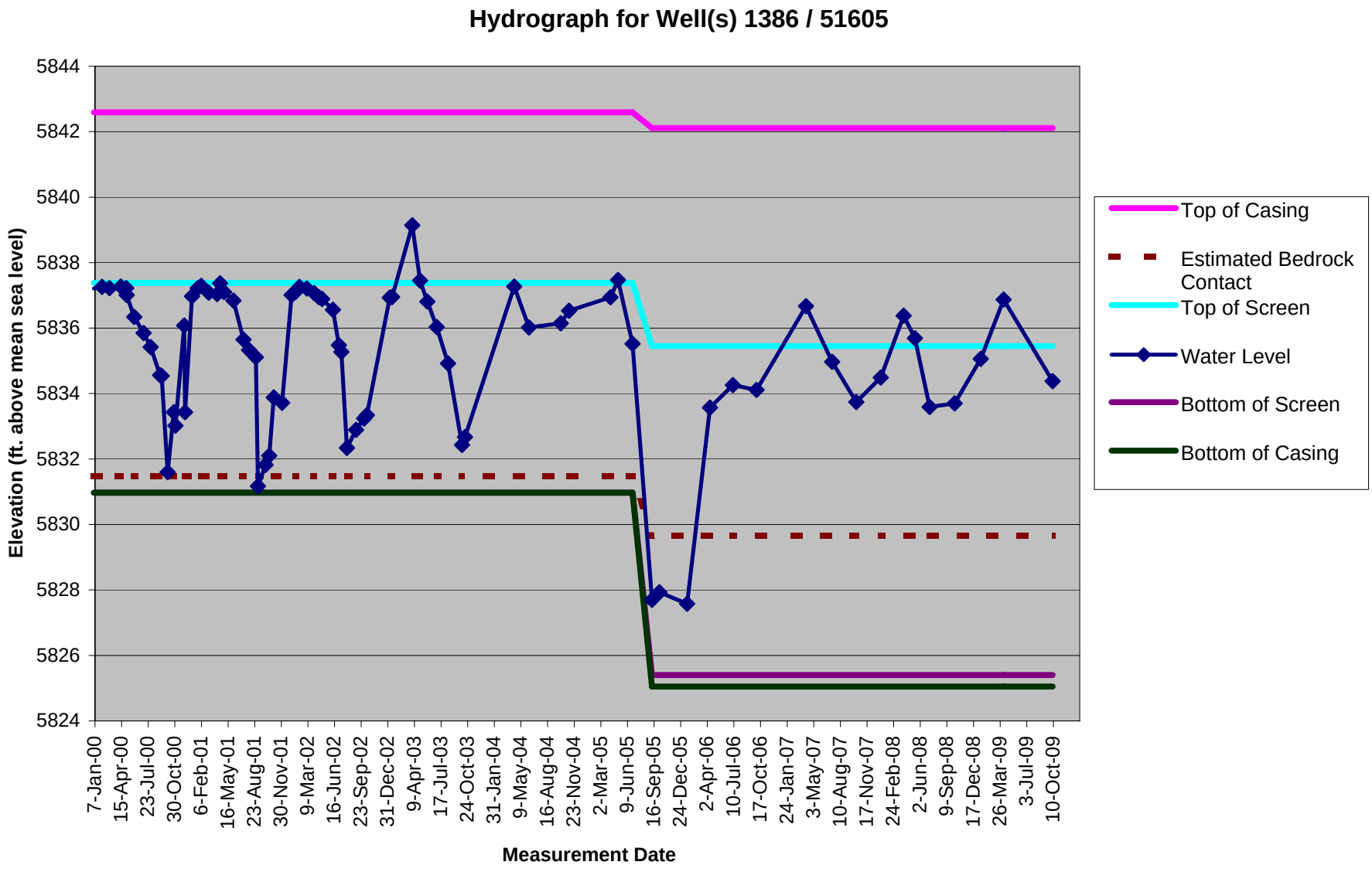

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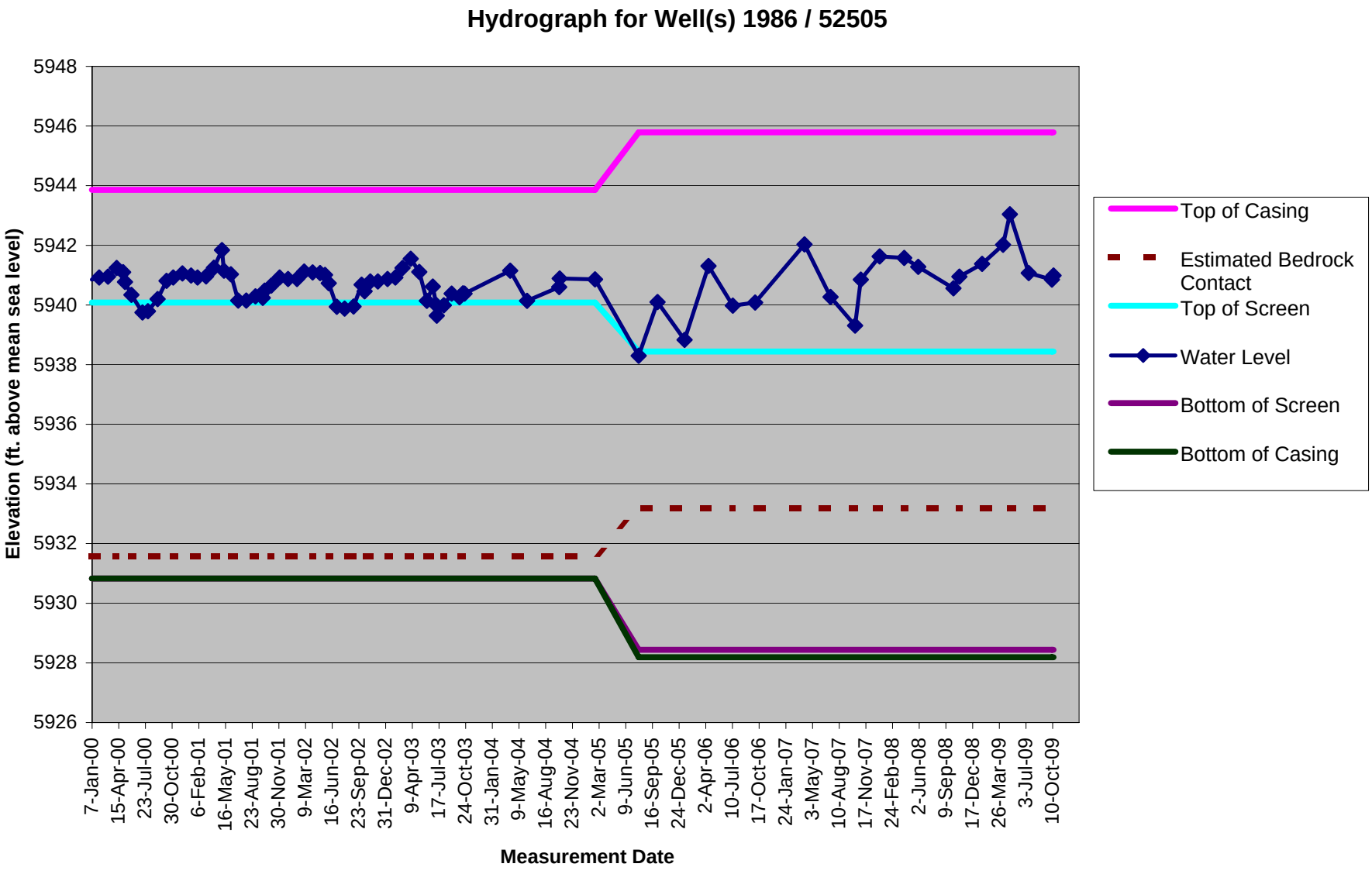

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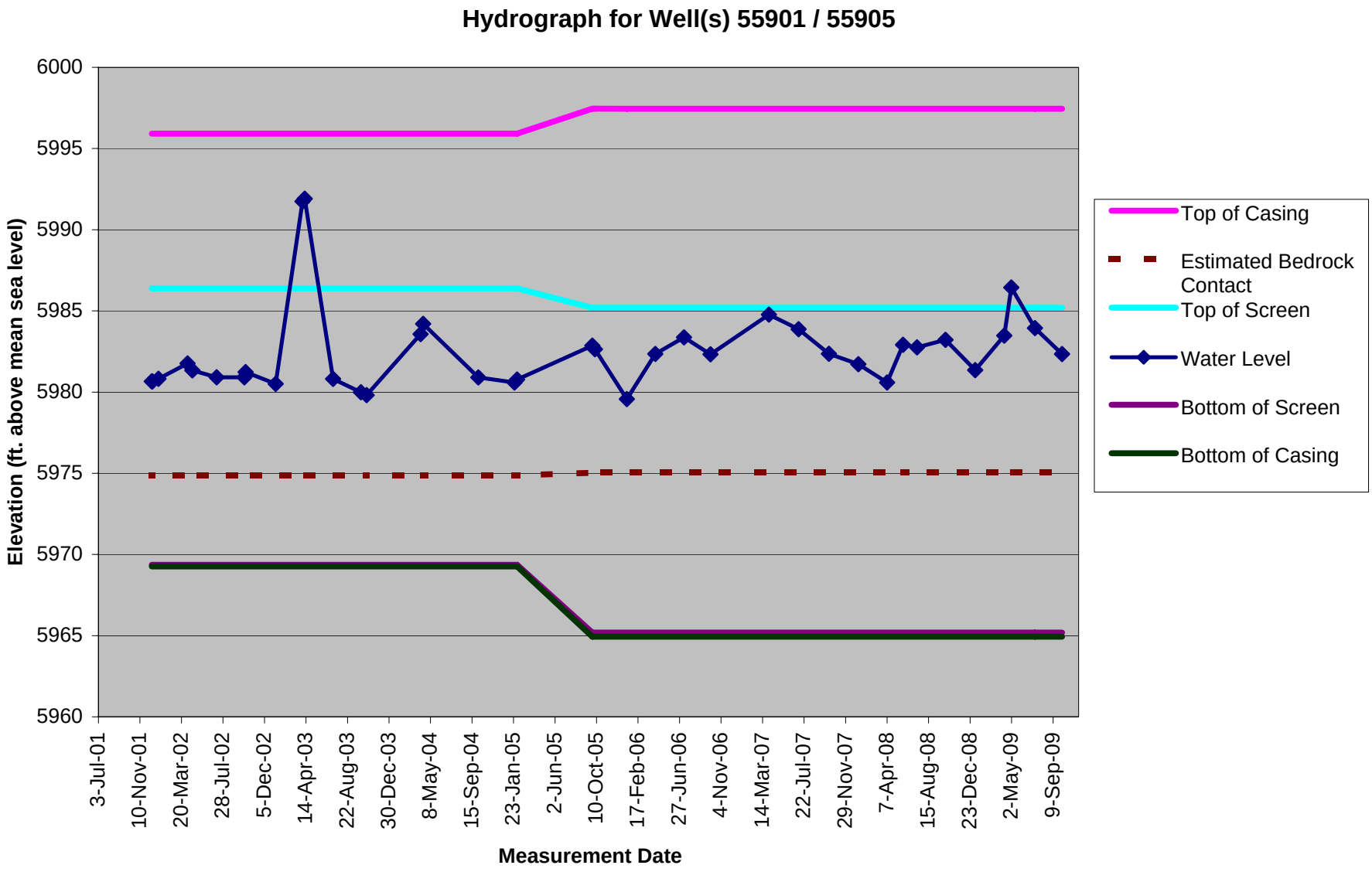

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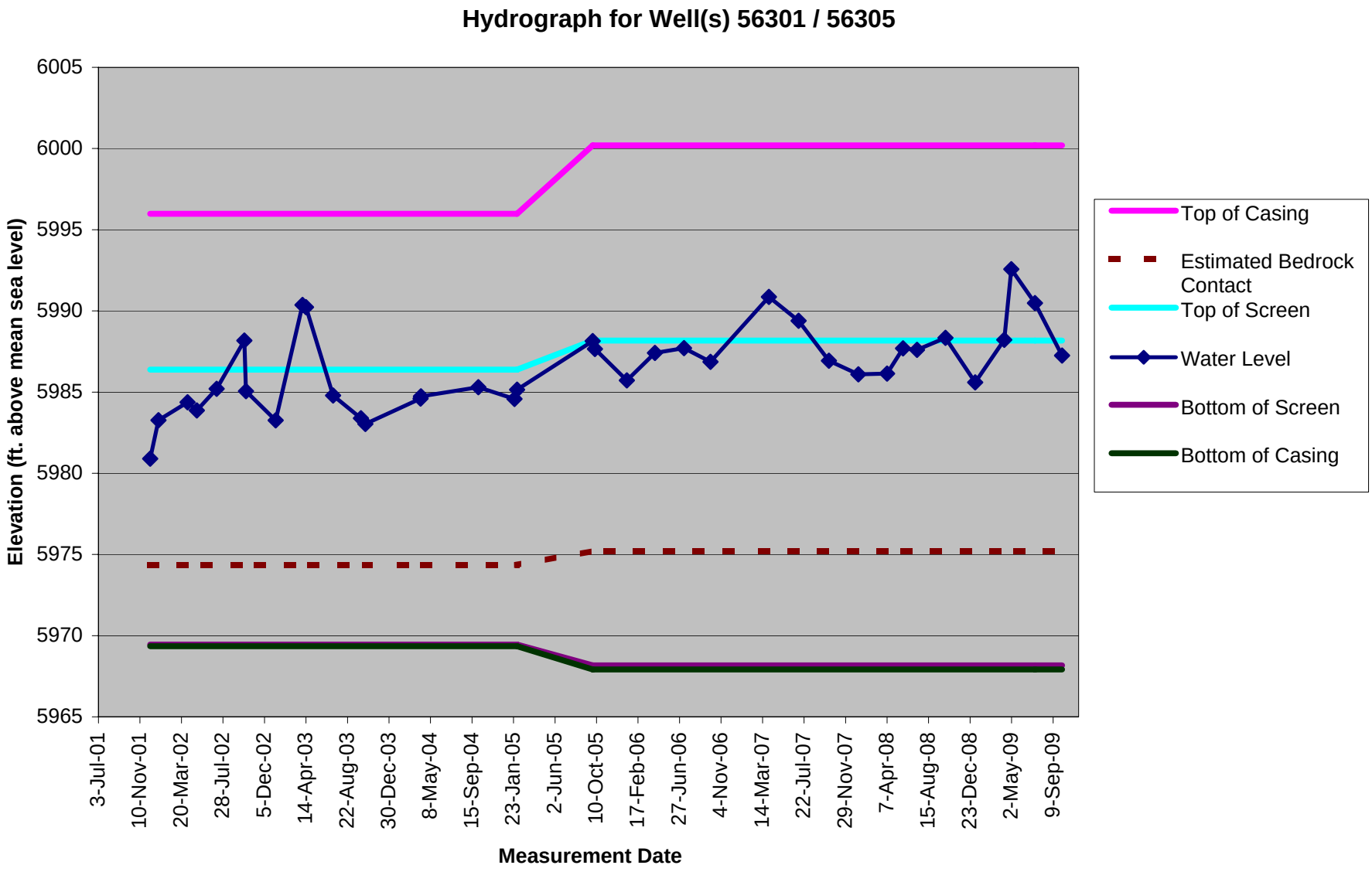

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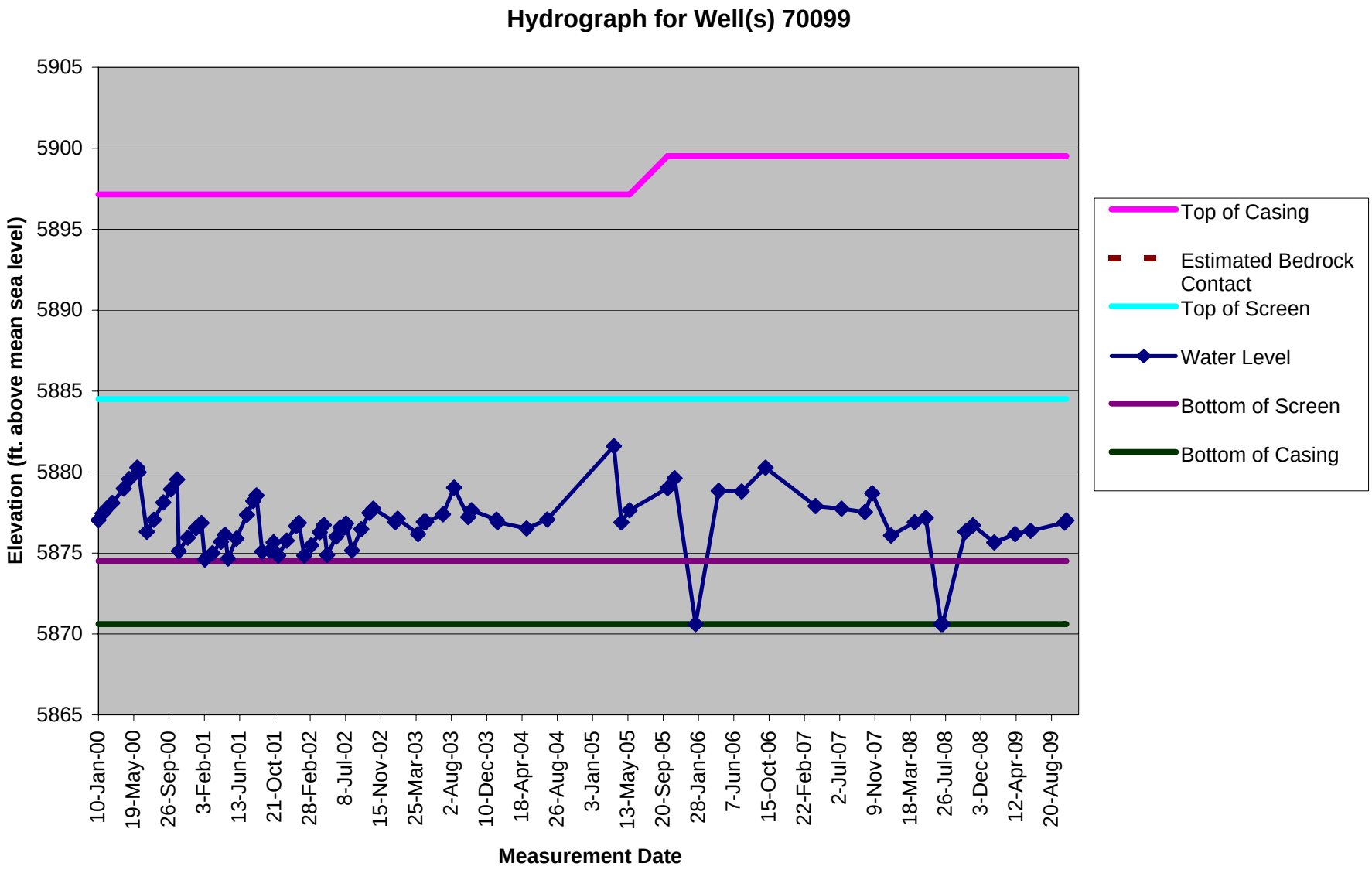

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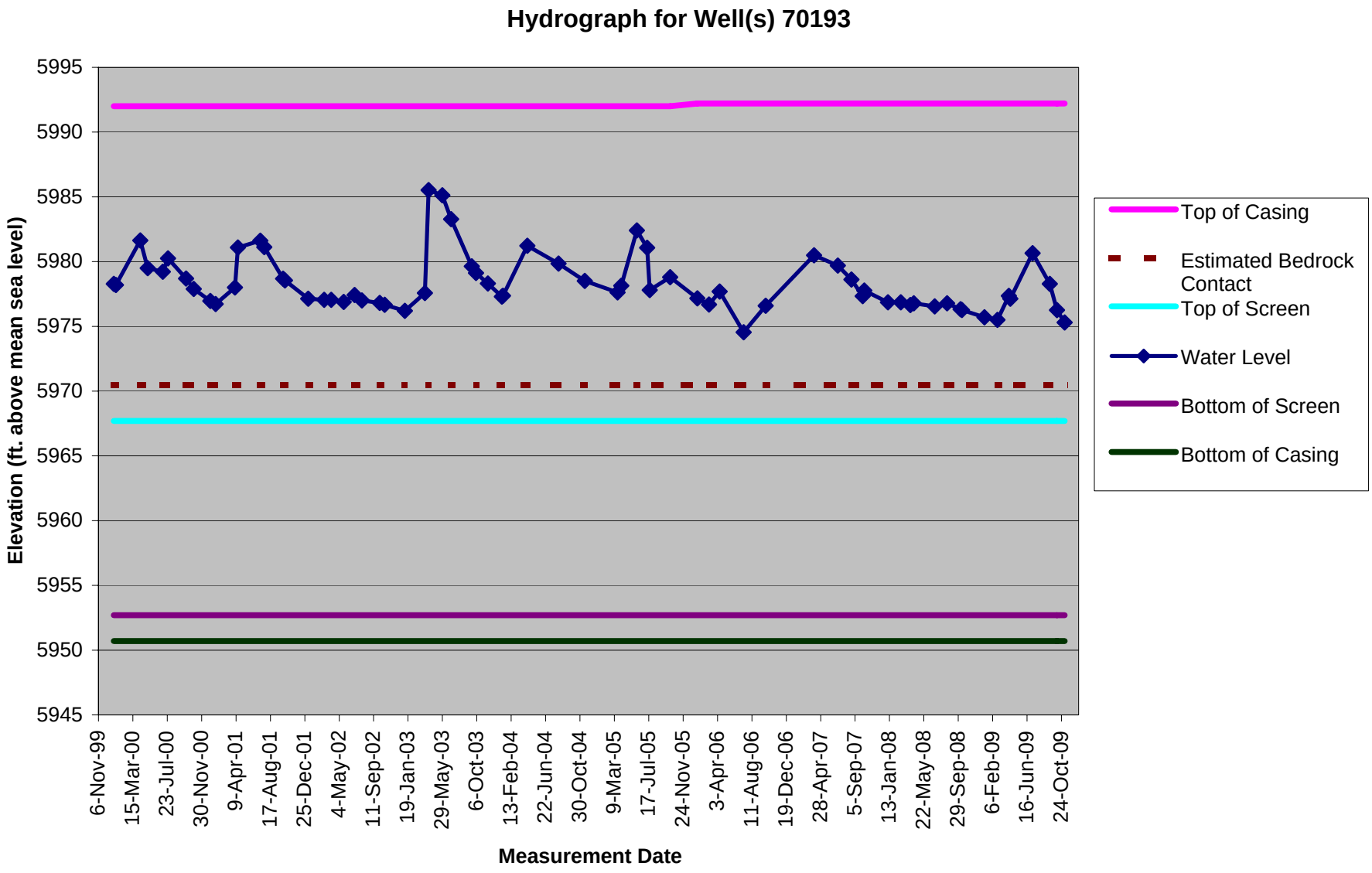

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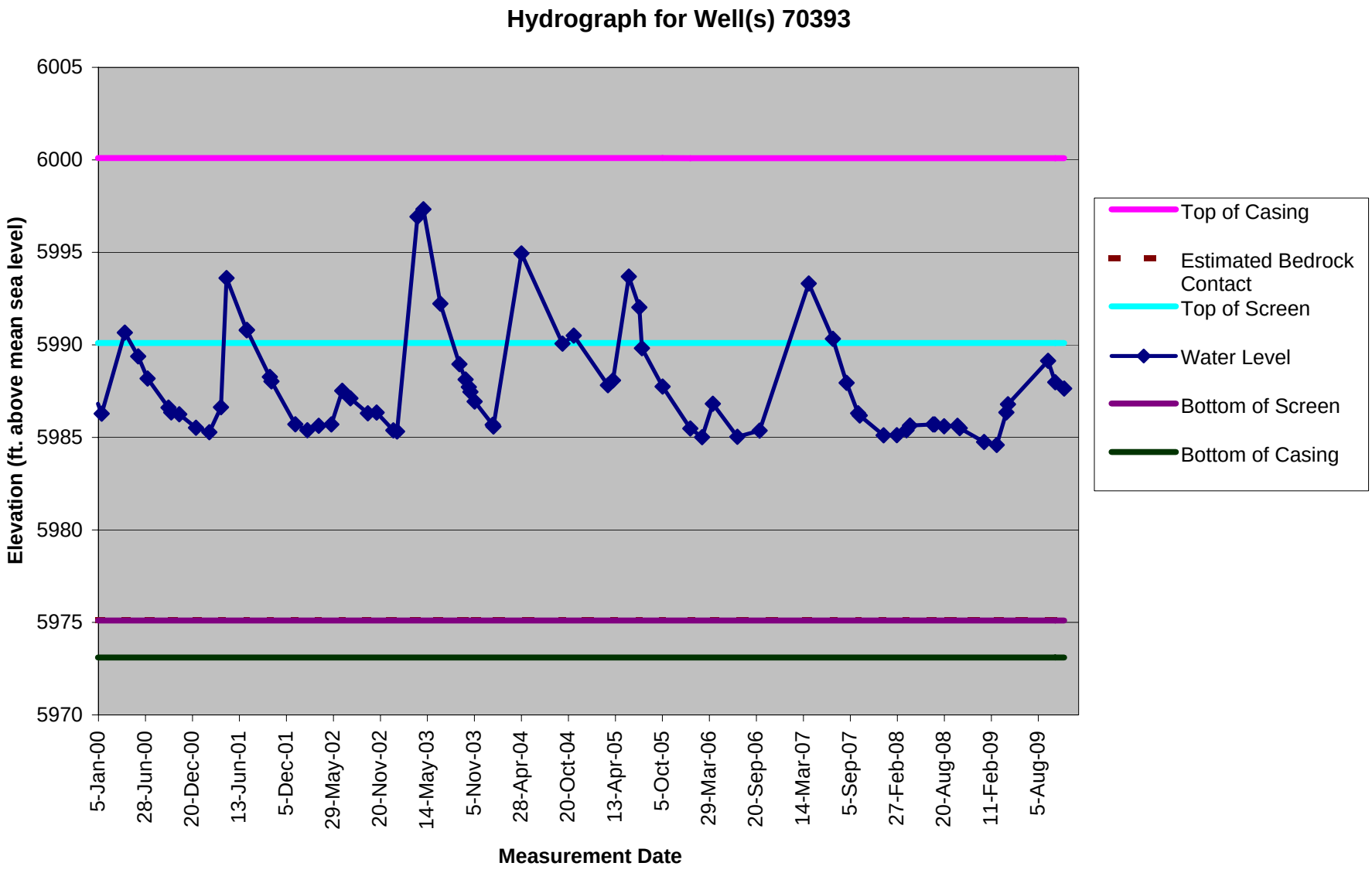

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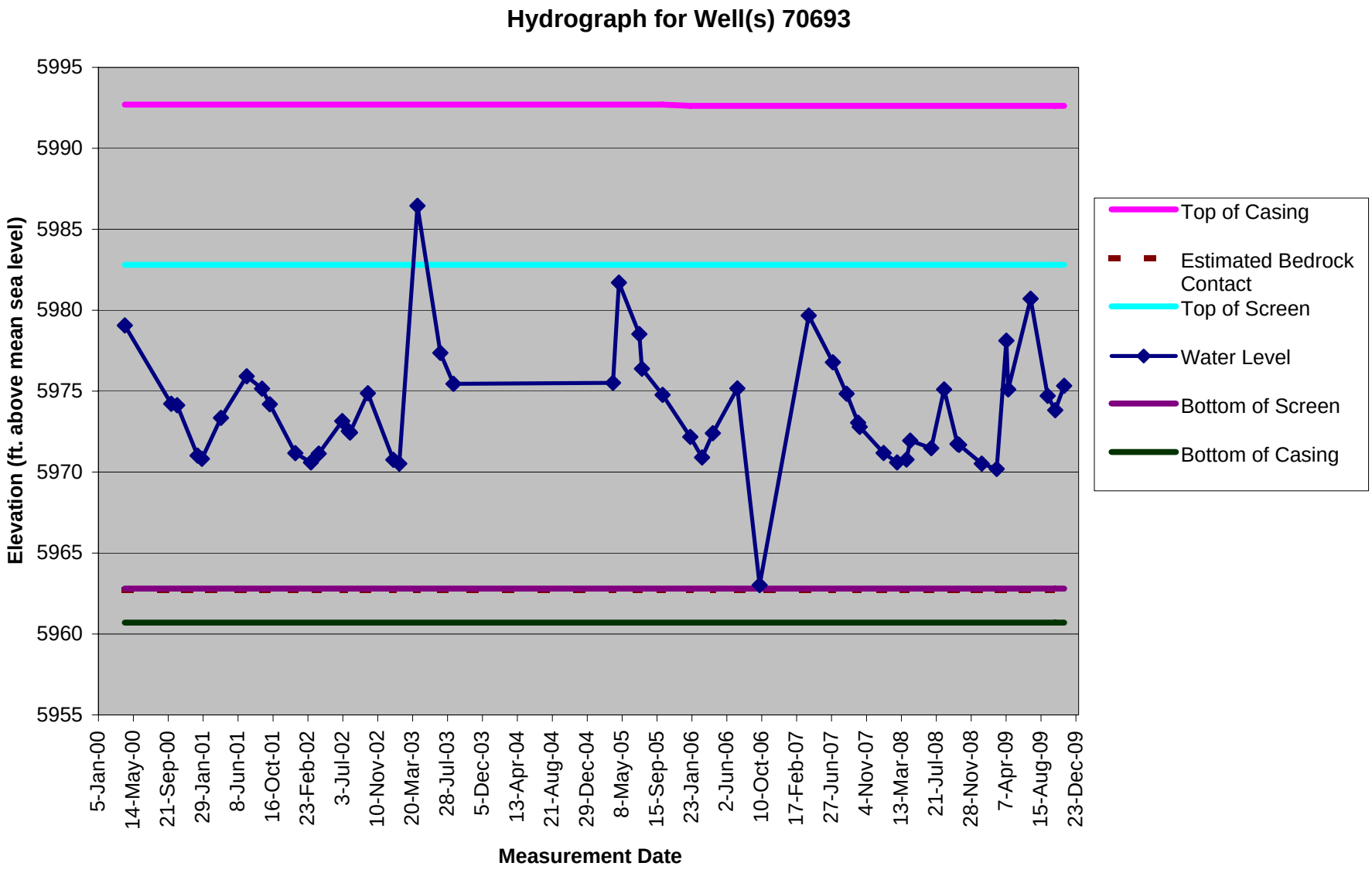

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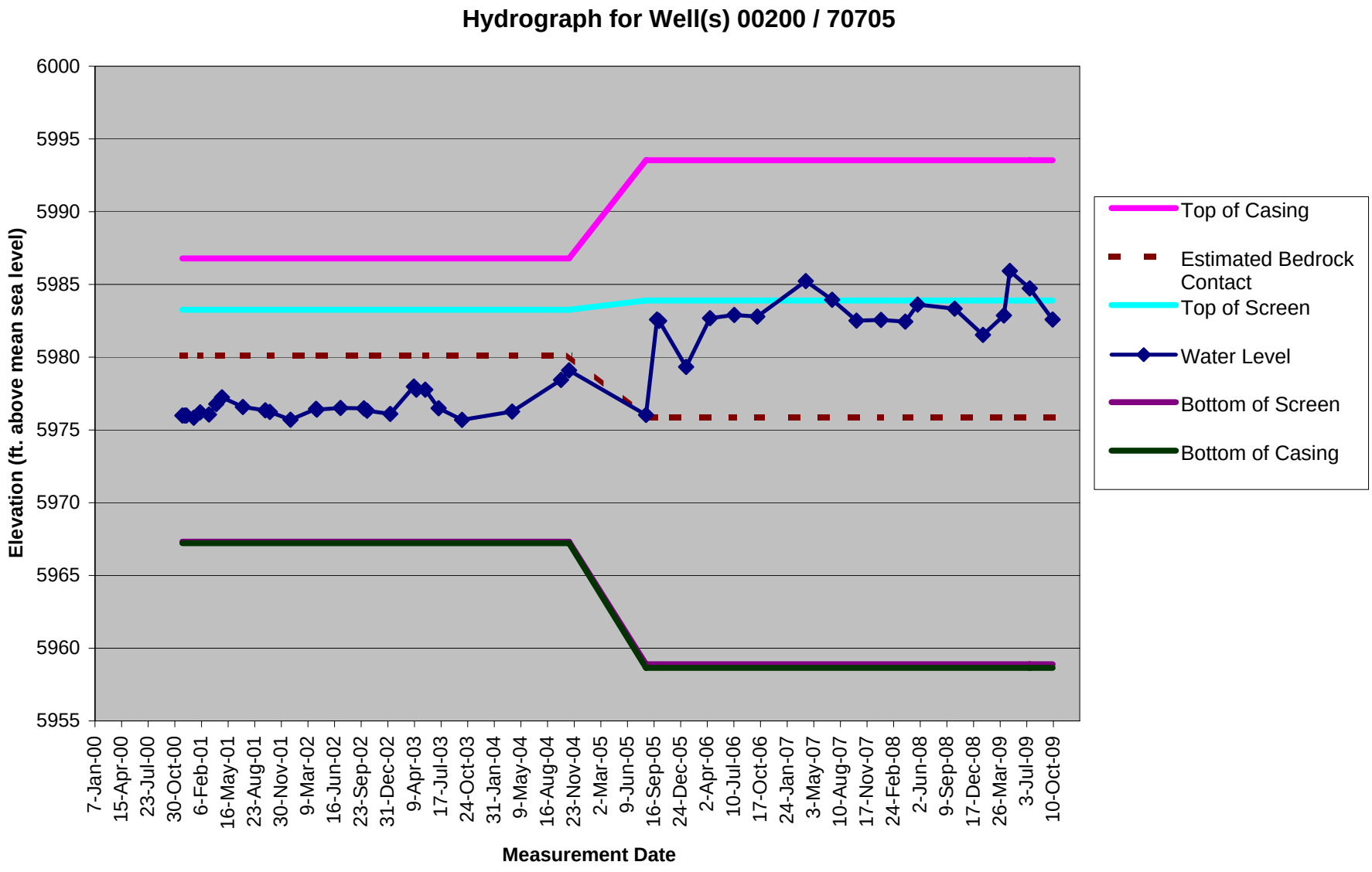

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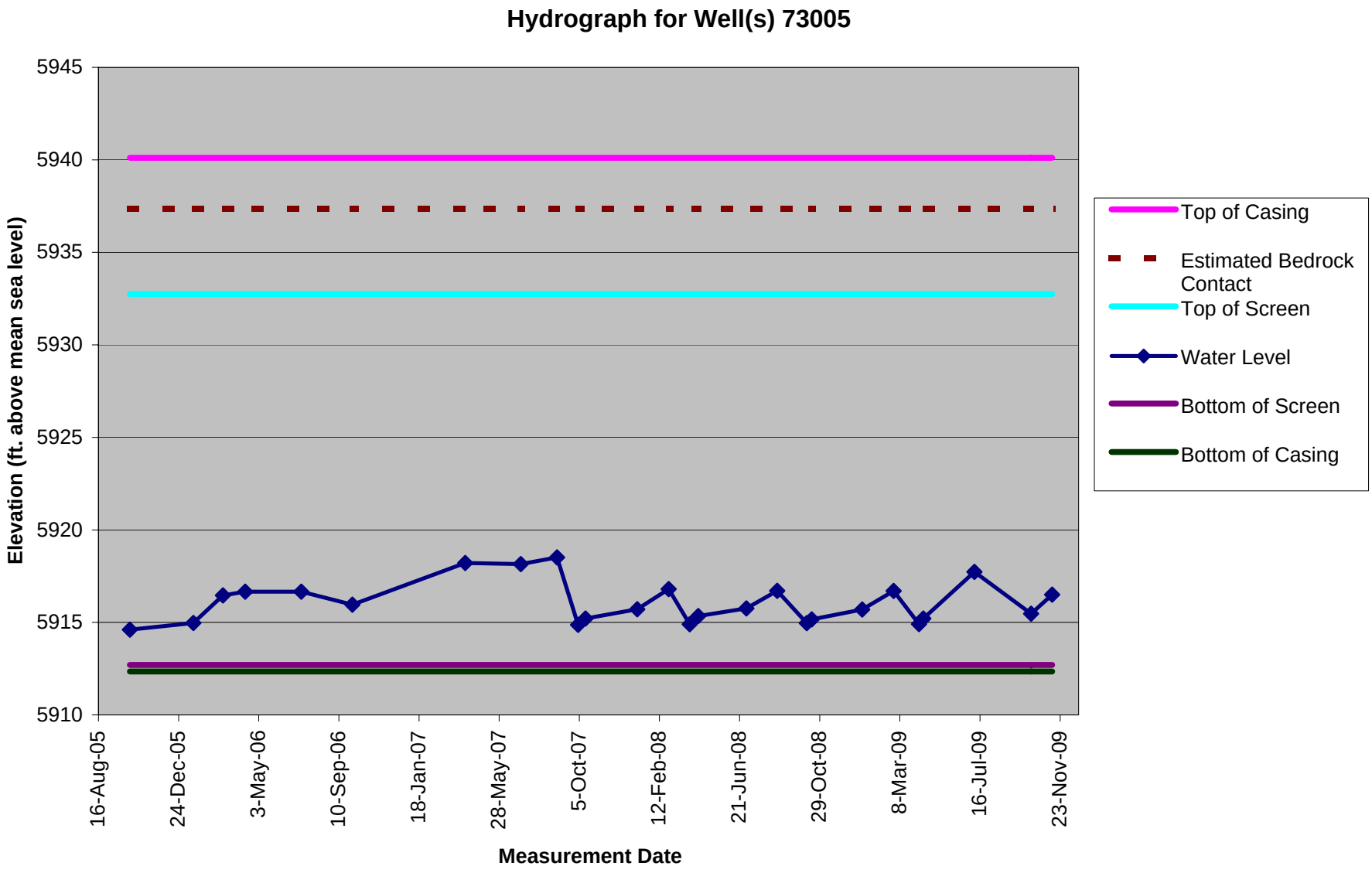

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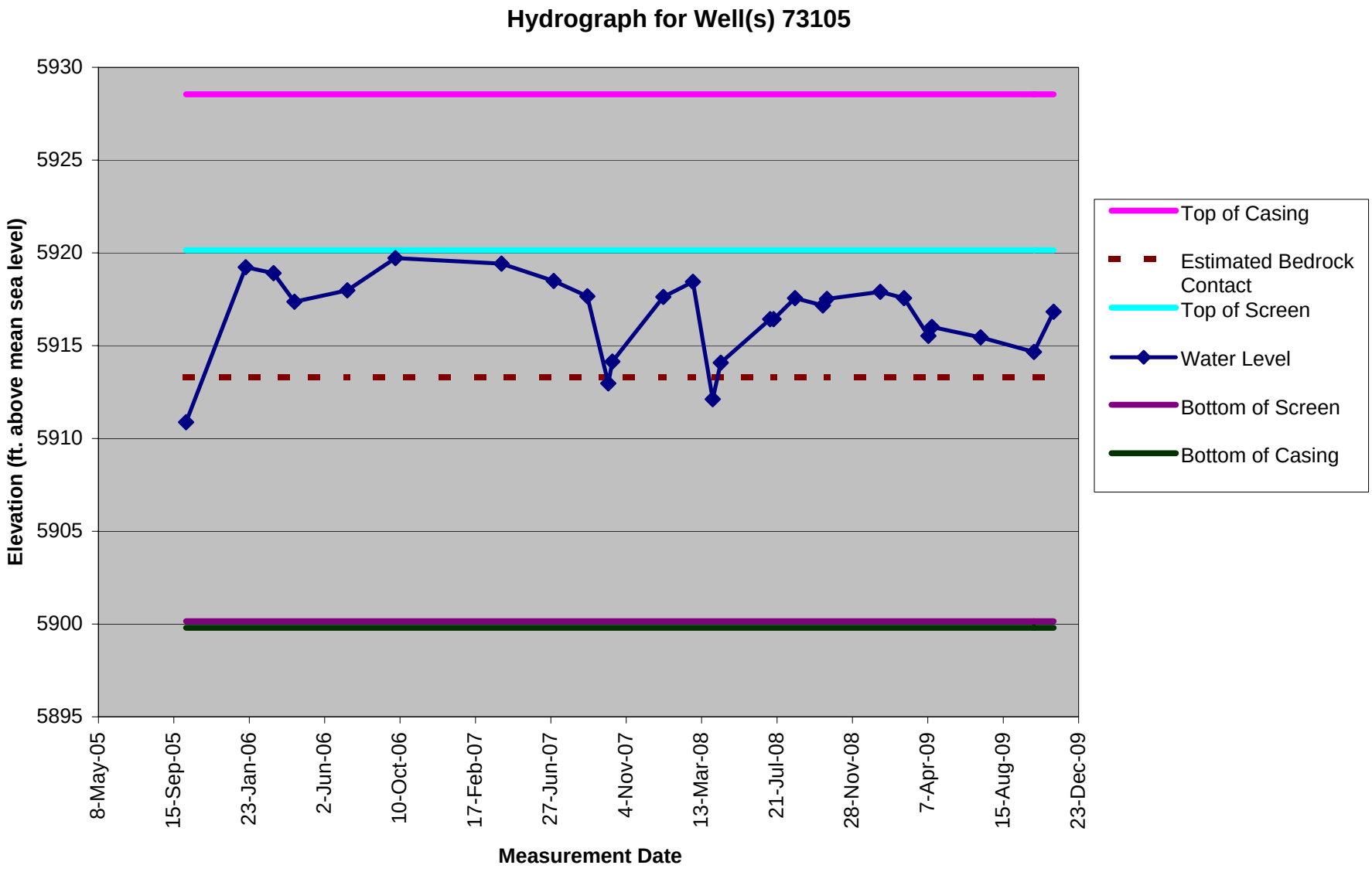

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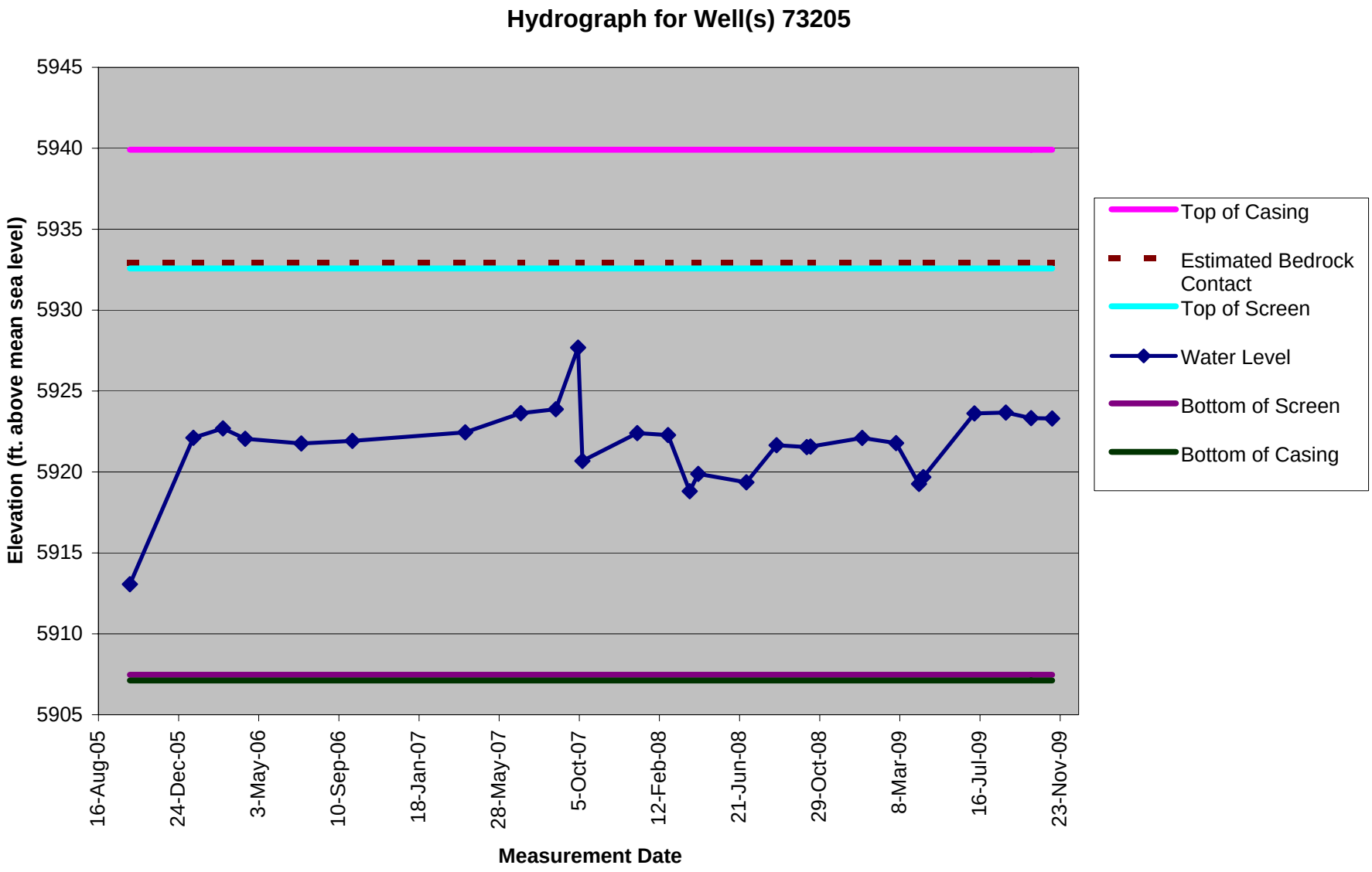

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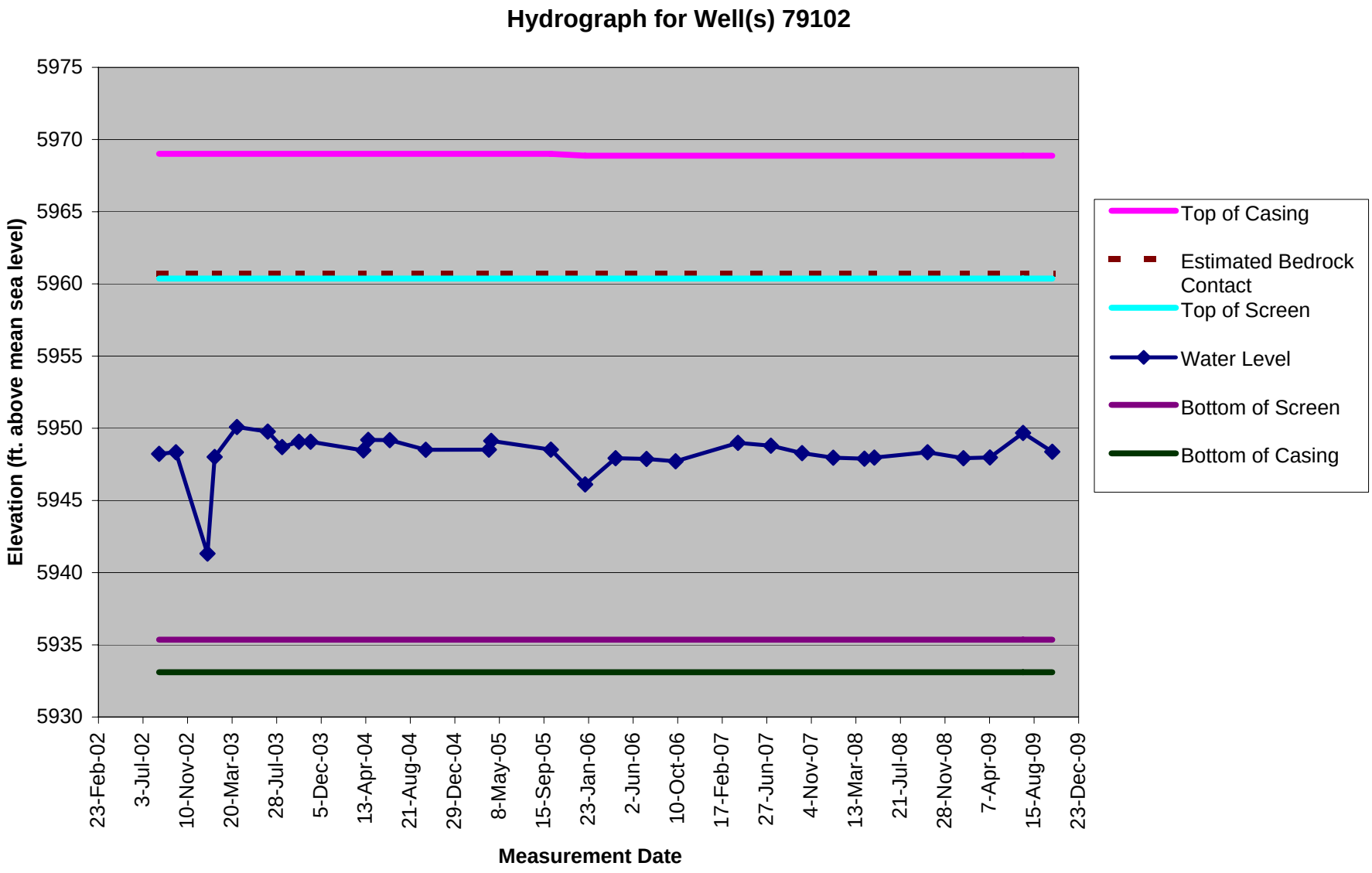

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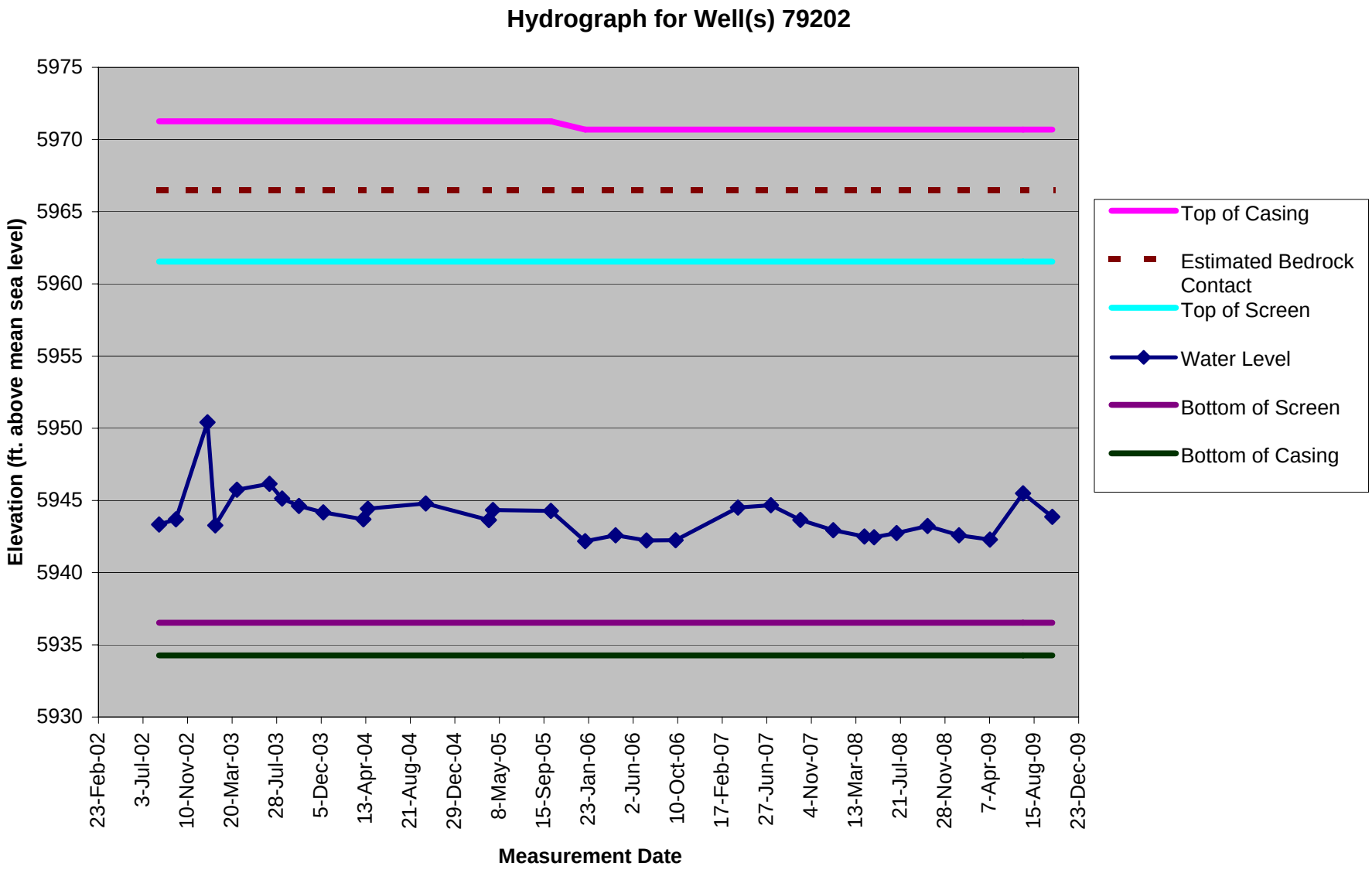

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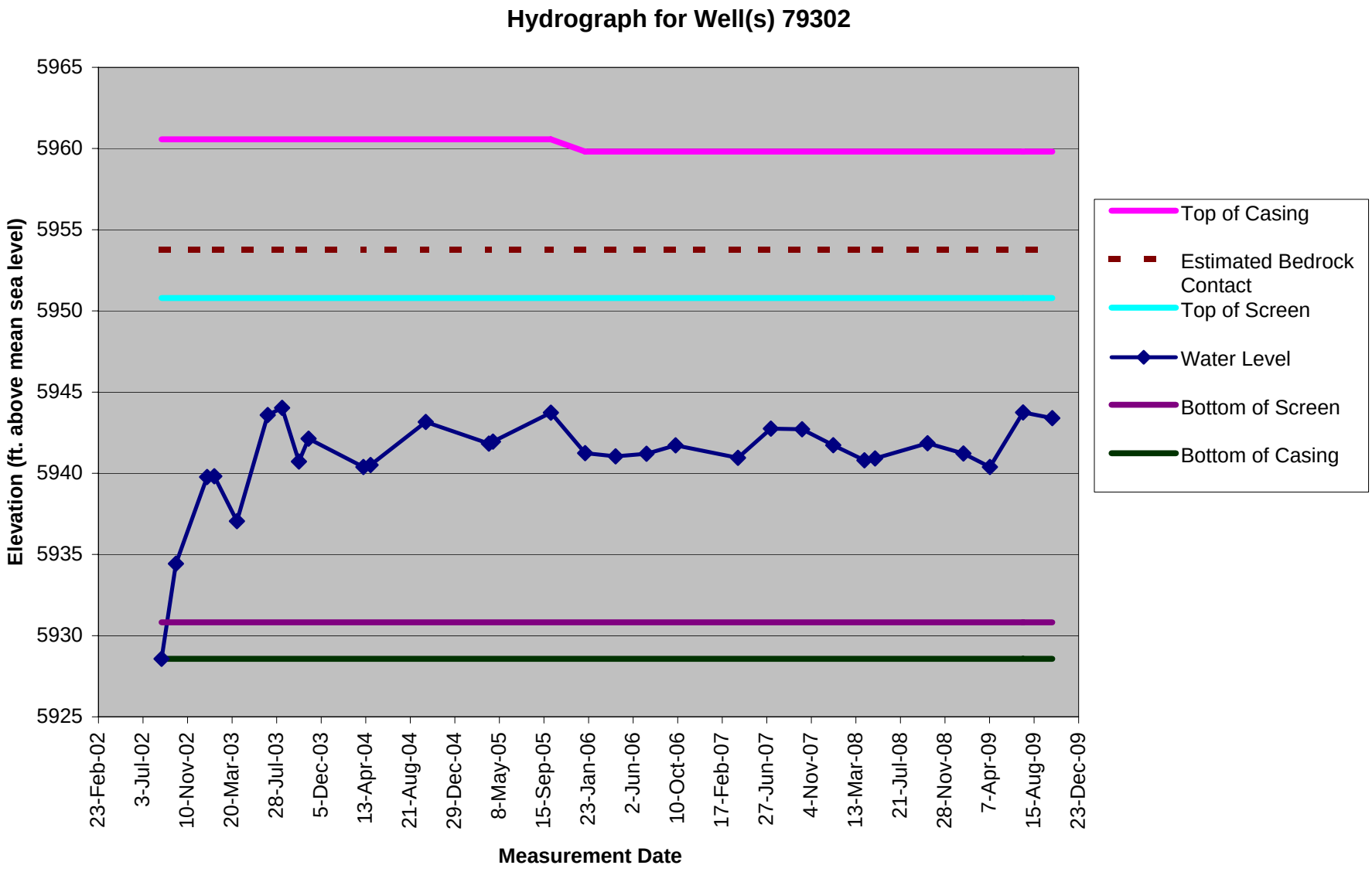

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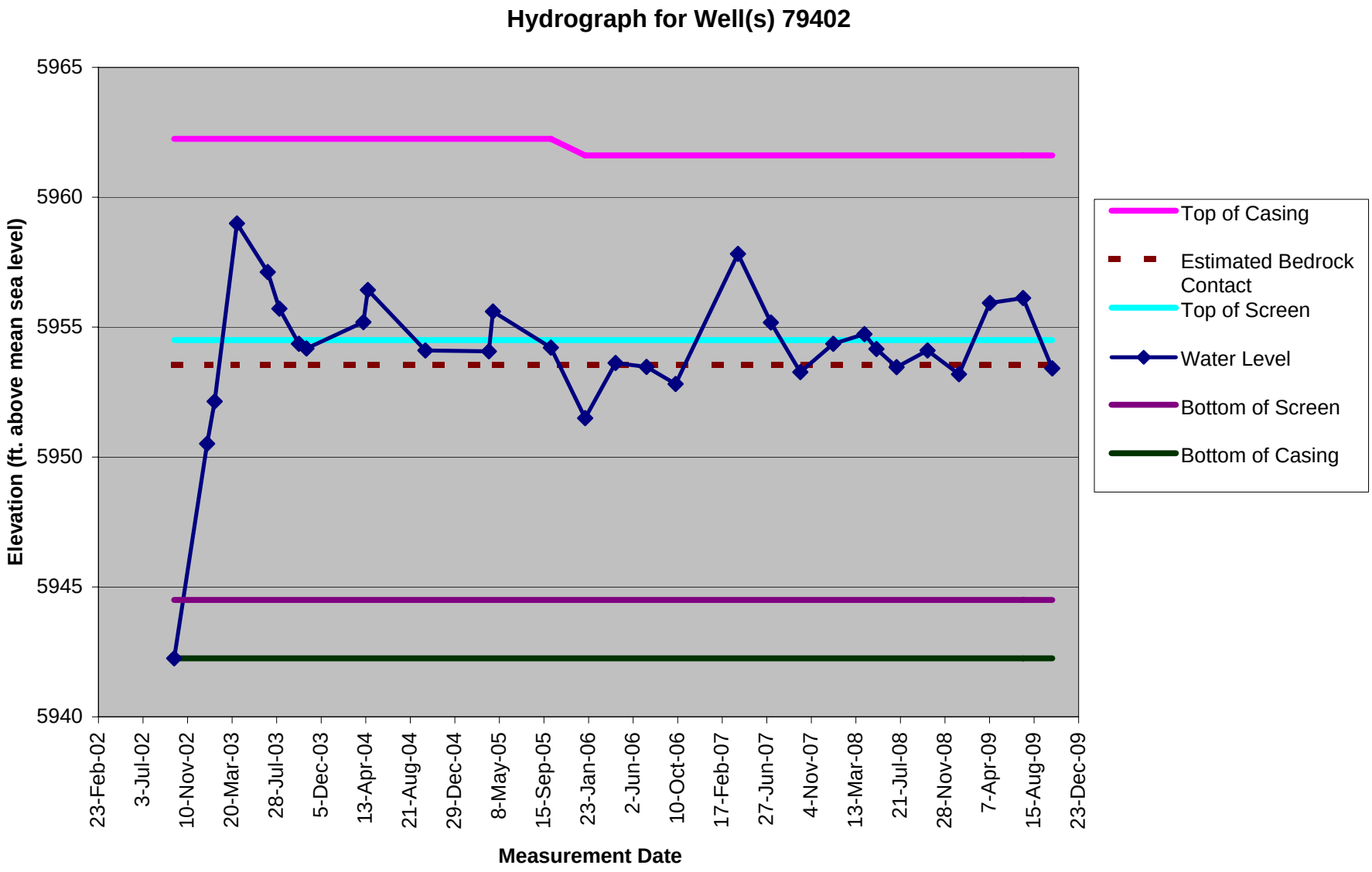

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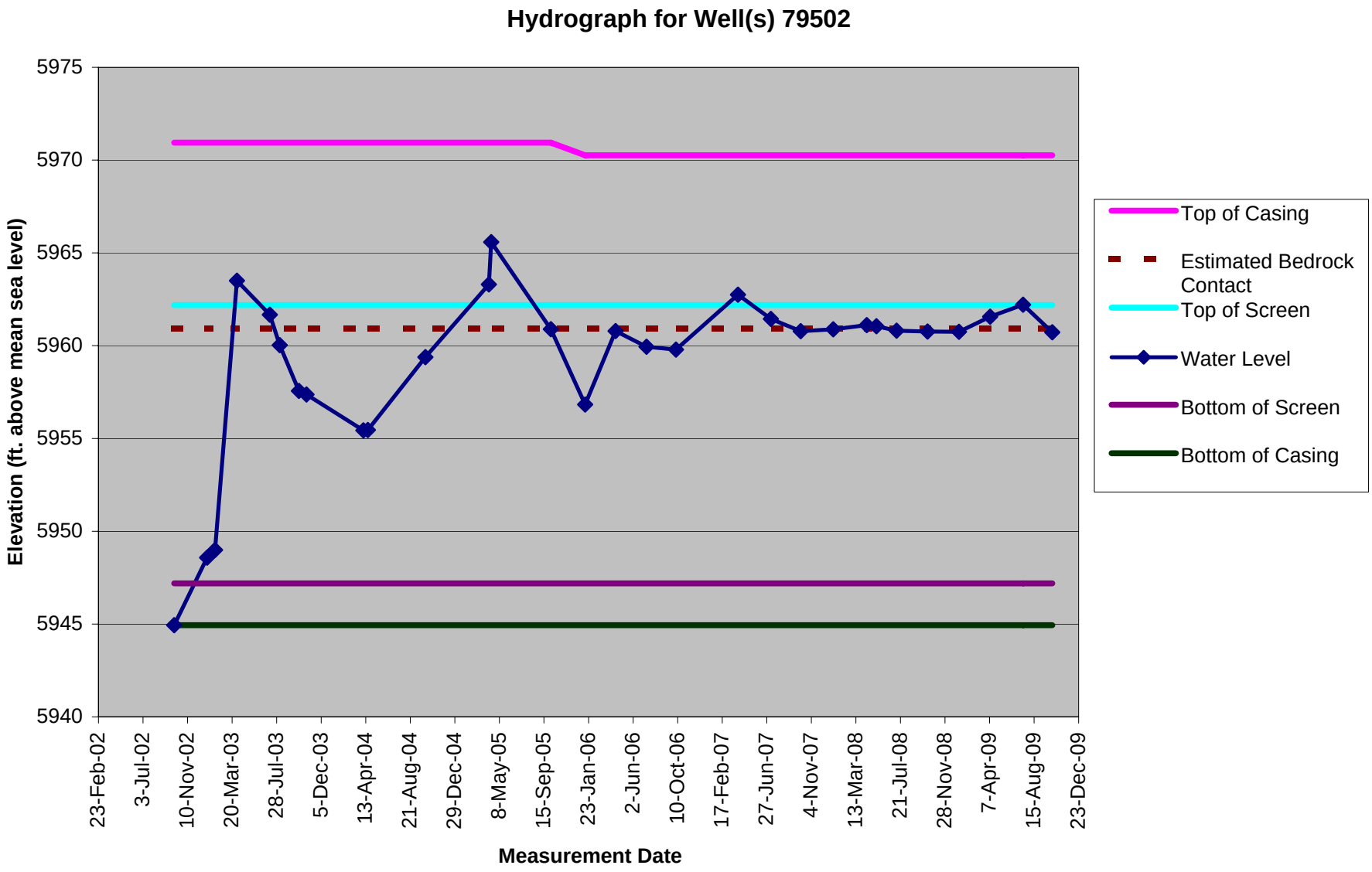

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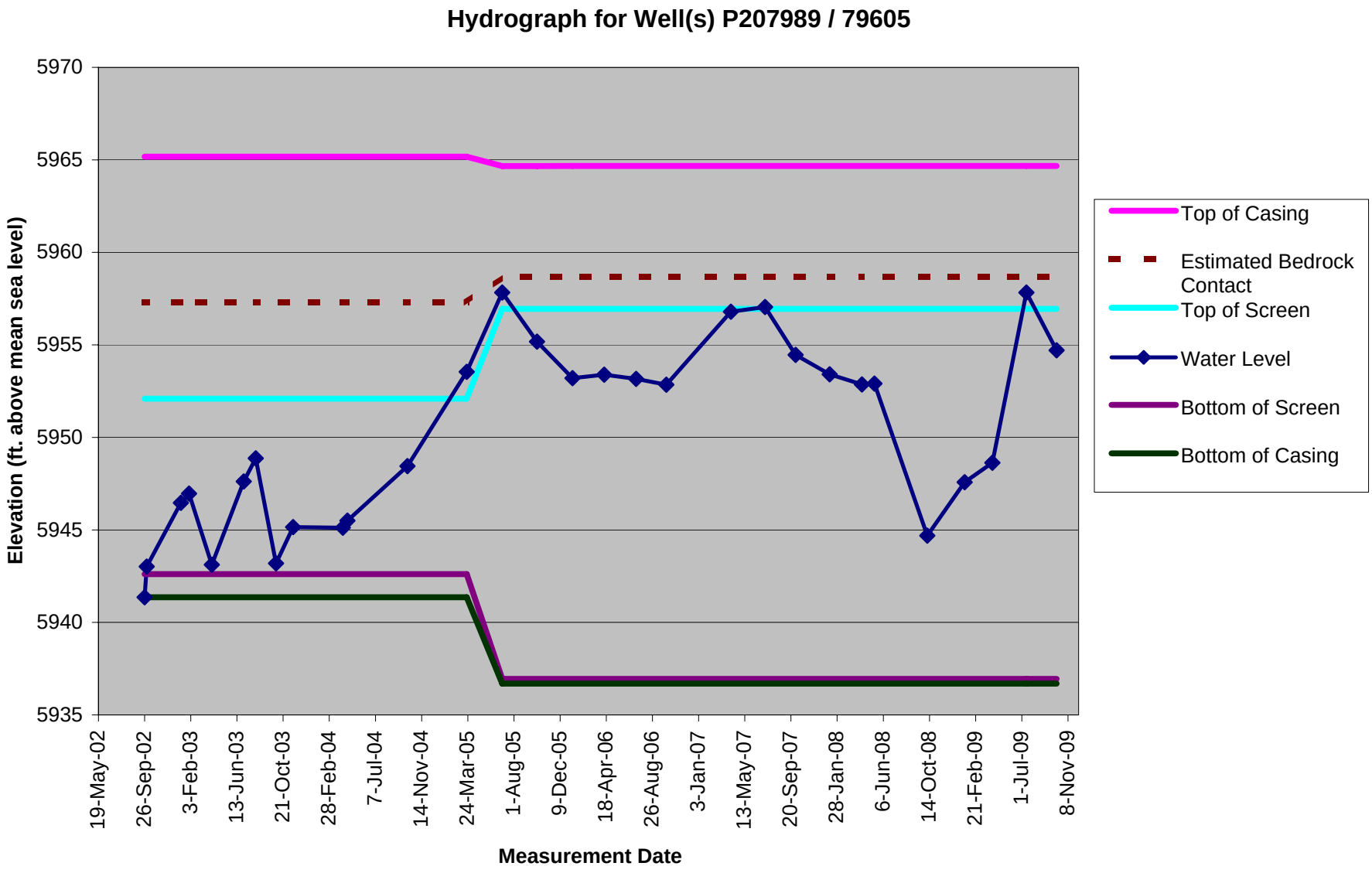

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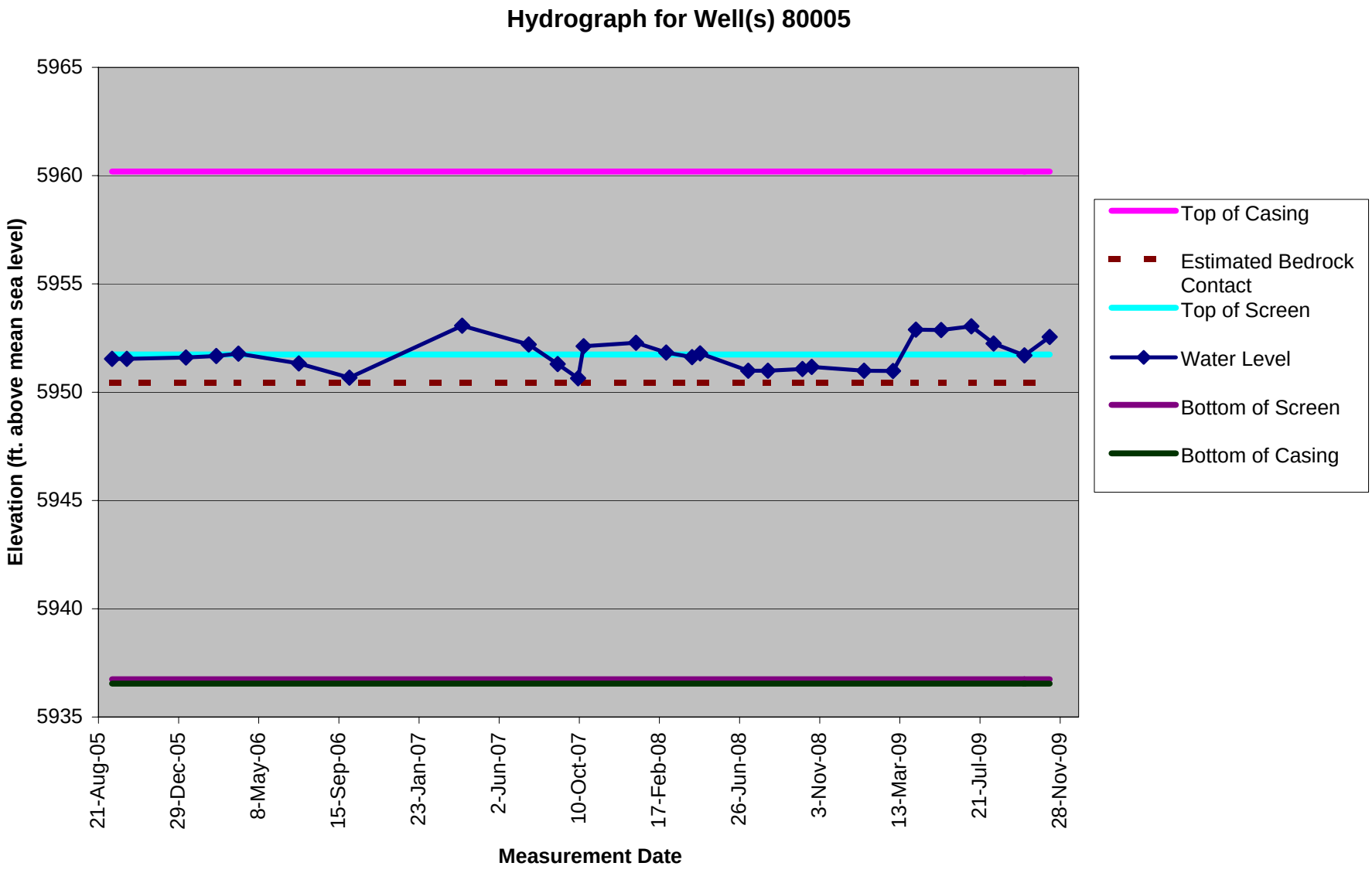

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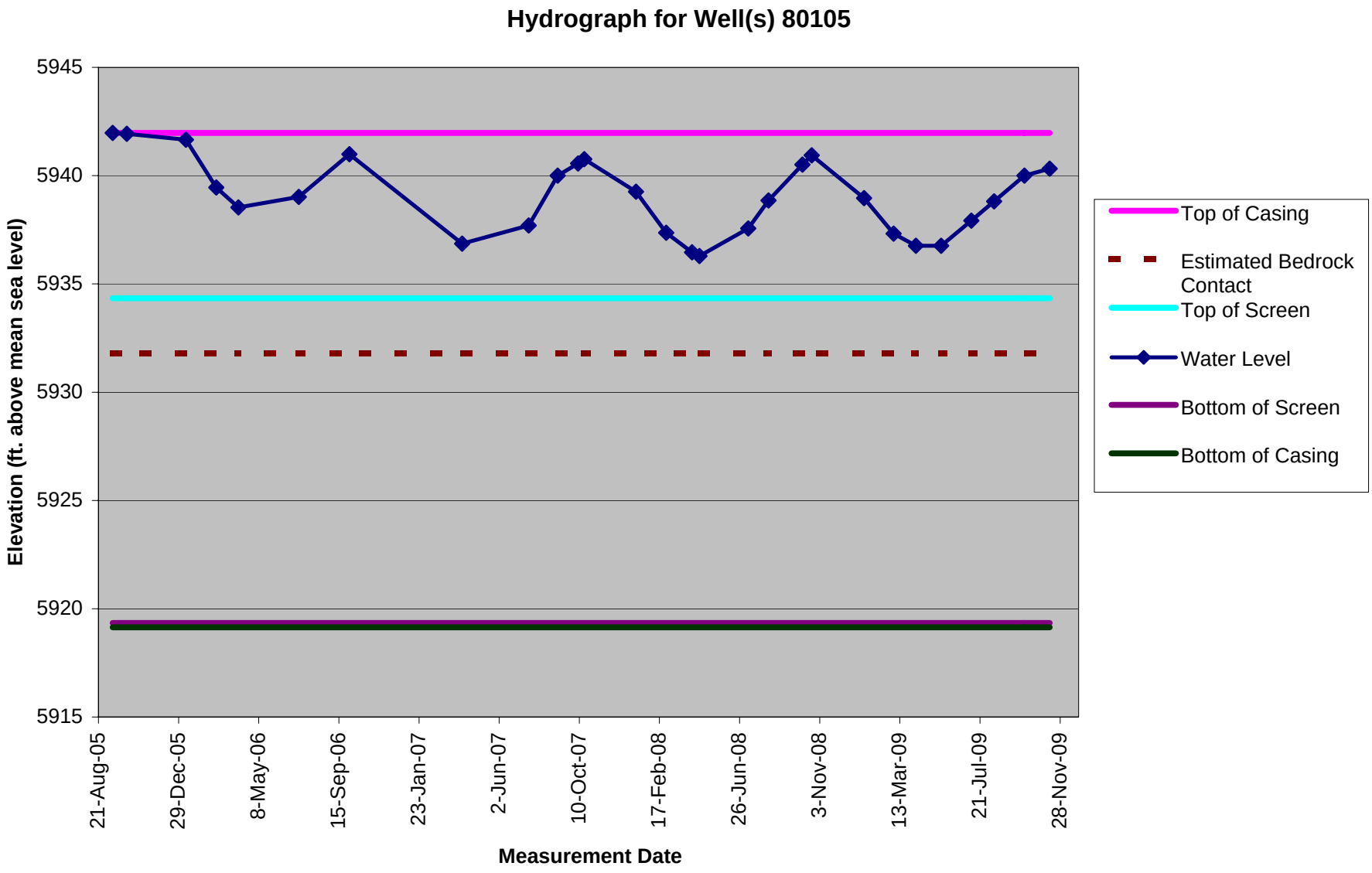

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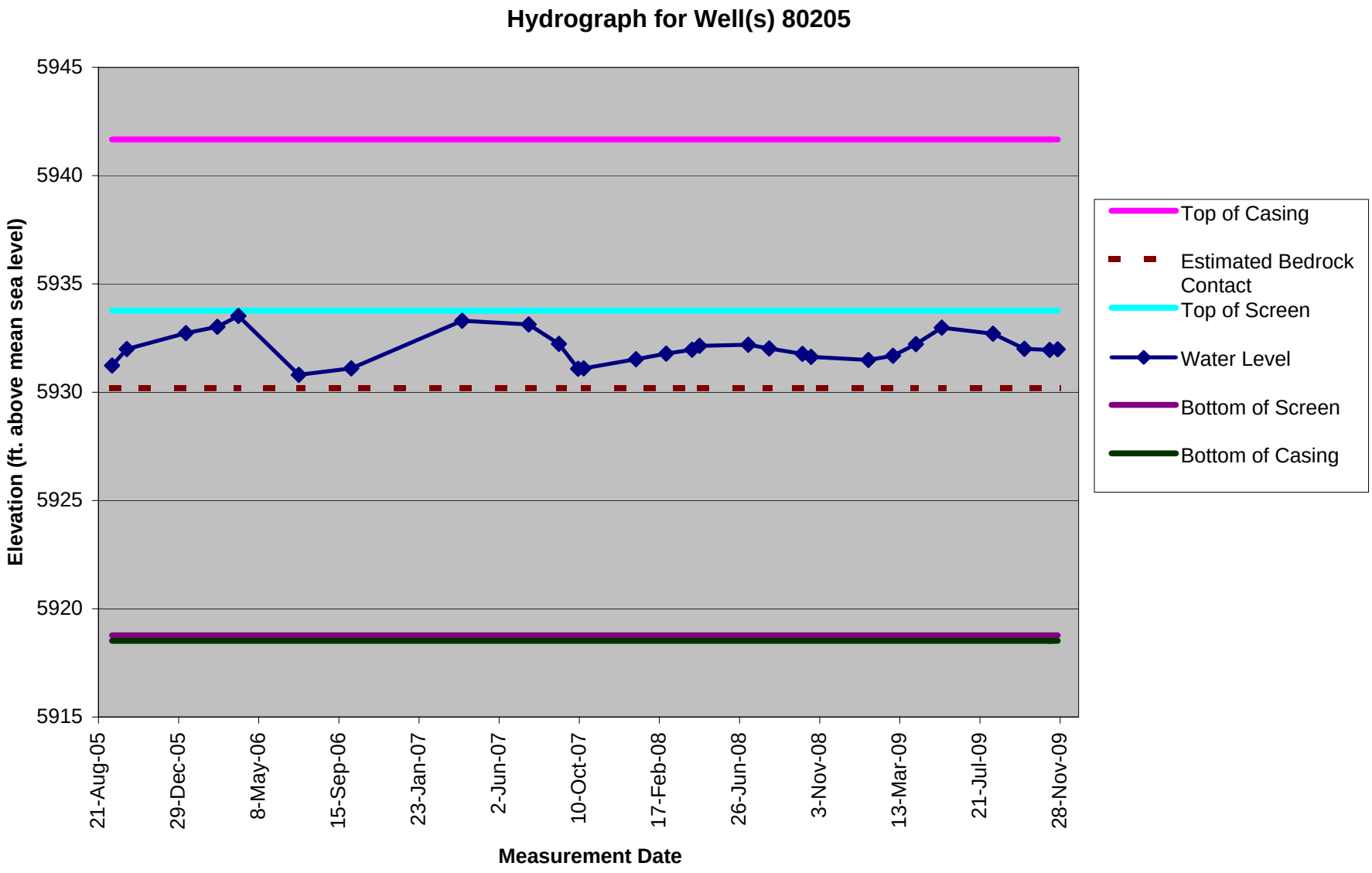

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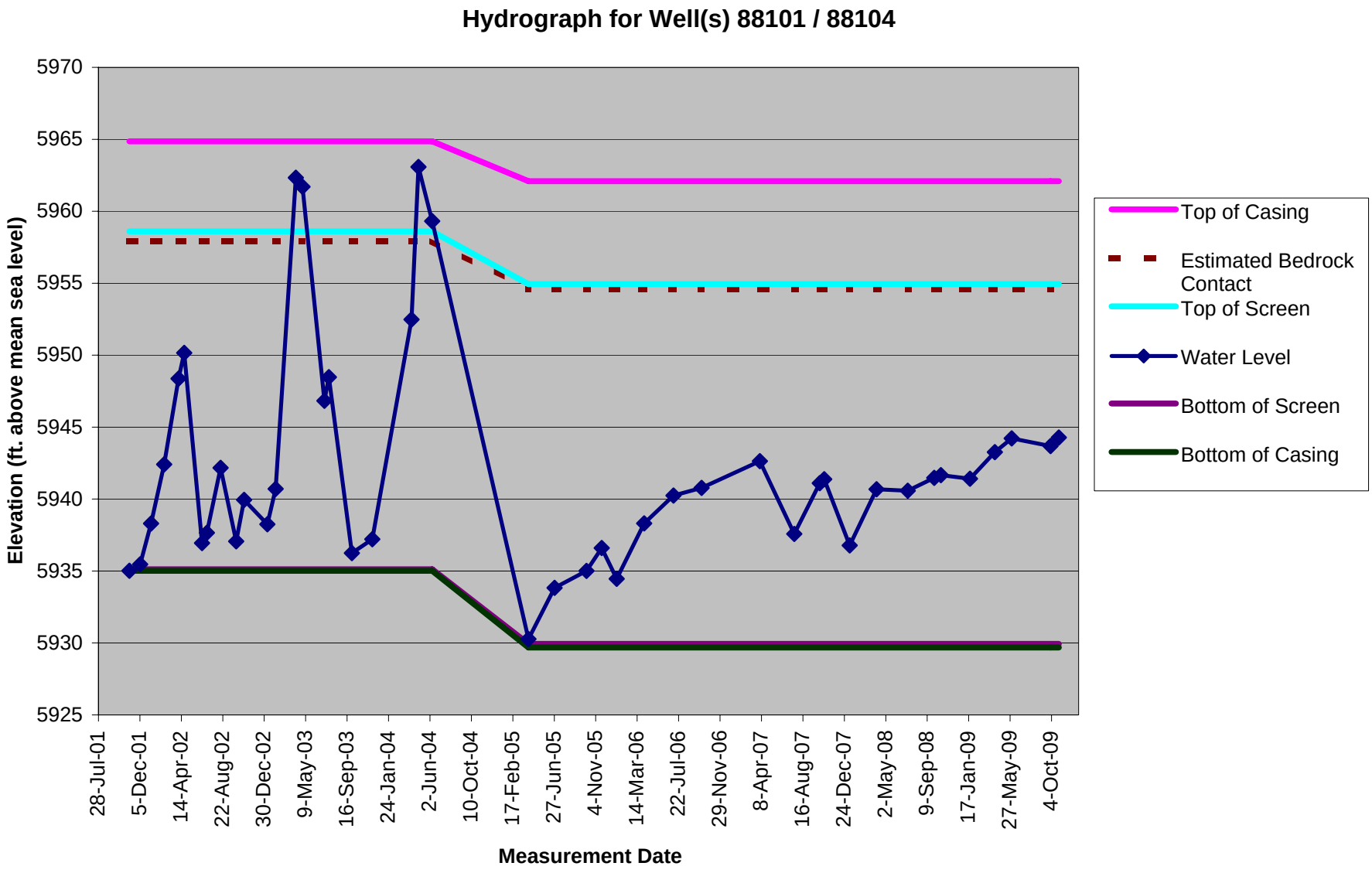

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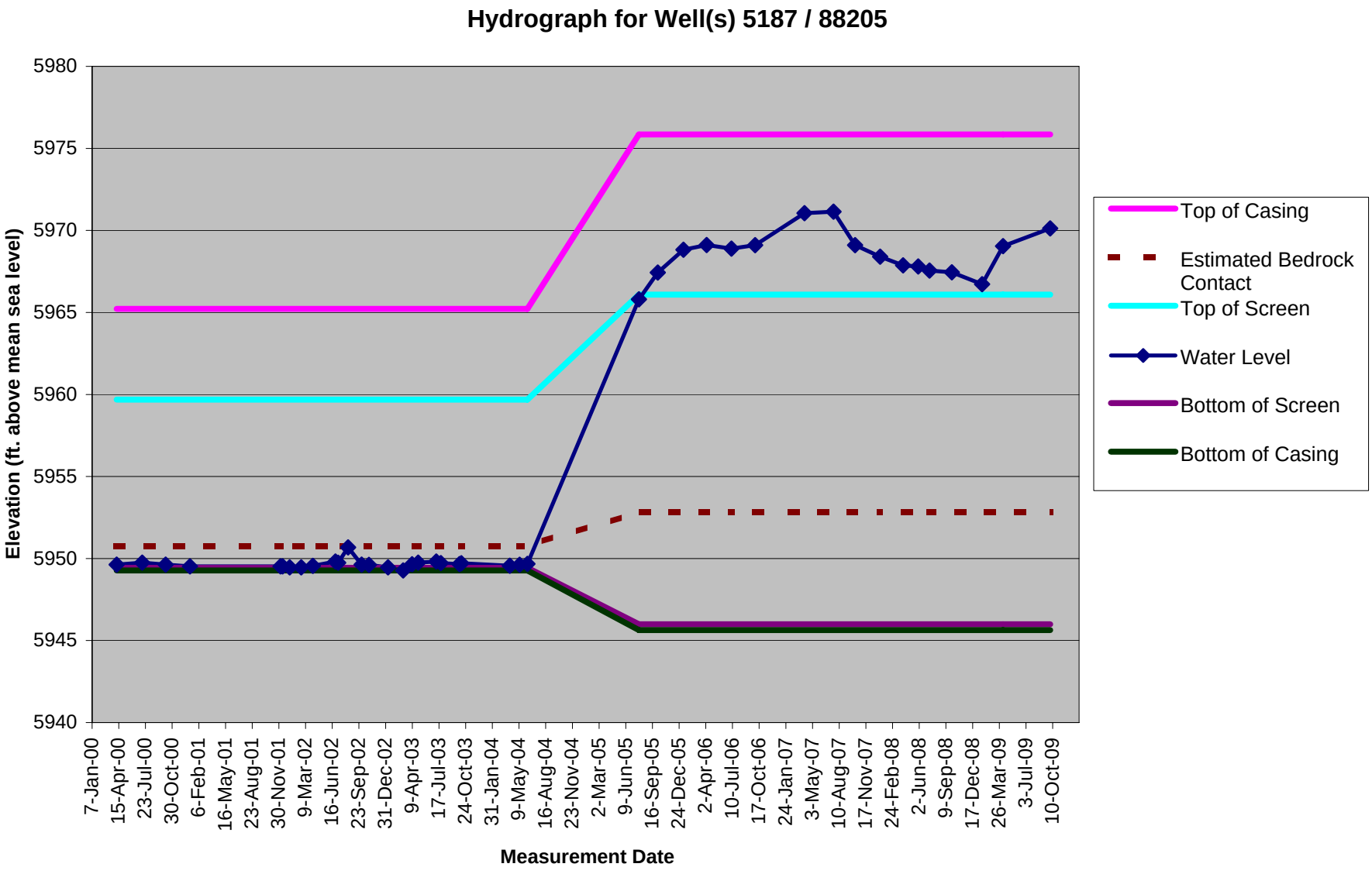

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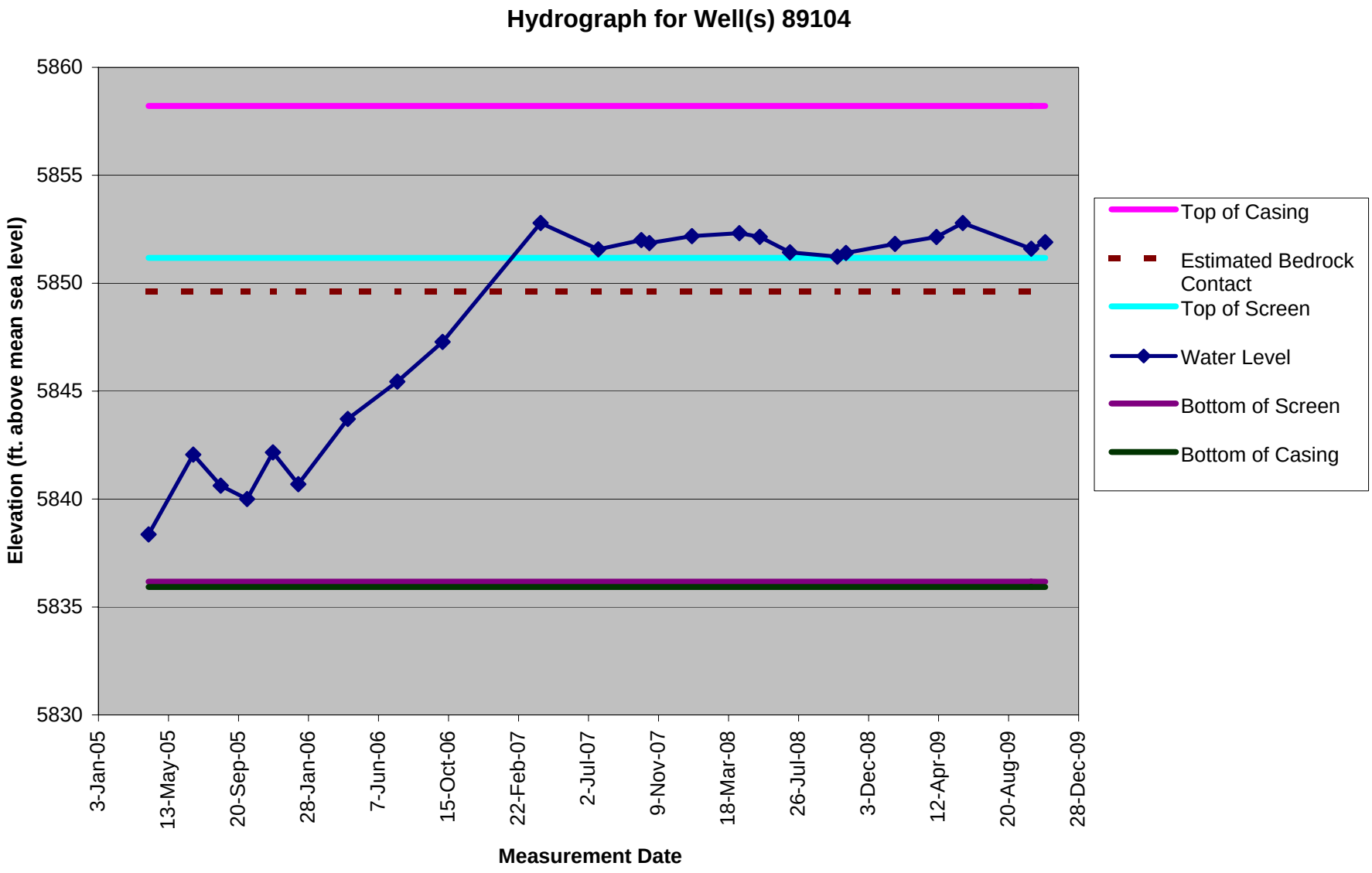

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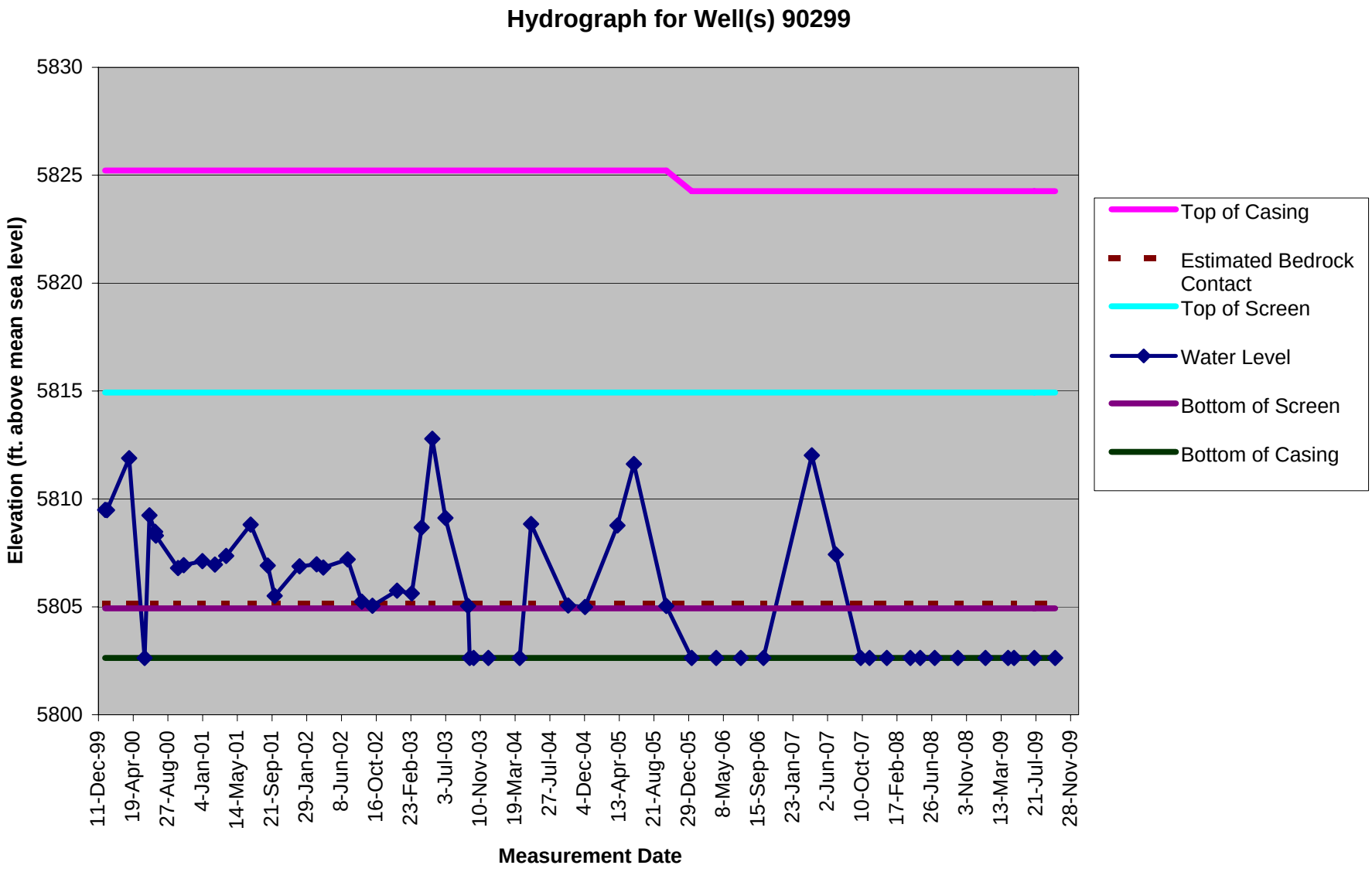

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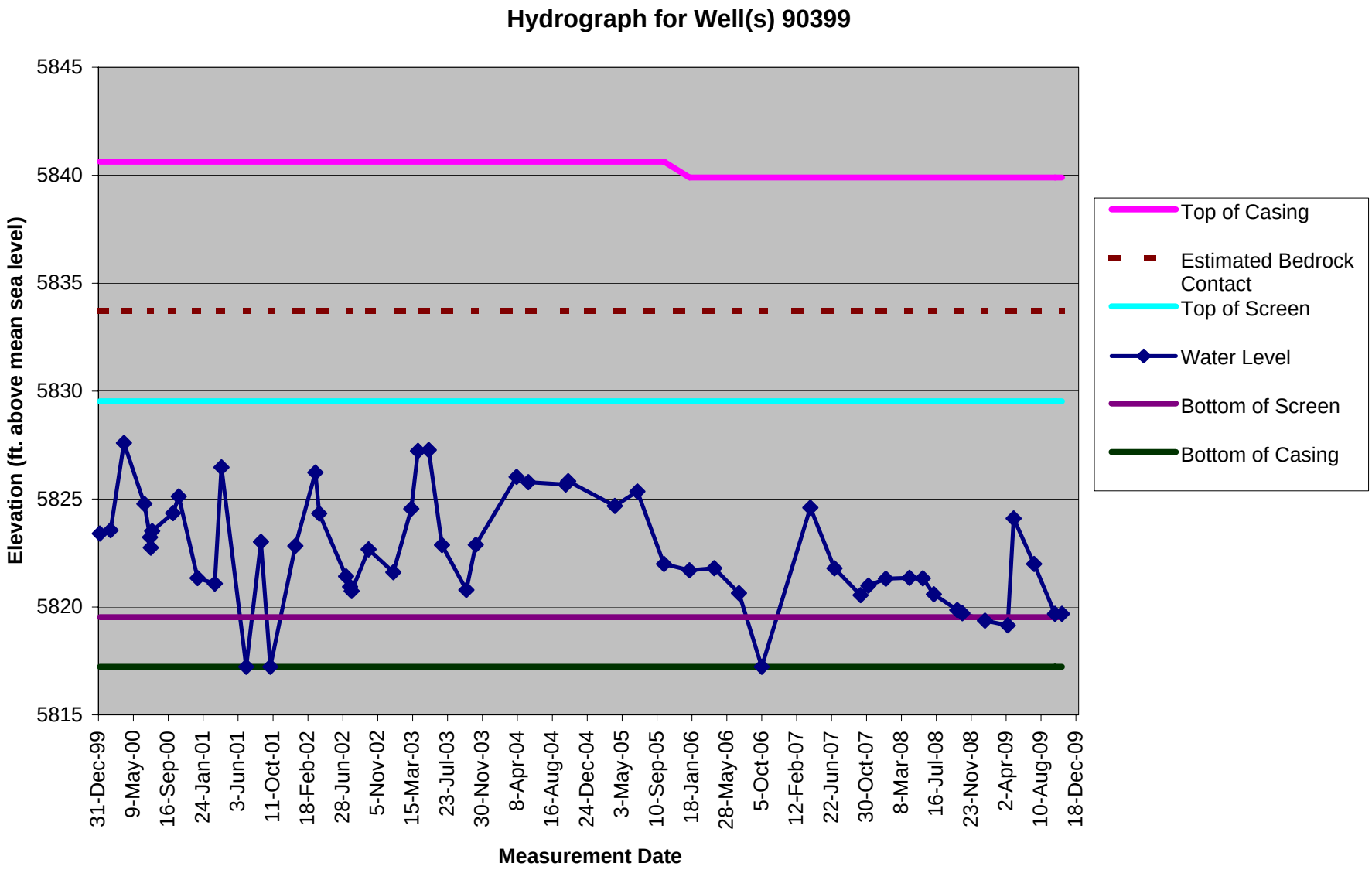

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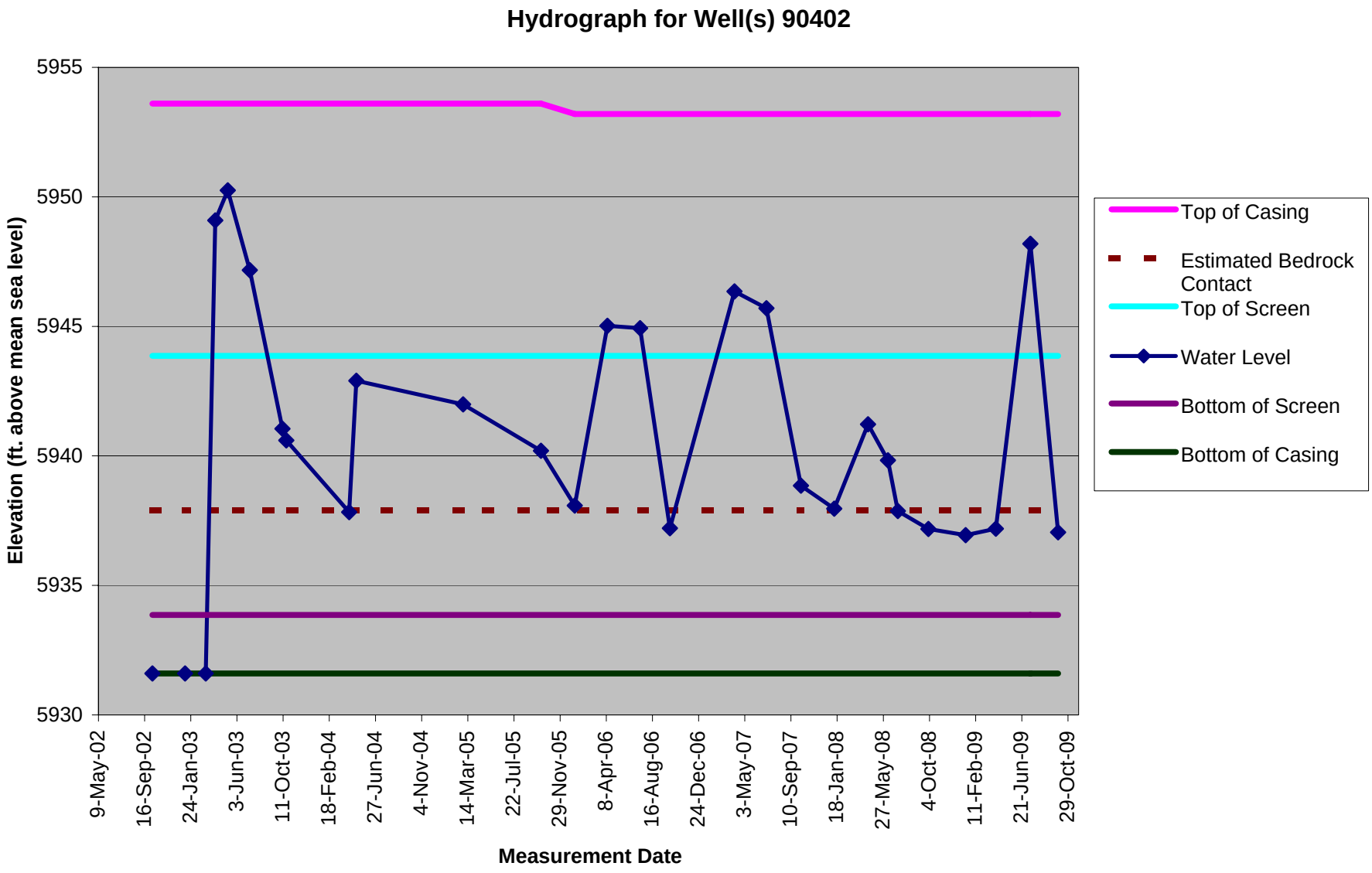

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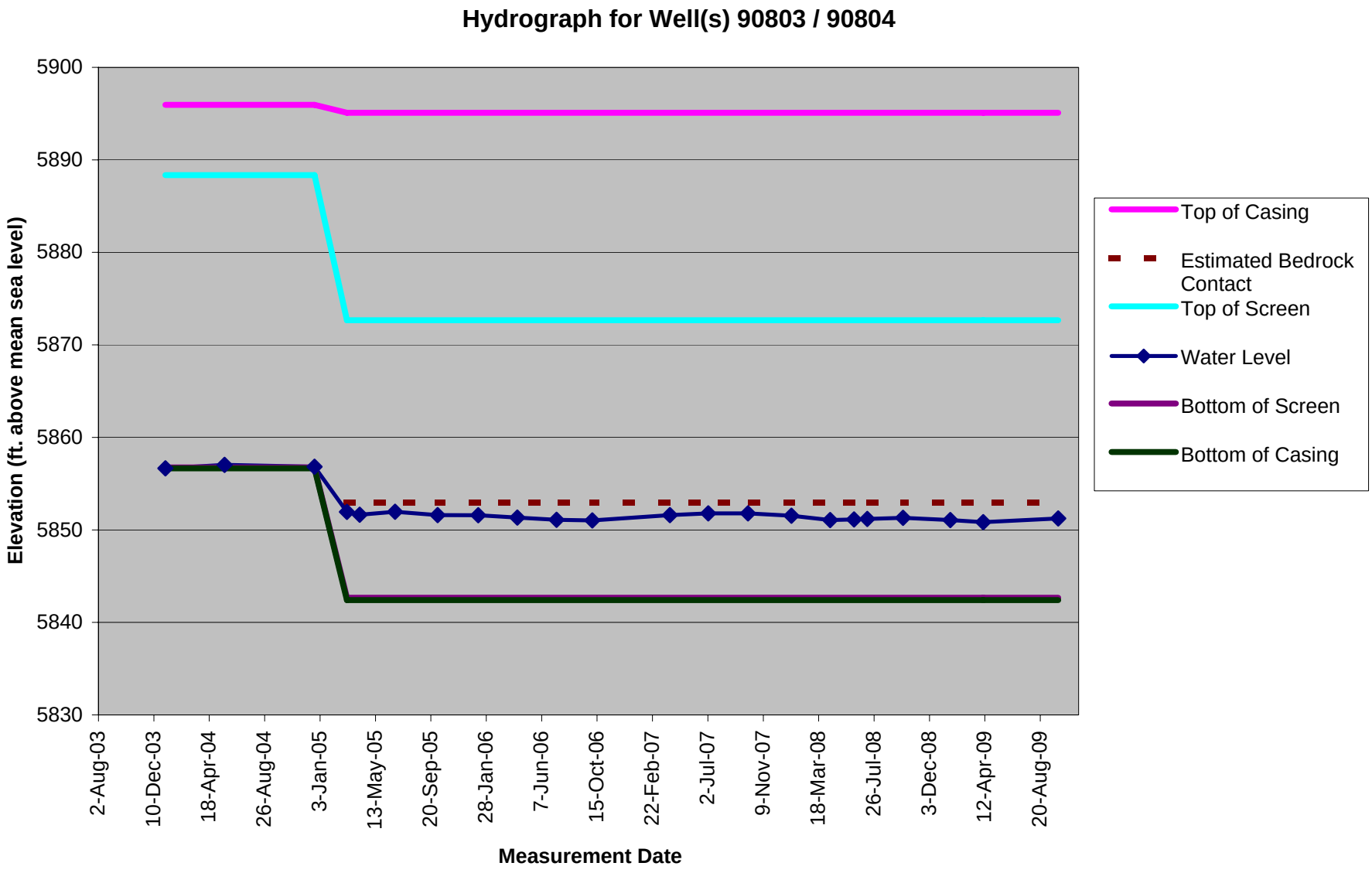

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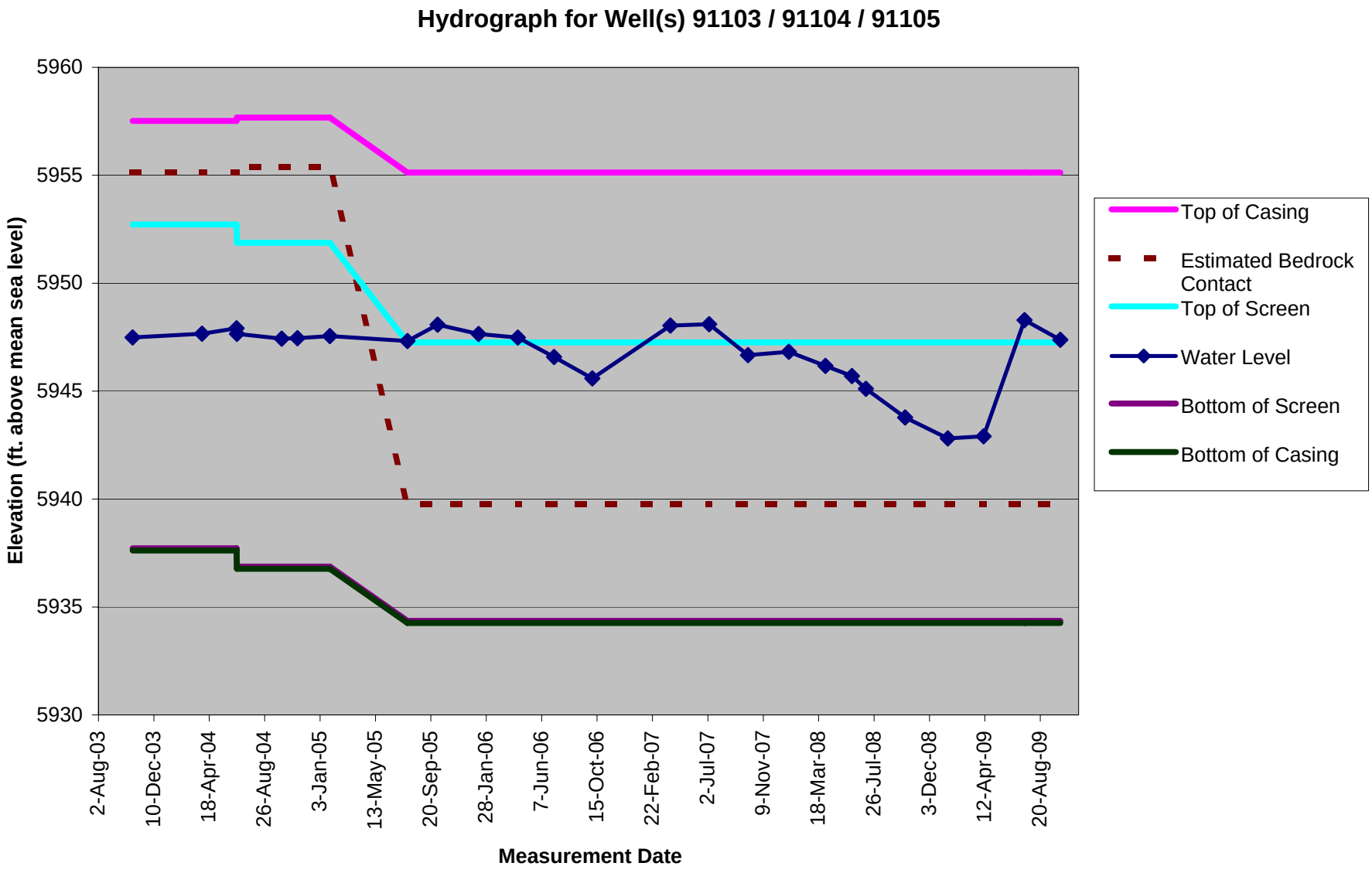

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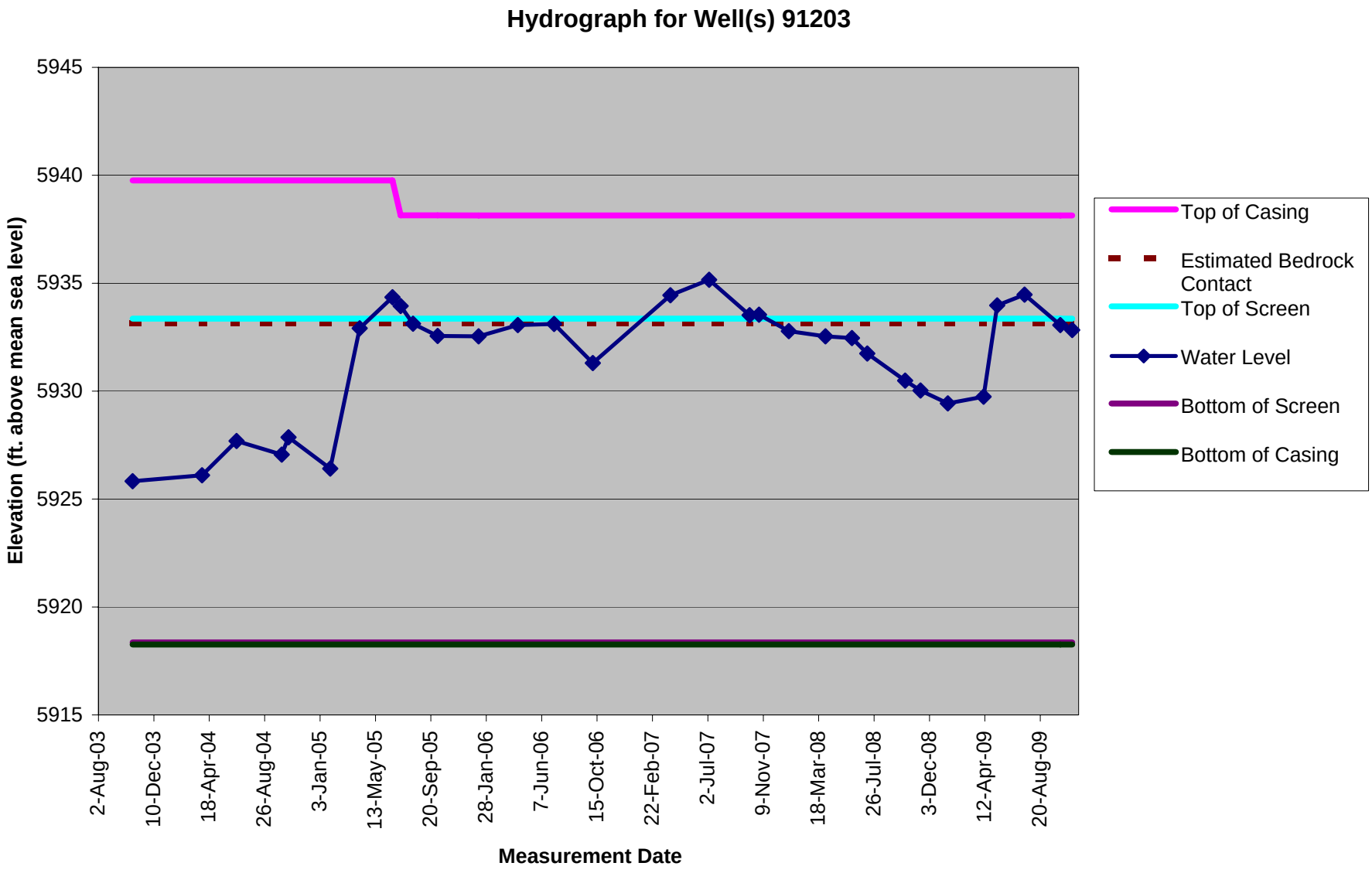

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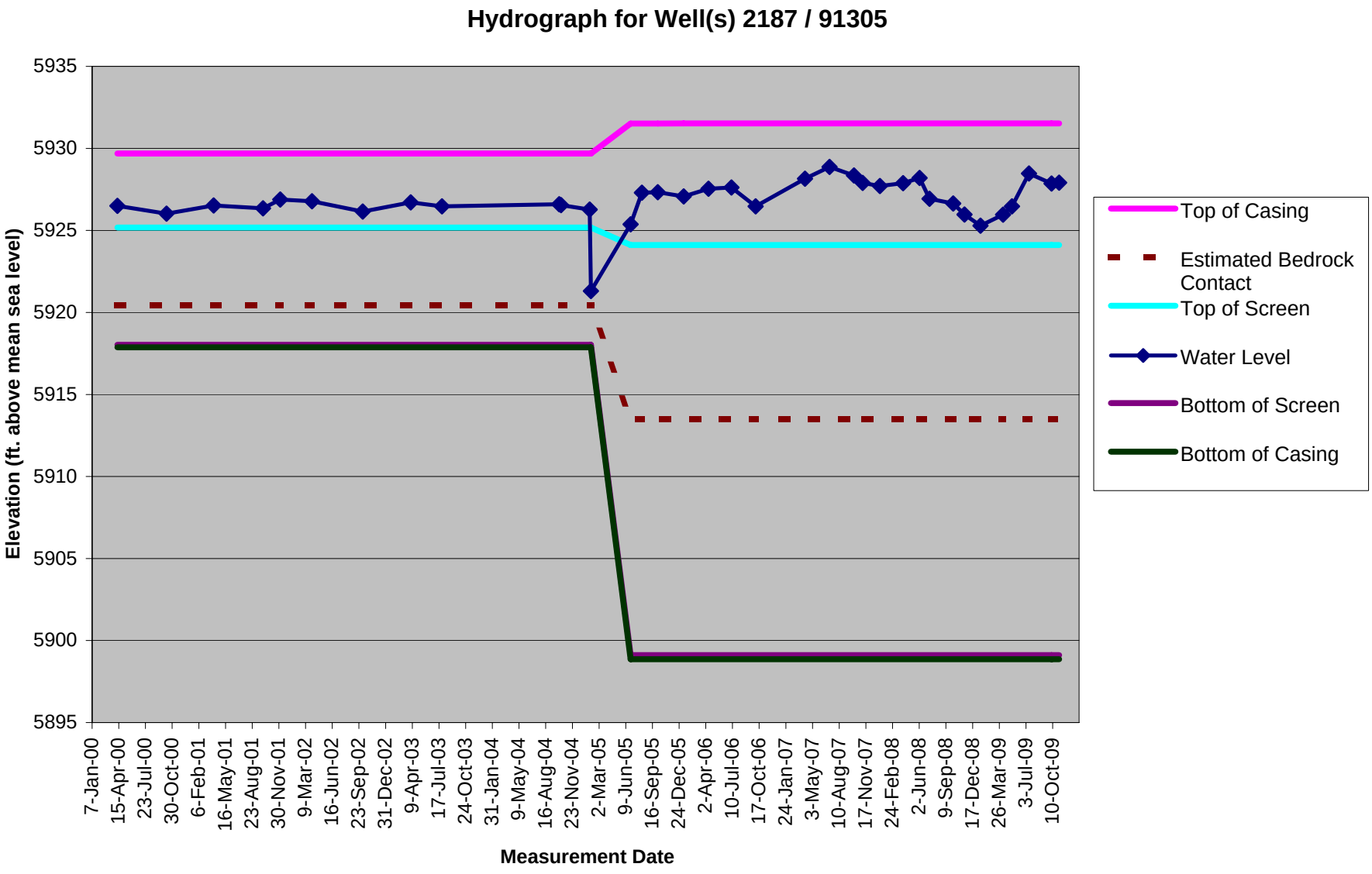
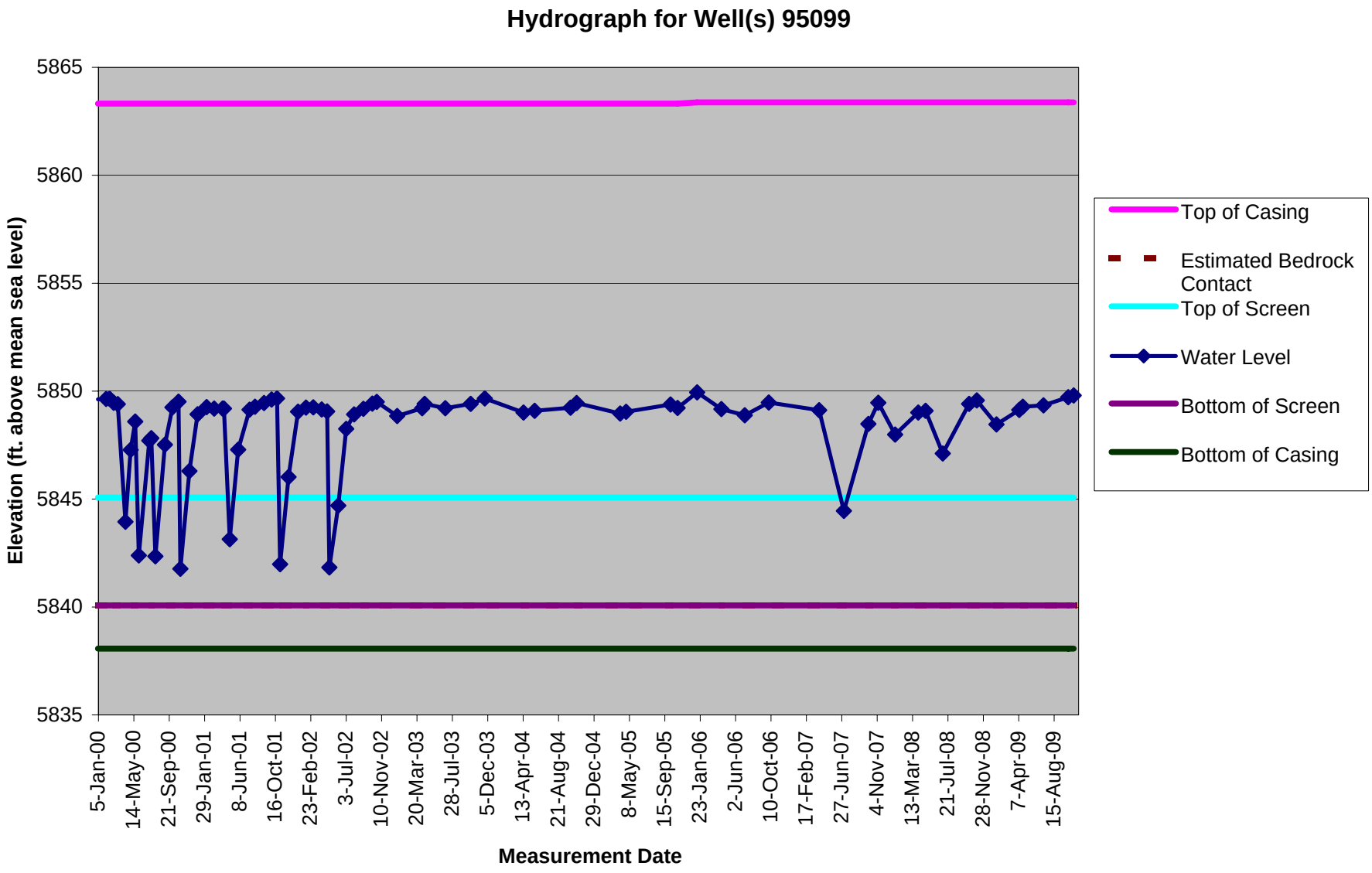
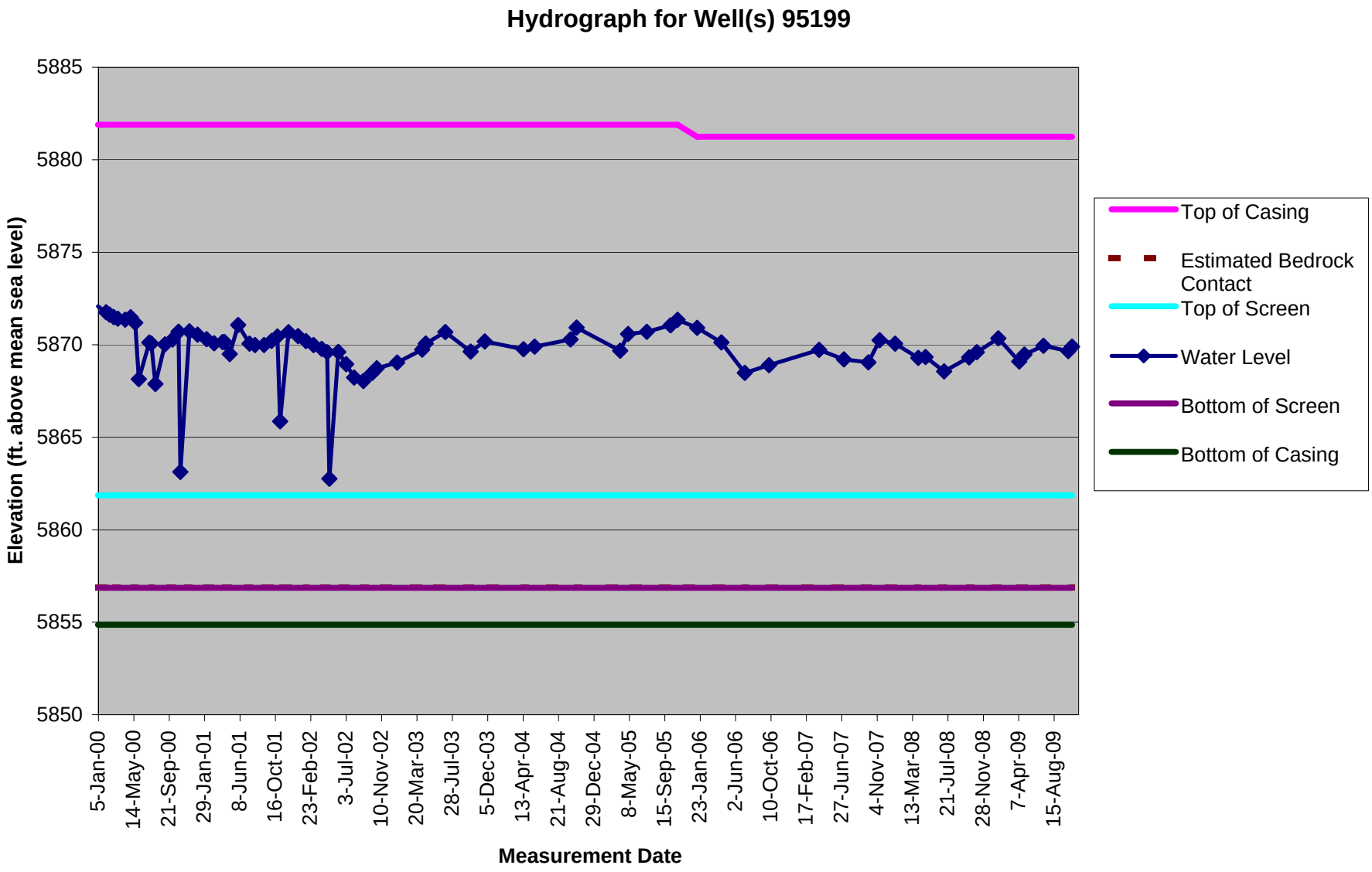


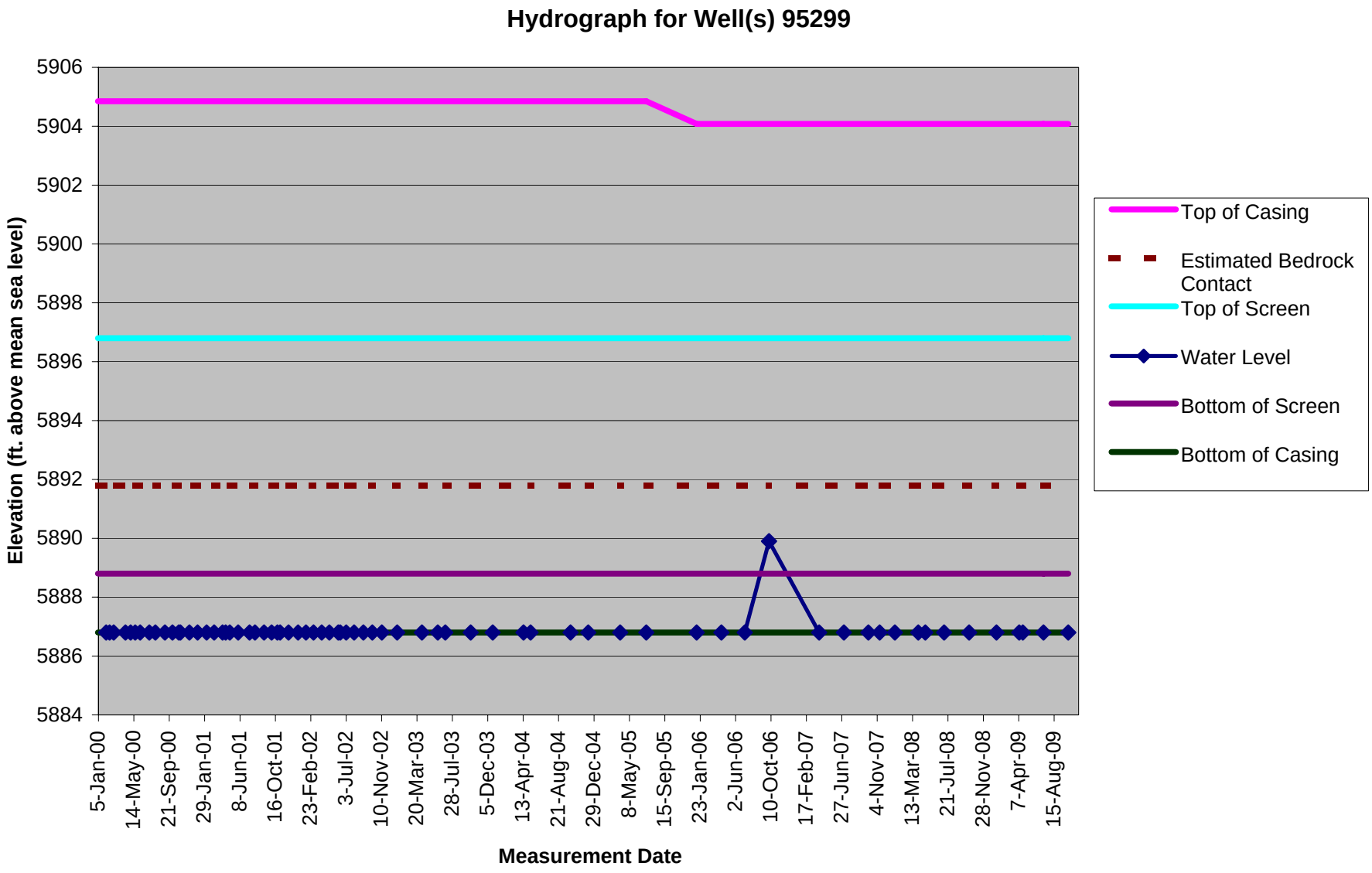
From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)



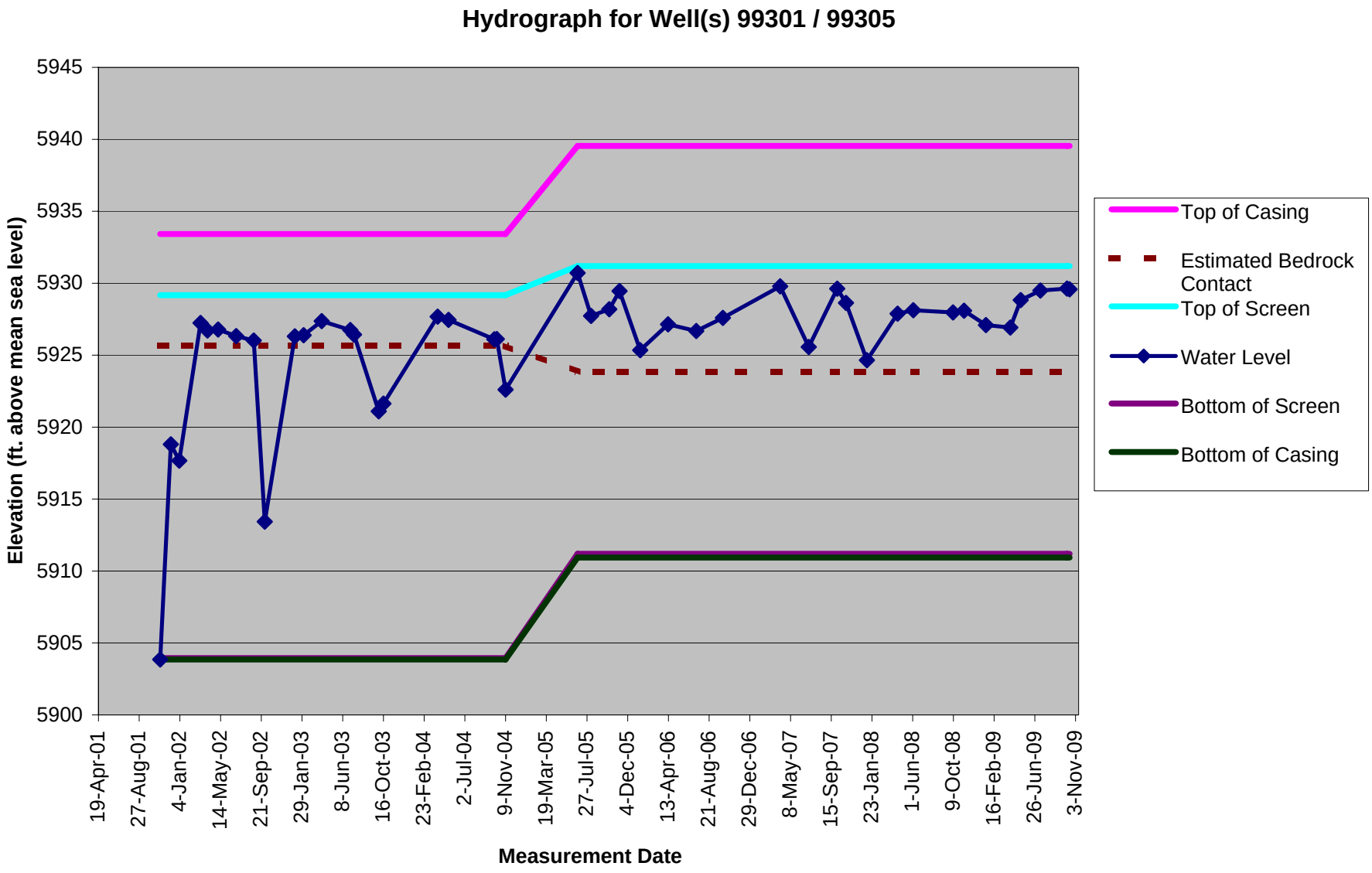
From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)



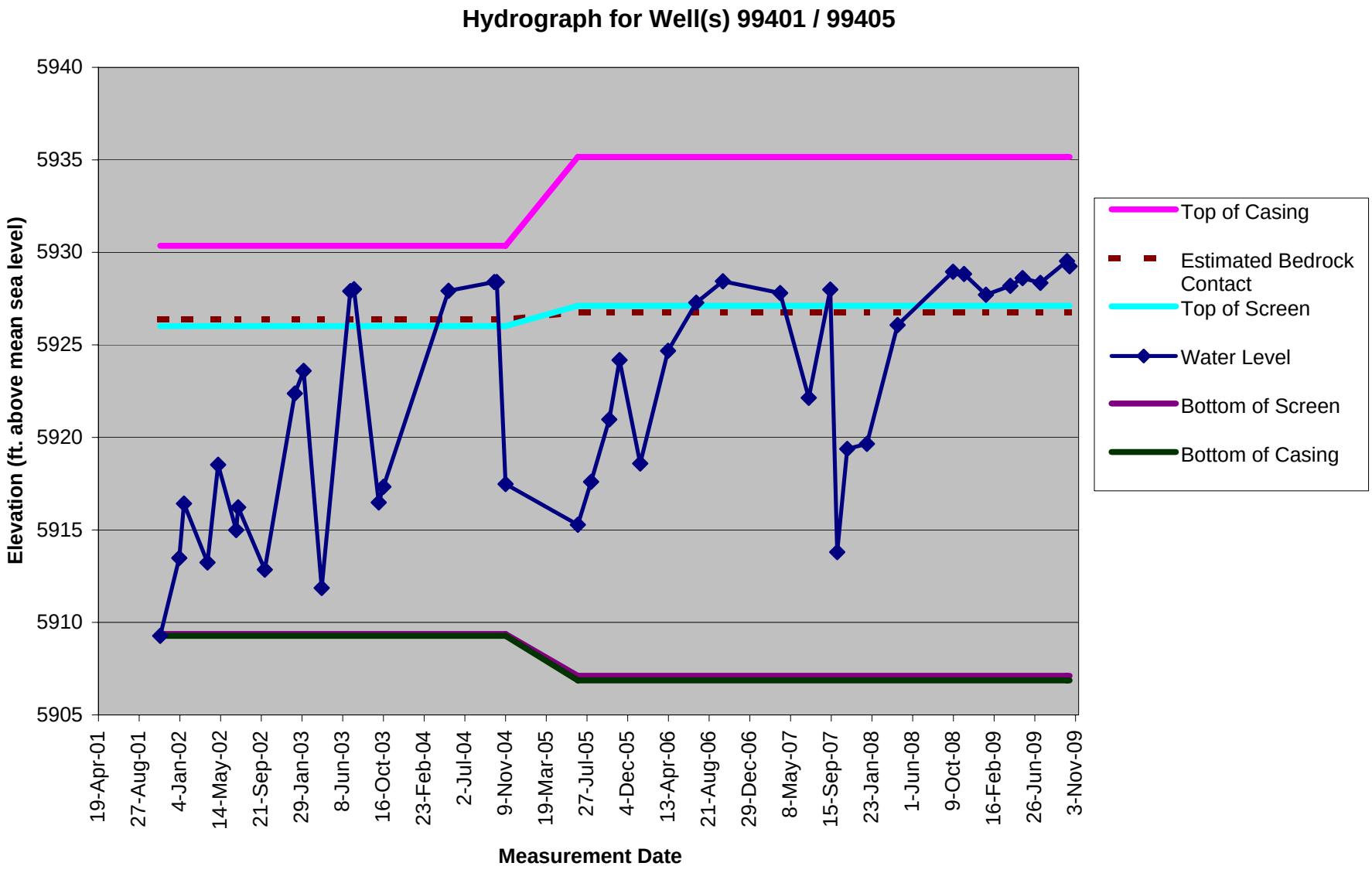
From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)



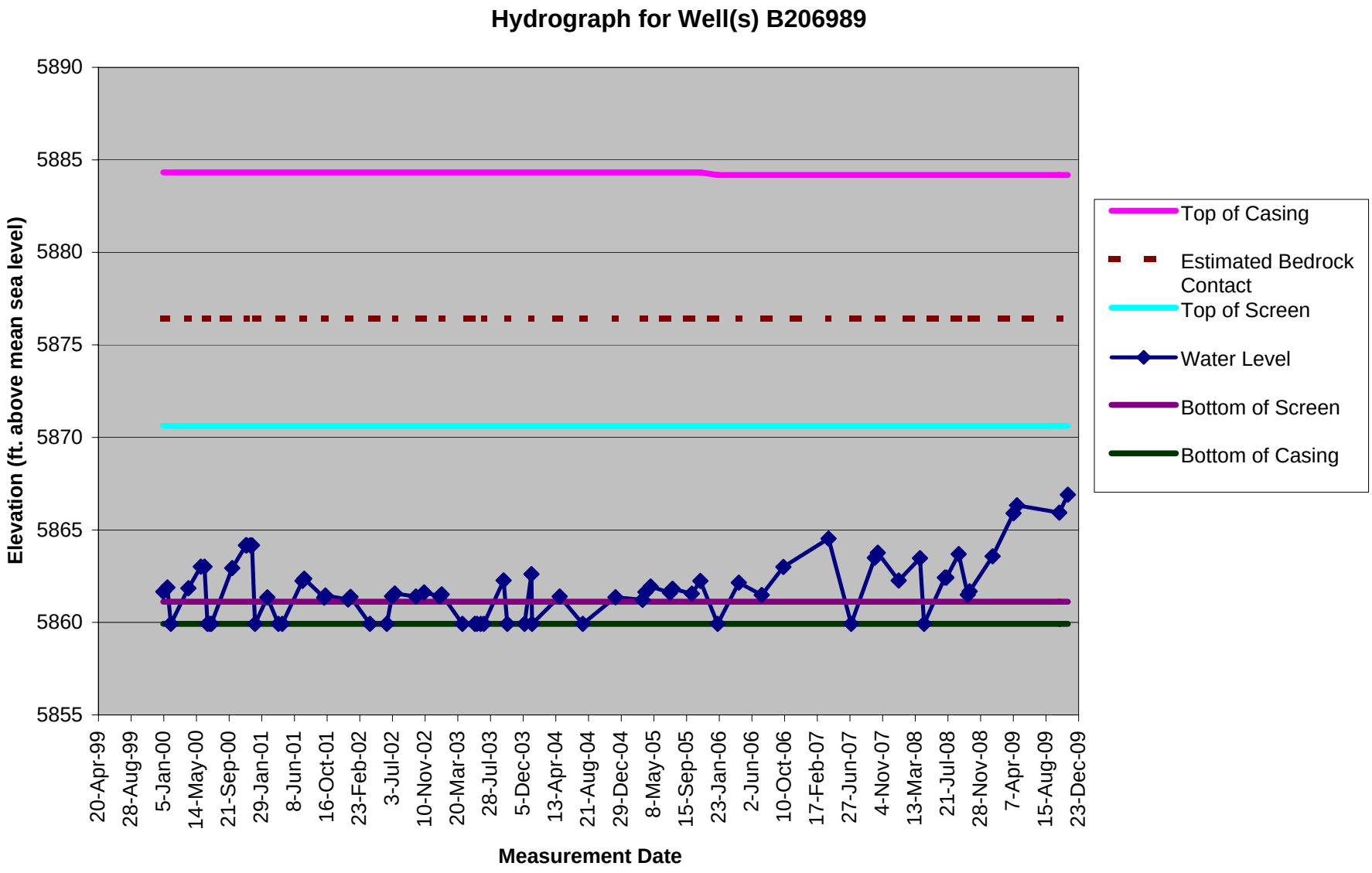
From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)



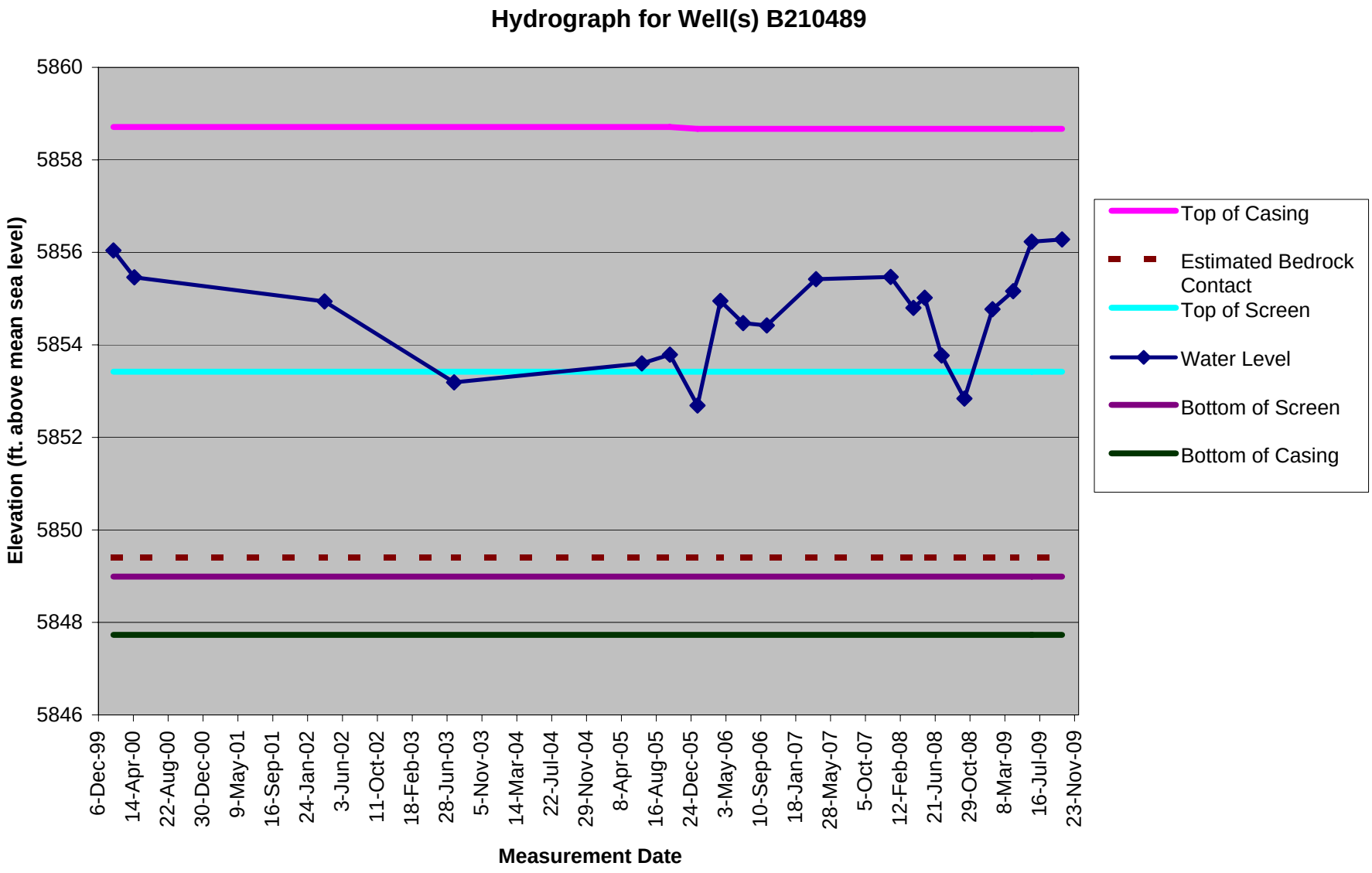
From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)



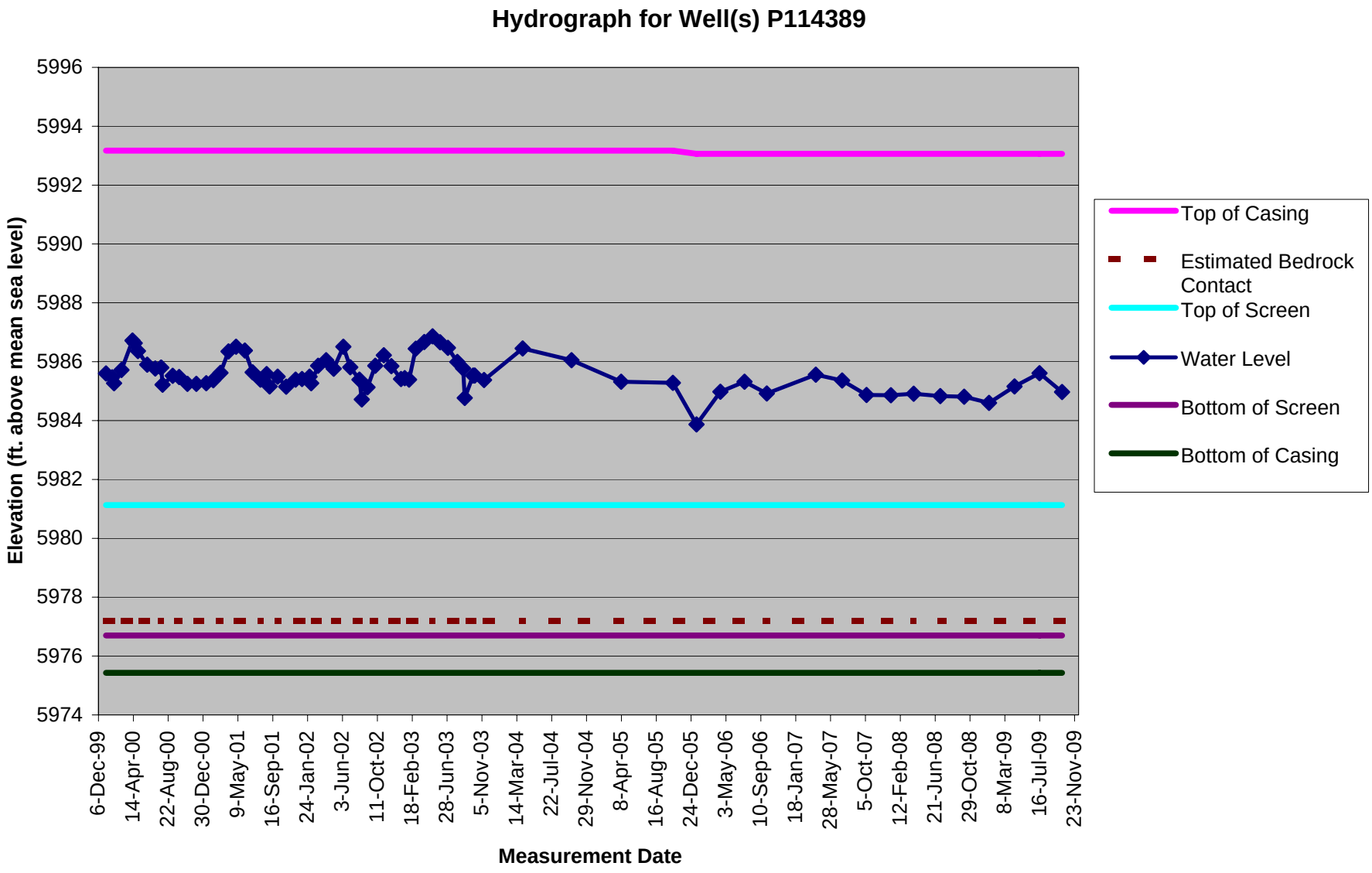
From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)



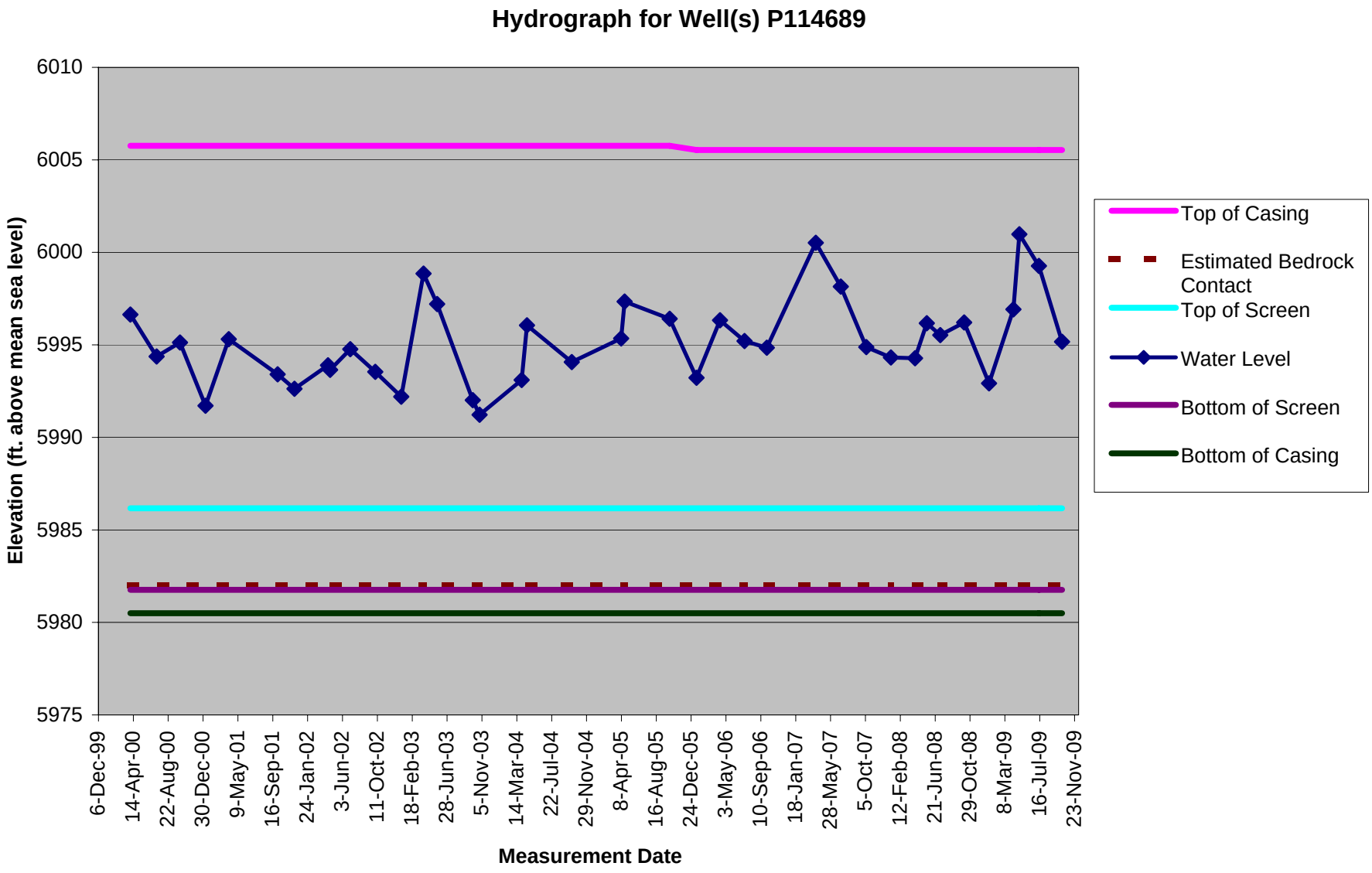
From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)



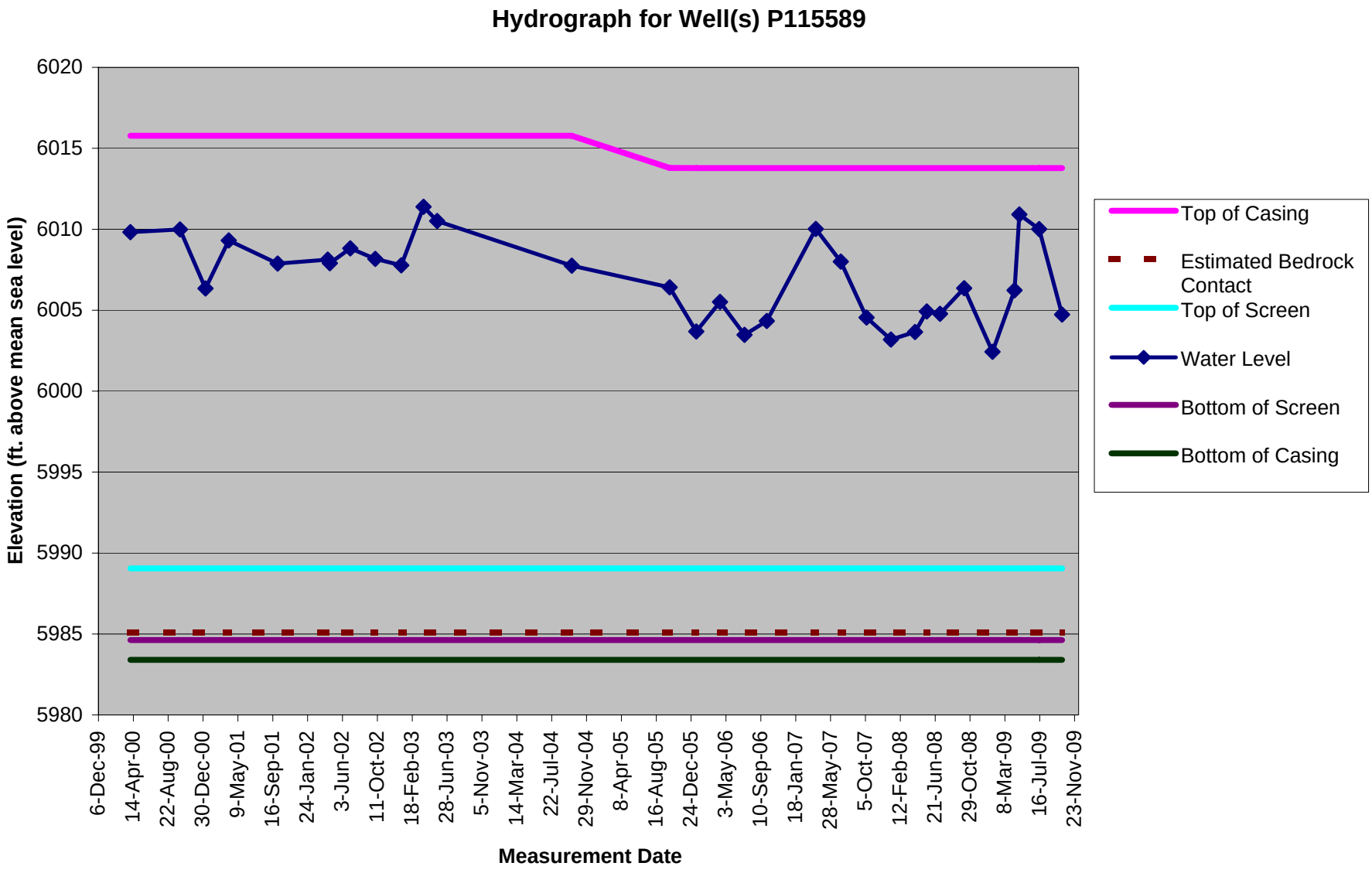
From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)



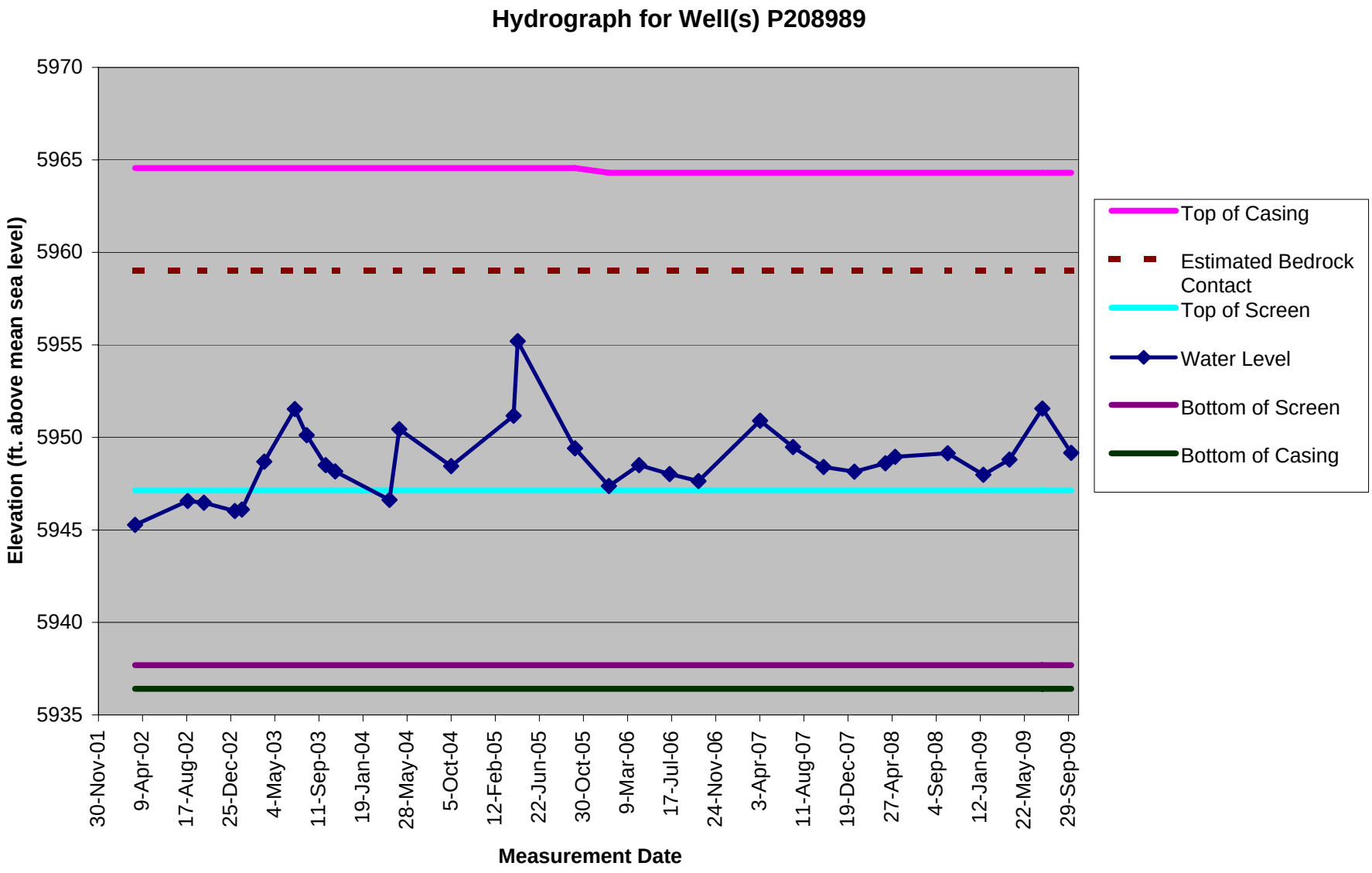
From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)



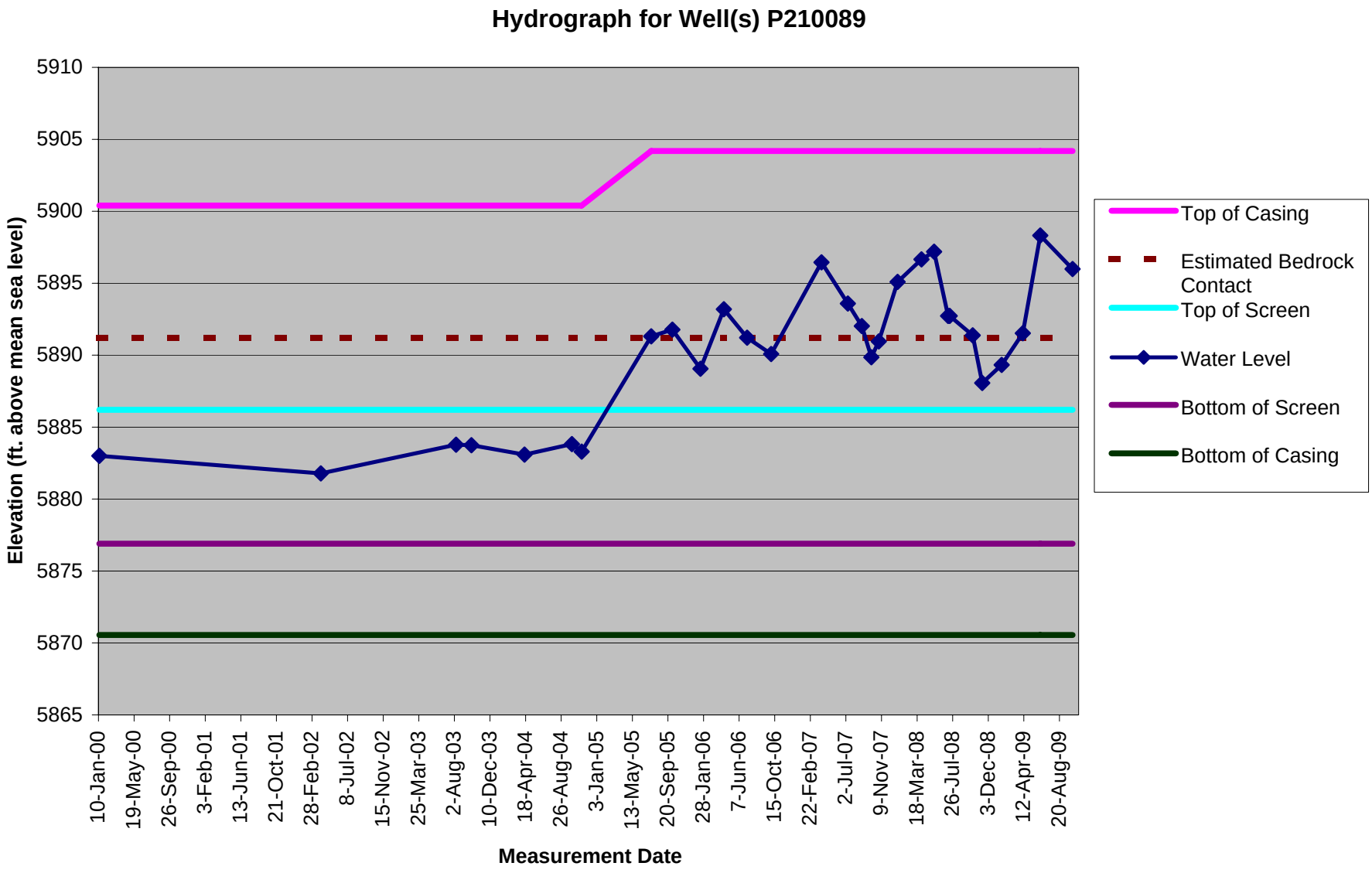
From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)



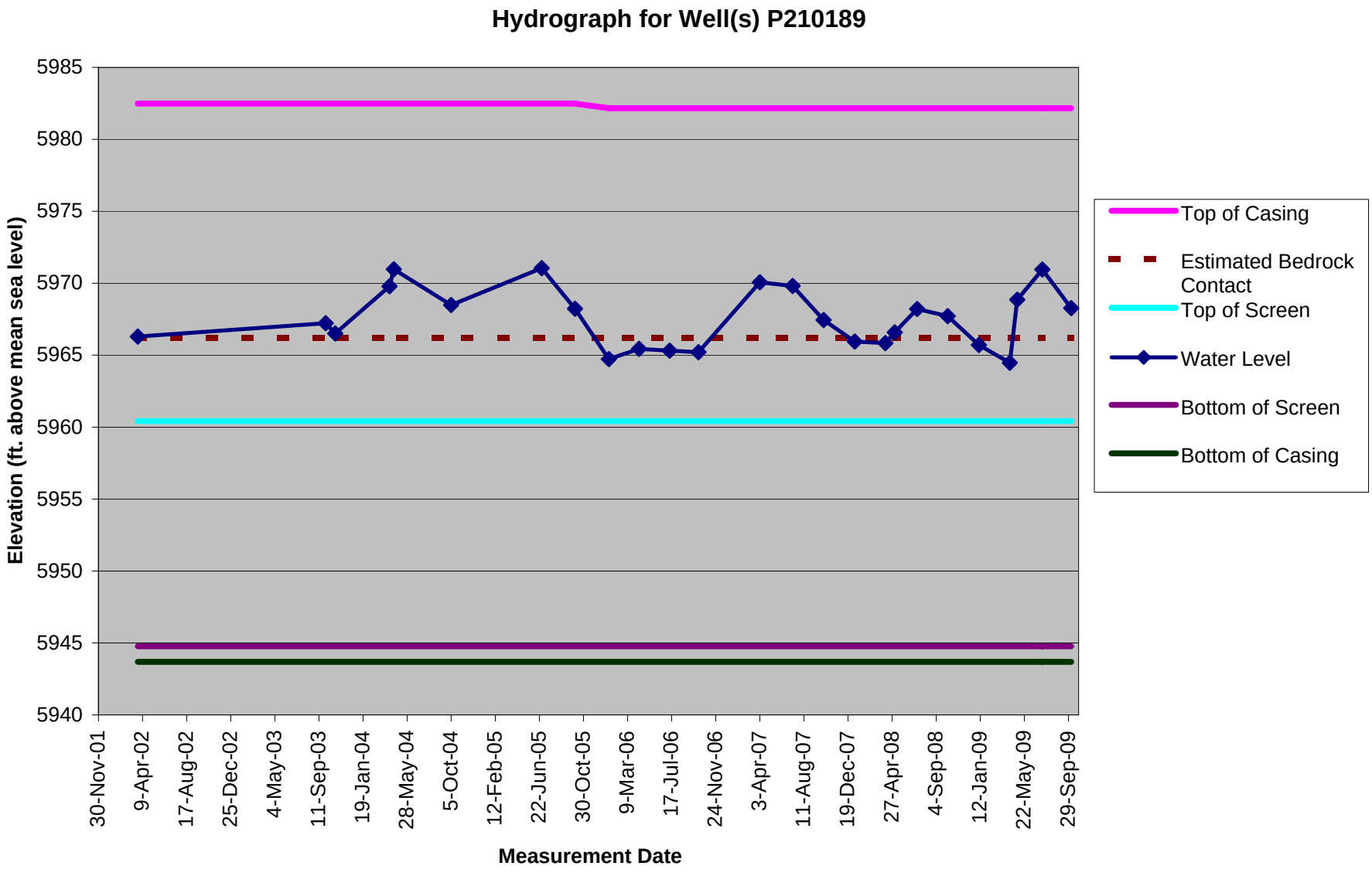
From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)



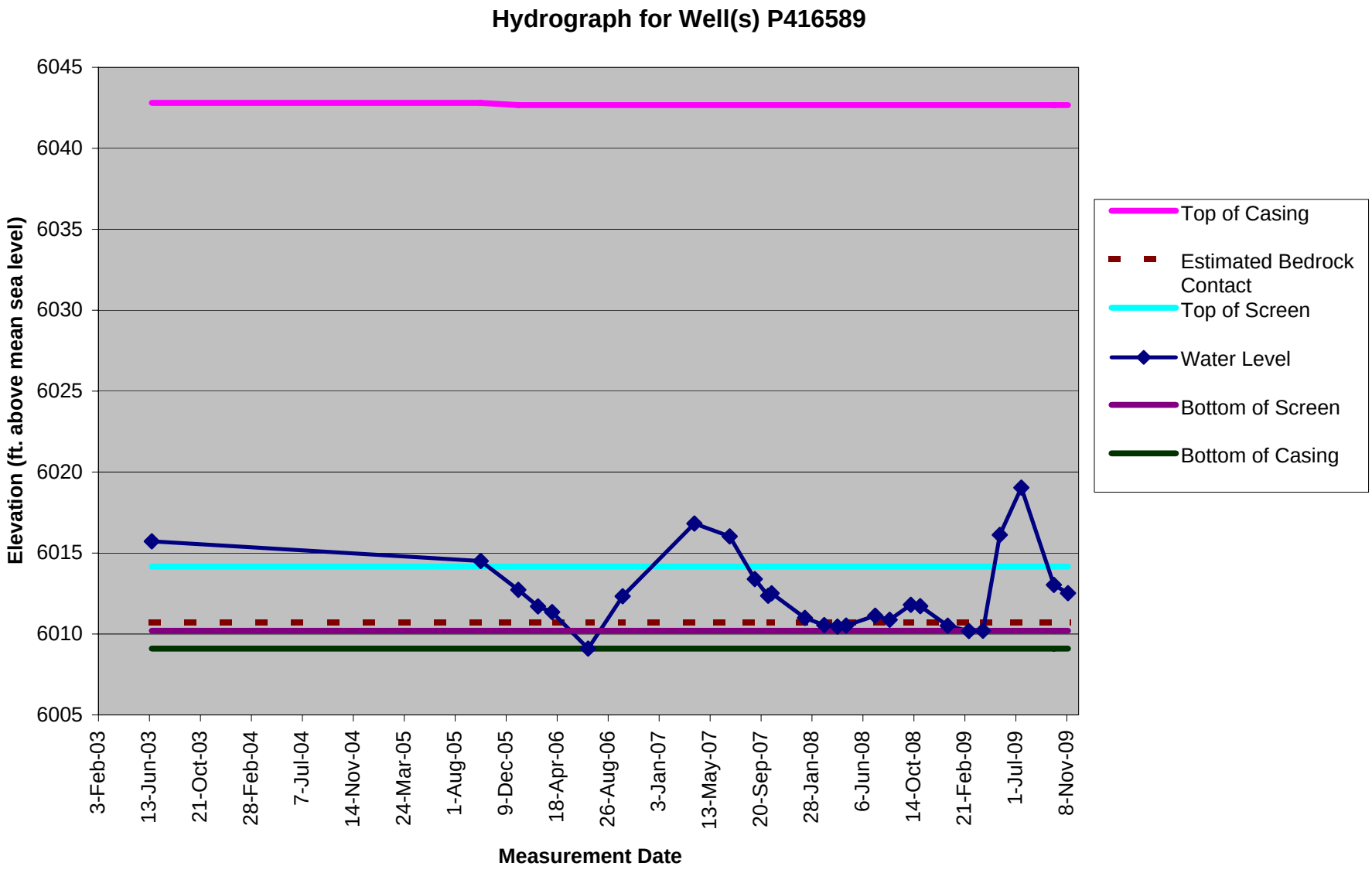
From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)



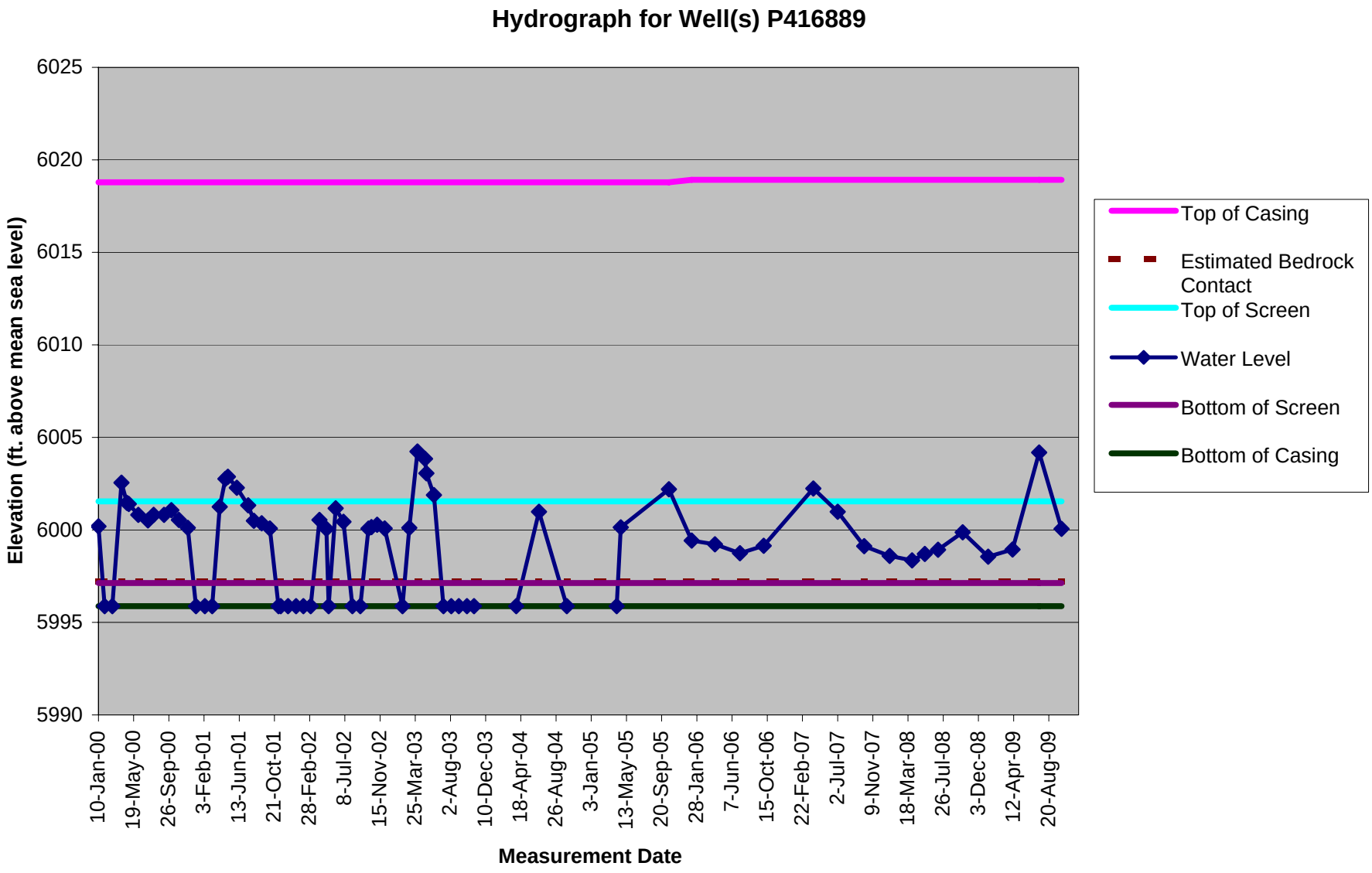
From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)



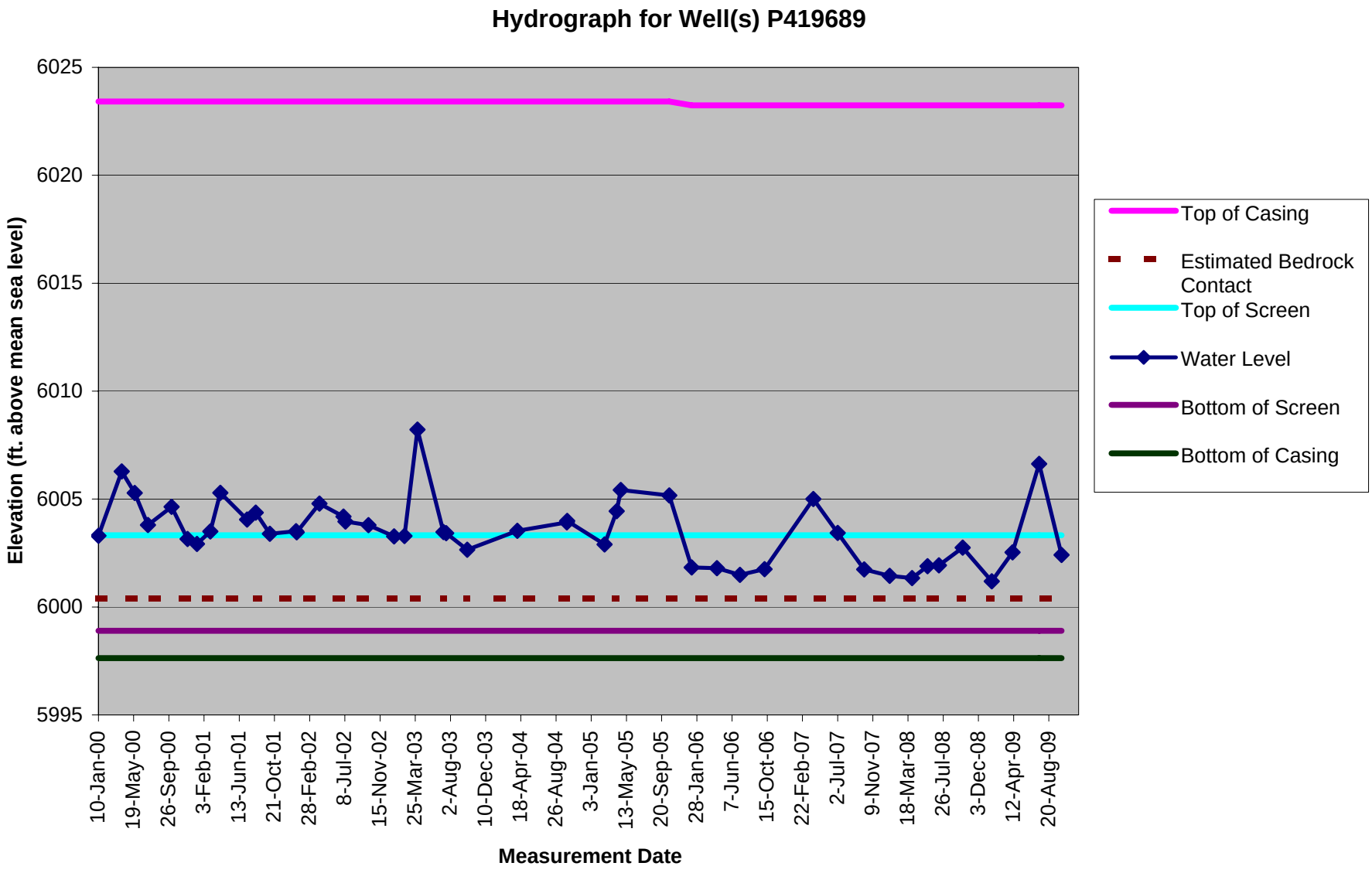
From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)



From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)



From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)



From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)

A.4.2 Hydrographs for Automated Water Level Data

Continuous automated water level collection has taken place at the Rocky Flats Site since late 1998, with temporary and project specific automated collection conducted prior to this. Over time the program has been both expanded and scaled back to include various Site wells. As with any automated instrumentation, certain problems and errors result in inaccurate or missing data; the resulting uncertainties are discussed below. Despite uncertainties, the major benefit of the automated water level collection program is increased resolution of hydrographs, revealing short-term changes in water levels not visible using quarterly water level measurements alone. These data are collected in case updates to a groundwater flow model are desired. The automated water level collection program will be used to augment quarterly water level data until it is determined this is no longer necessary, at which point the program will be discontinued.

All wells currently included in the automated water level collection program are equipped with In-Situ Inc. miniTroll® data loggers. The miniTroll® is a downhole instrument containing a data logger, temperature sensor, pressure transducer, and battery in a self-contained watertight unit. The transducer is vented at the surface, negating the effects of barometric pressure changes. The instrument measures and records water levels at a user defined frequency, allowing for unattended long-term monitoring. It is programmed and downloaded using a PDA equipped with In-Situ Inc.'s Pocket-Situ® software. At the Rocky Flats Site, water levels are measured and recorded every four hours, and the data downloaded on a routine basis—generally twice per year.

In calendar year 2009, transducers were in place at 30 groundwater wells. The automated water level data is compiled and graphed and compared to the manual water level hydrograph for the same well. The automated water level hydrographs superimposed over the manual water level curves are included at the end of this appendix. Although a greater number of wells have historically been a part of this network, for simplicity and relevance only those wells with 2009 data are included in this discussion. Nine transducers malfunctioned over the course of 2009, requiring removal from the well. Four of these wells, 23296, 33905, 37705, and 73105, are not included with the superimposed hydrographs since the transducers malfunctioned before any 2009 data could be downloaded. Additionally, transducers were removed from nineteen wells for a portion of 2009 due to installation of dedicated pumps within those wells. These transducers were re-deployed in early 2010. As of March 2010, transducers are in place at 21 Site wells.

Uncertainties in the automated water level data have arisen, and can be separated into three general classes: Reference Elevation Uncertainty, Unexplained Uncertainty, and Explained Data Gaps. See Table A−26 for a listing of uncertainty types present in each hydrograph.

Reference Elevation Uncertainty ("Ref." on hydrographs) occurs when the user-defined reference elevation was entered incorrectly. When initiating data collection using a miniTroll®, the water level elevation in the subject well is measured manually and entered into the miniTroll® program as the starting water level for that "test." Any changes in water level for the remainder of the test are measured against this reference elevation. Therefore if the reference elevation is entered incorrectly, the subsequent dataset is inaccurate in its entirety. Such systematic uncertainties are usually easy to identify and correct, and all correctable Ref. uncertainties have been fixed. On the automated water level hydrograph for well 52505, for example, the reference elevation for the period of January 7, 2008, to July 9, 2008, was off by just over 2 feet. The resulting curve differed from the manual water level curve by the same amount. This discrepancy was noted in the field logbook, allowing the data to be corrected. After

correction, the automated water level curve closely matched the manual water level curve for that time period.

Unexplained Uncertainty ("Unexplained" on hydrographs) occurs when there are data gaps not explained by the field logbook, or when the automated water level curve differs from the manually collected water level data points. These uncertainties are not correctable and the most likely explanation is instrument malfunction or drift over time, resulting in inaccurate readings. (Alternatively, the errors could reside in the manually-collected data, but because typically more than one manual water level measurement is made over the course of an automated test, it would be easy to spot and correct the manual data for those errors.) An example of this type of uncertainty can be seen on the hydrograph for well 20205. On February 5, 2008, a new test was begun and a new reference elevation entered. Shortly after the test beginning, the automatically measured water level began rising sharply, recording water levels that were significantly higher than those manually measured during the test period. By the time the next test was begun and a new reference elevation entered on July 9, 2008, the automated water level data indicated a water level 10 feet higher than that manually observed. The most likely explanation for this uncertainty is instrument malfunction, and no attempt was made to rectify the unreliable data. Clear instances of instrument malfunction can also be seen on the hydrographs for wells 20902 and 99405, which both show automated water level measurements of up to 50 feet above the top of casing or below the bottom of the well. These data points have not been removed, but obviously should not be interpreted as actually representing water levels within those wells.

Explained Data Gaps ("Explained Gap" on hydrographs) are gaps in the data record which are explained by the field logbook. The most common explanation for data gaps are instrument batteries dying, problems downloading data, and the instrument being removed from the well. For example, the transducer in well 70099 was removed on June 29, 2005, and replaced on October 31 of that same year.

Gaps in the data record (both explained and unexplained) and sudden drastic changes in water level caused by reference elevation changes are marked as areas of Systematic Uncertainty on the hydrographs. These portions of the curves (marked by a dashed red line) do not contain data recorded by a transducer. Rather, they represent an interpolated curve between two existing data points, and are included to enhance hydrograph readability. Areas of Systematic Uncertainty should not be read as being representative of actual water levels.

Despite the aforementioned problems in the Troll network, automated water level collection provides enhanced hydrograph resolution, revealing short term water level fluctuations not apparent with manual data collection alone. The most common cause of these short-term fluctuations is sampling events, but large precipitation events also play a role.

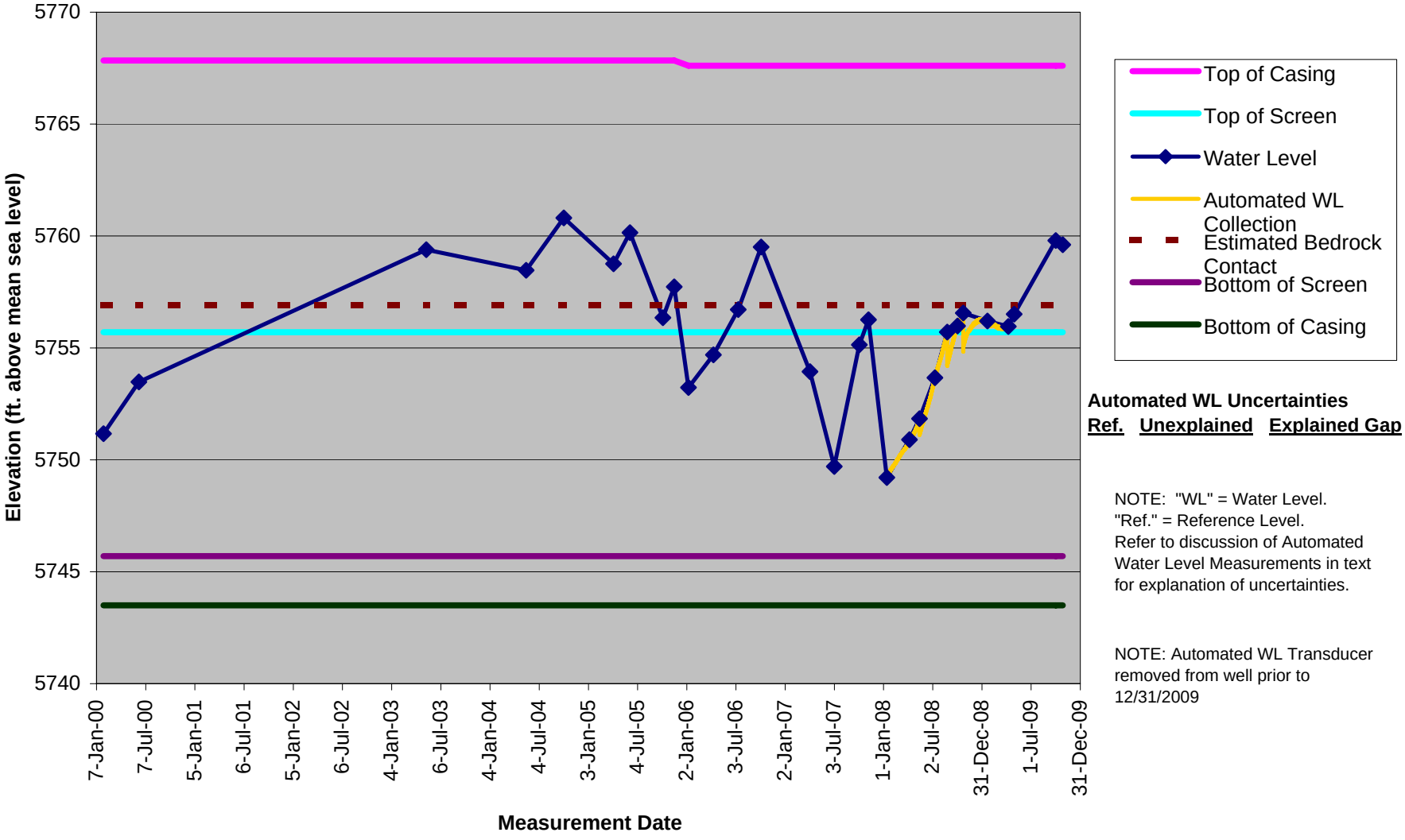
The clearest example of short-term variation caused by sampling events is seen in the hydrograph for well 80205. The automated water level hydrograph shows repeated sudden drops in water level, followed by more gradual rises. The sudden drops in water level correspond to sampling events, while the gradual rise in water level shows well recharge—the longer-term response of the well to the sampling event. These short-term variations could not be observed by examining the manually collected water level hydrograph alone, which shows a far more stable water level than the automatically collected data. It is more difficult to discern the influence of large precipitation events on the automated water level hydrographs, but some relationships can be observed. The clearest instance of this can be seen on the hydrograph for well 70393. This automated water level hydrograph shows a 7-foot increase in water level from April 18 to

April 21, 2009, corresponding to a large, wet spring snowstorm which began April 16. Water levels remained elevated through the month of May, and began falling through June. The magnitude of this water level spike was not evident in the manually collected water level hydrograph alone, since manual water level measurements were only taken on the ascending and descending limbs of this spike. This is evidenced that the automated water level program can provide increased resolution to hydrographs.

Table A–26. Automated Water Level Collection Uncertainties by Well

Well	Uncertainties		
	Ref.	Unexplained	Explained Gap
00193	None		
00797	X		
15699	None		
20205	X	X	
20902		X	X
22996			X
33703	None		
42505		X	X
52505	X		
70099	X	X	X
70393	X	X	X
70705	None		
79102			X
79302	X		
79605	None		
80205		X	
88104	None		
91203	X	X	X
91305			X
99305	None		
99405		X	
B206989		X	X
B210489	None		
P115589	None		
P208989	None		
P210089	None		

Automated and Manual Water Level Measurements from Well(s) 00193



Automated WL Uncertainties

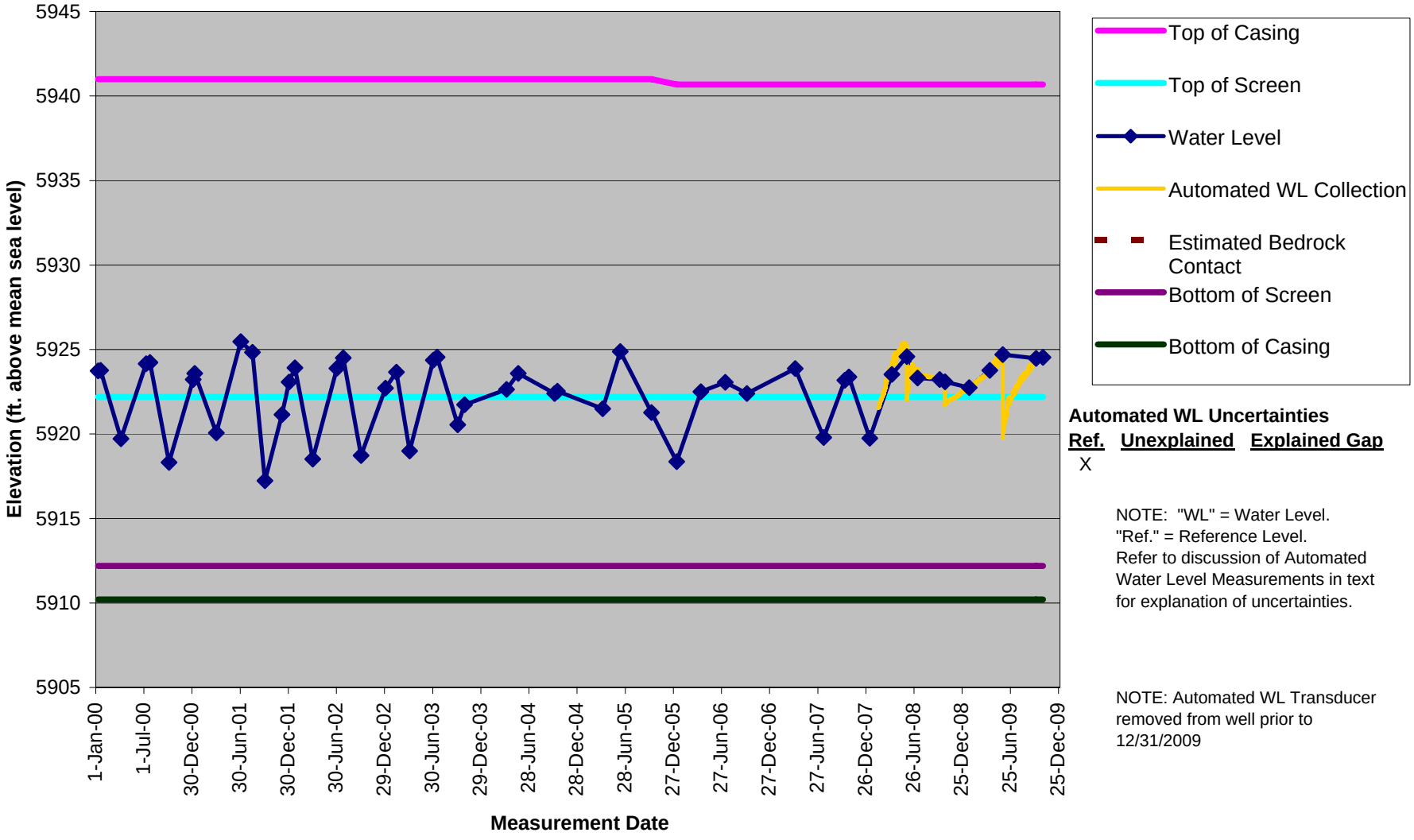
Ref.	Unexplained	Explained Gap

NOTE: "WL" = Water Level.
"Ref." = Reference Level.
Refer to discussion of Automated Water Level Measurements in text for explanation of uncertainties.

NOTE: Automated WL Transducer removed from well prior to 12/31/2009

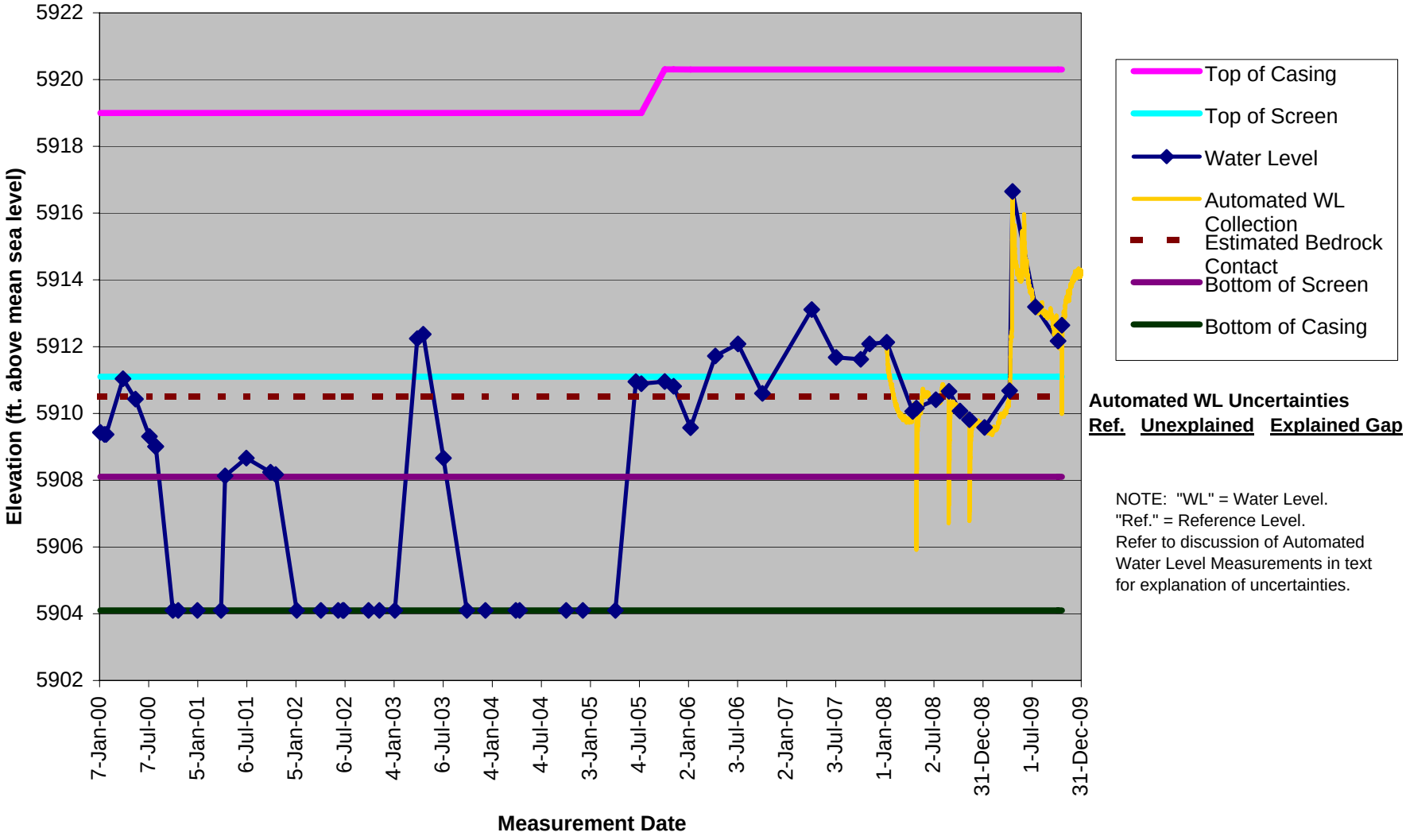
From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)

Automated and Manual Water Level Measurements from Well(s) 00797



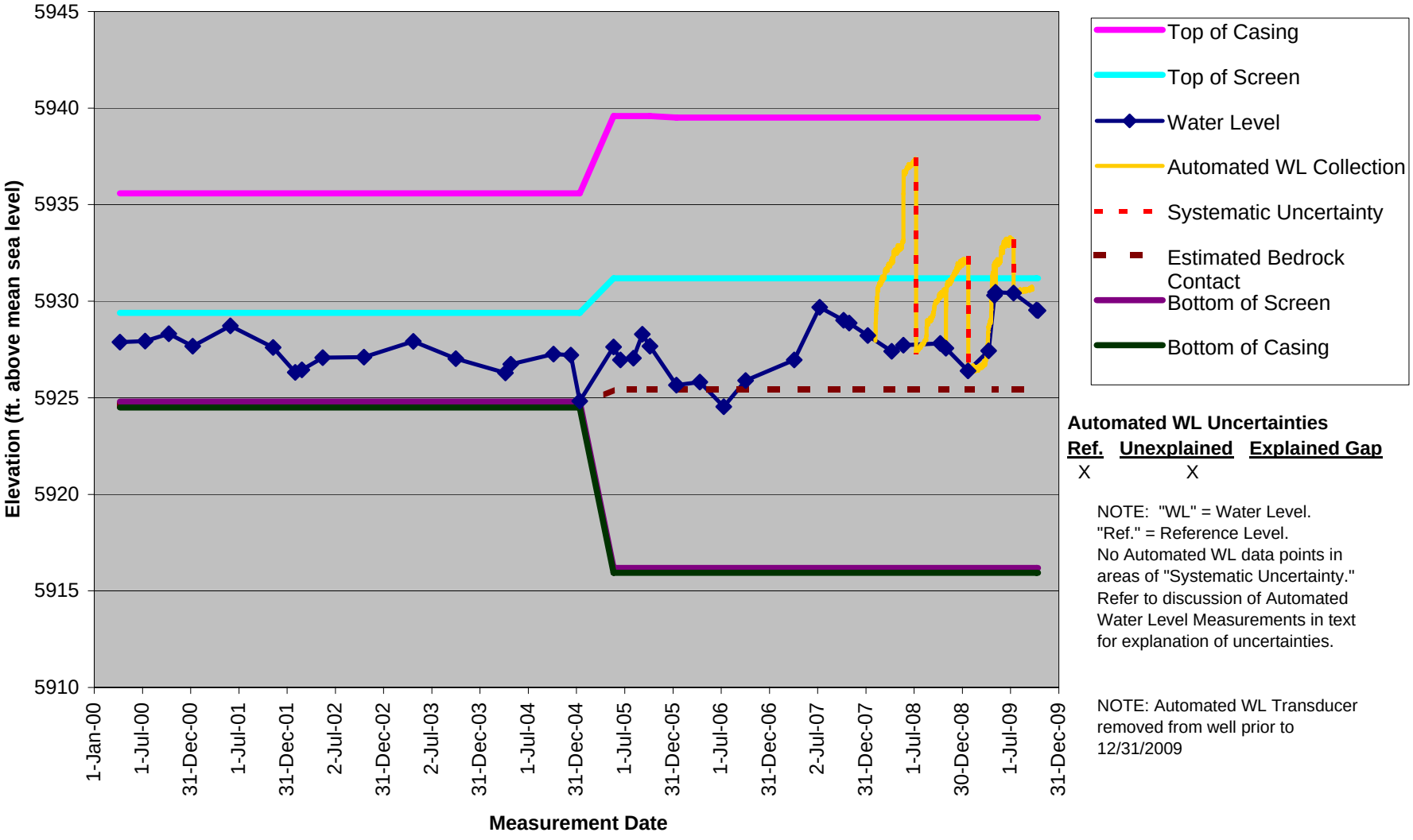
From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)

Automated and Manual Water Level Measurements from Well(s) 15699



From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)

Automated and Manual Water Level Measurements from Well(s) 20298 / 20205



Automated WL Uncertainties

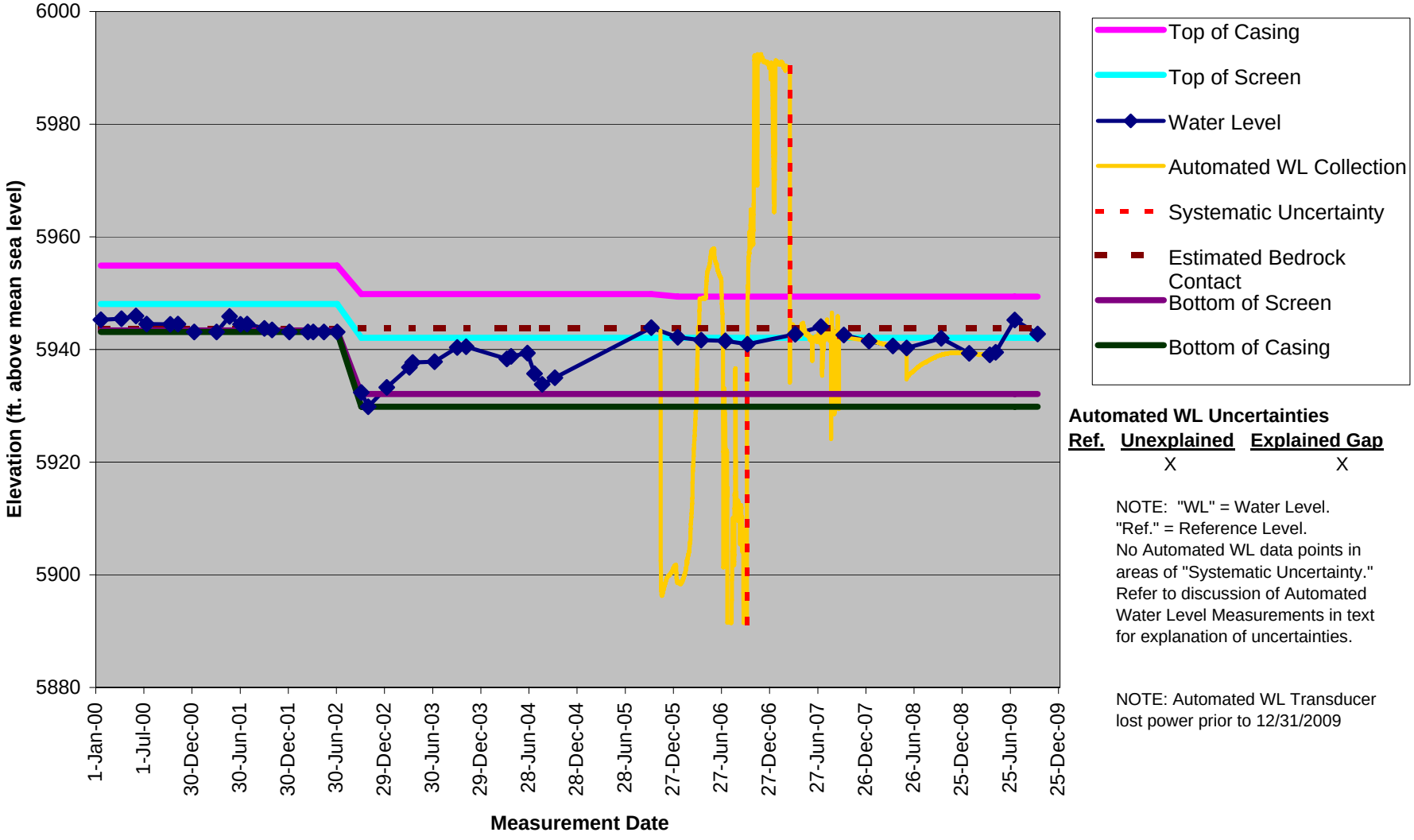
Ref.	Unexplained	Explained Gap
X	X	

NOTE: "WL" = Water Level.
"Ref." = Reference Level.
No Automated WL data points in areas of "Systematic Uncertainty."
Refer to discussion of Automated Water Level Measurements in text for explanation of uncertainties.

NOTE: Automated WL Transducer removed from well prior to 12/31/2009

From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)

Automated and Manual Water Level Measurements from Well(s) 20998 / 20902



Automated WL Uncertainties

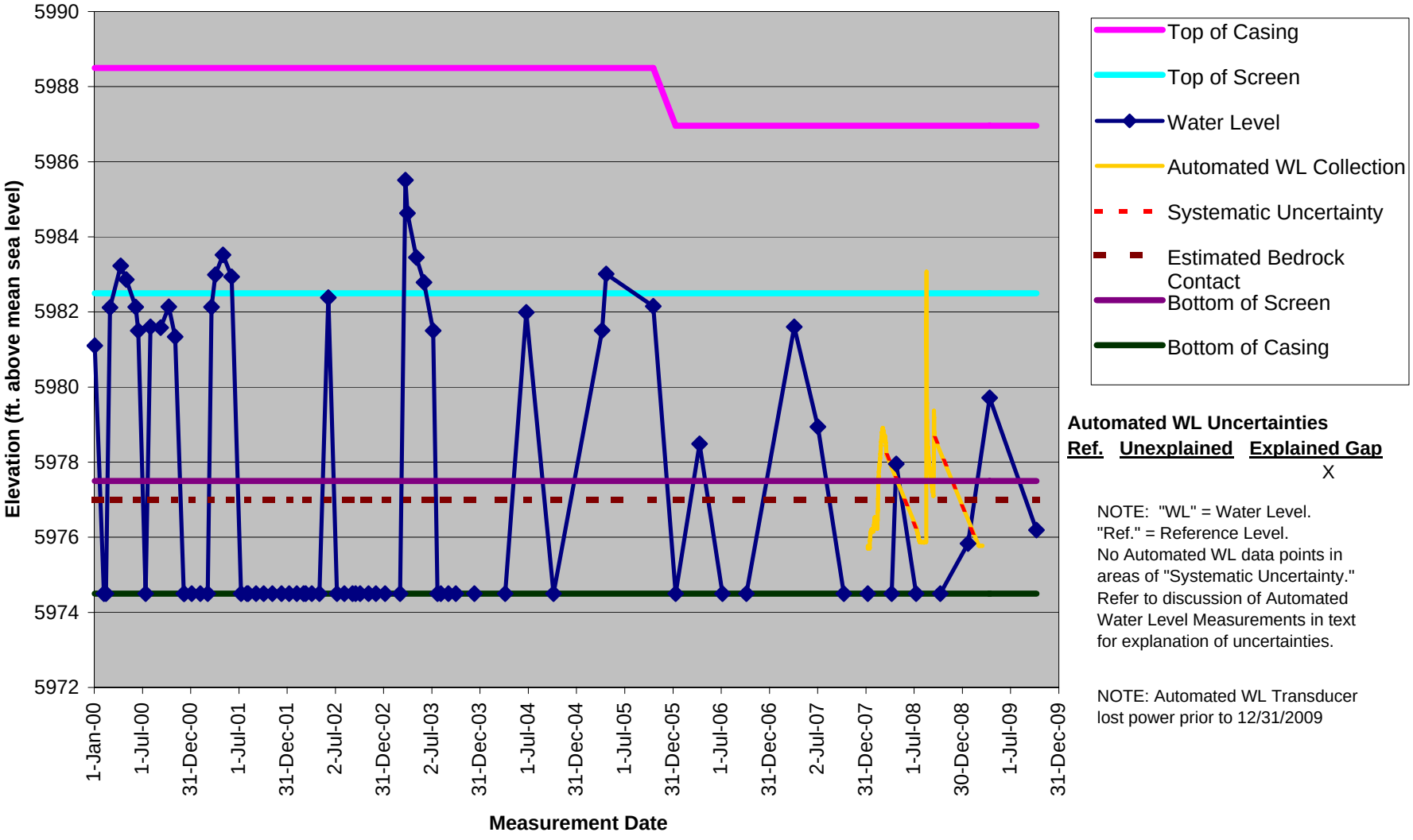
Ref.	Unexplained	Explained Gap
	X	X

NOTE: "WL" = Water Level.
"Ref." = Reference Level.
No Automated WL data points in areas of "Systematic Uncertainty."
Refer to discussion of Automated Water Level Measurements in text for explanation of uncertainties.

NOTE: Automated WL Transducer lost power prior to 12/31/2009

From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)

Automated and Manual Water Level Measurements from Well(s) 22996



Automated WL Uncertainties

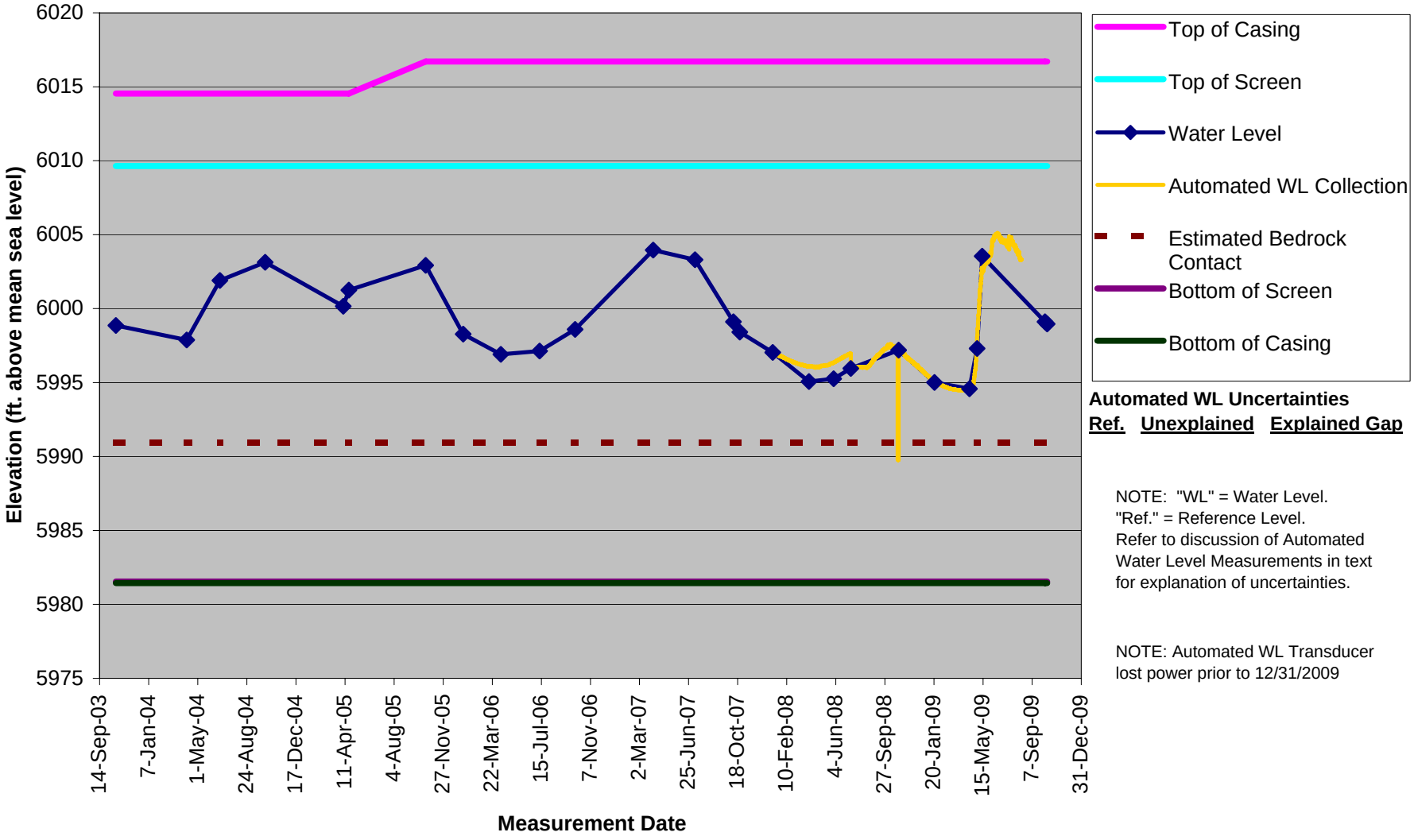
Ref.	Unexplained	Explained Gap
		X

NOTE: "WL" = Water Level.
"Ref." = Reference Level.
No Automated WL data points in areas of "Systematic Uncertainty."
Refer to discussion of Automated Water Level Measurements in text for explanation of uncertainties.

NOTE: Automated WL Transducer lost power prior to 12/31/2009

From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)

Automated and Manual Water Level Measurements from Well(s) 33703

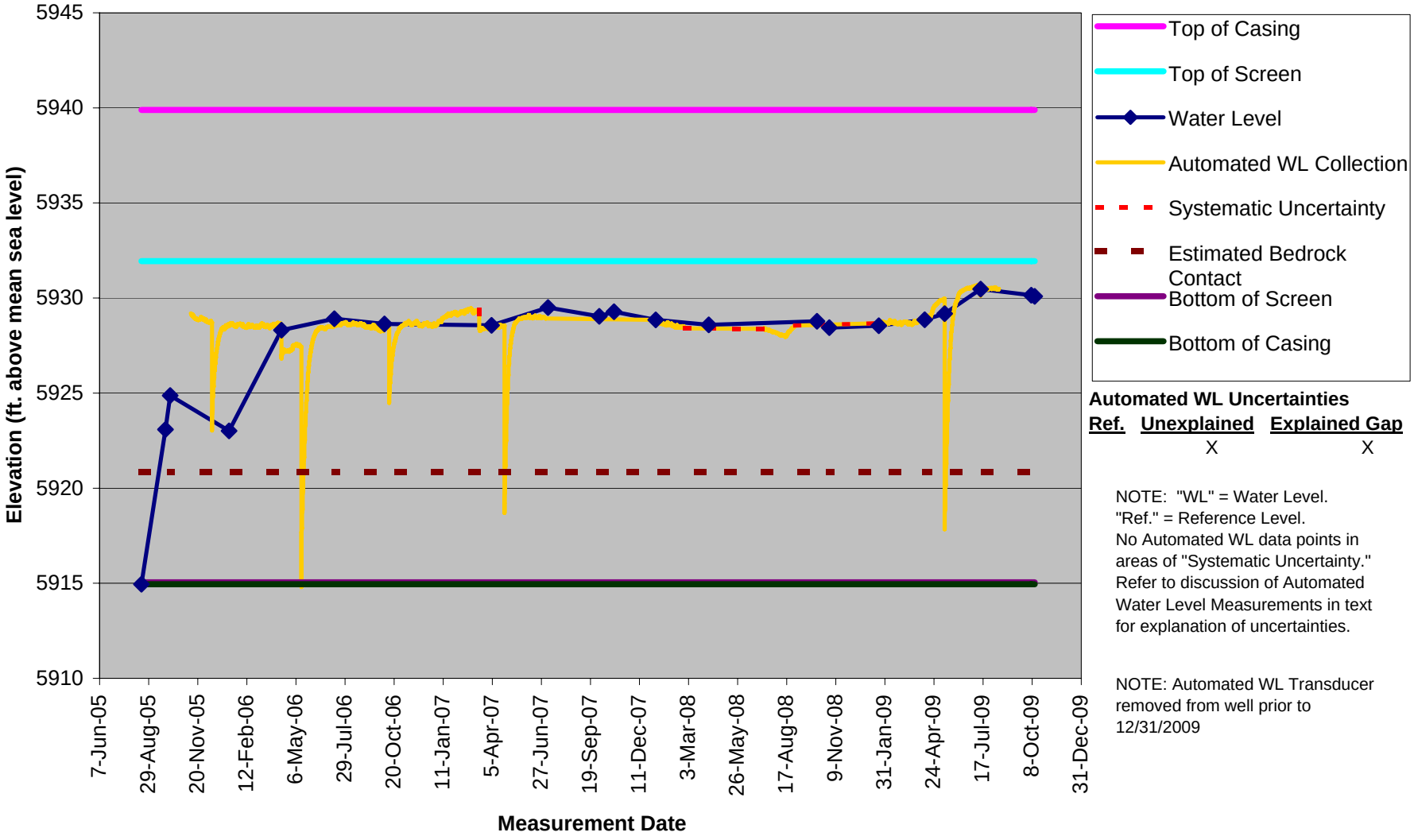


NOTE: "WL" = Water Level.
"Ref." = Reference Level.
Refer to discussion of Automated Water Level Measurements in text for explanation of uncertainties.

NOTE: Automated WL Transducer lost power prior to 12/31/2009

From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)

Automated and Manual Water Level Measurements from Well(s) 42505



Automated WL Uncertainties

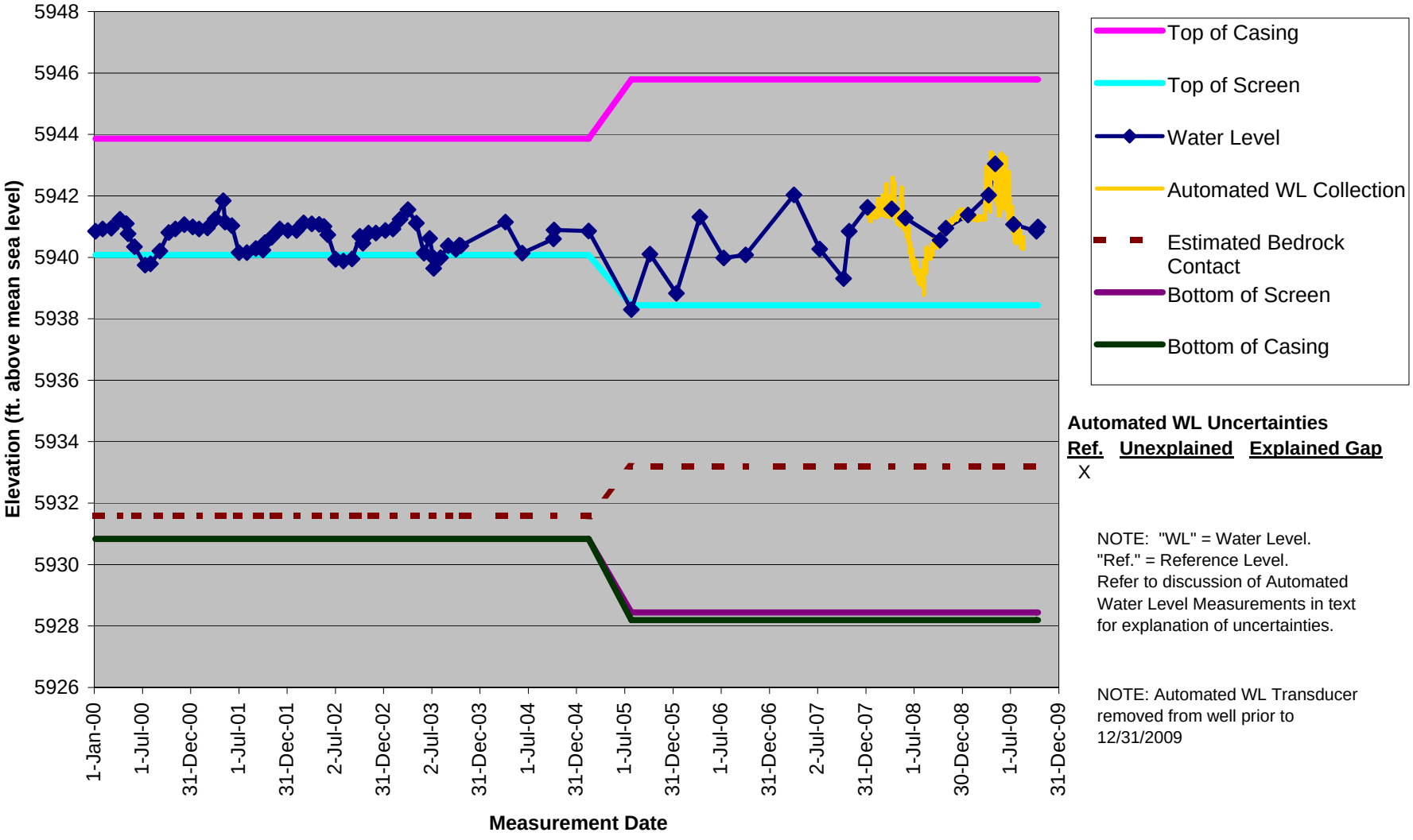
Ref.	Unexplained	Explained Gap
	X	X

NOTE: "WL" = Water Level.
"Ref." = Reference Level.
No Automated WL data points in areas of "Systematic Uncertainty."
Refer to discussion of Automated Water Level Measurements in text for explanation of uncertainties.

NOTE: Automated WL Transducer removed from well prior to 12/31/2009

From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)

Automated and Manual Water Level Measurements from Well(s) 1986 / 52505



Automated WL Uncertainties

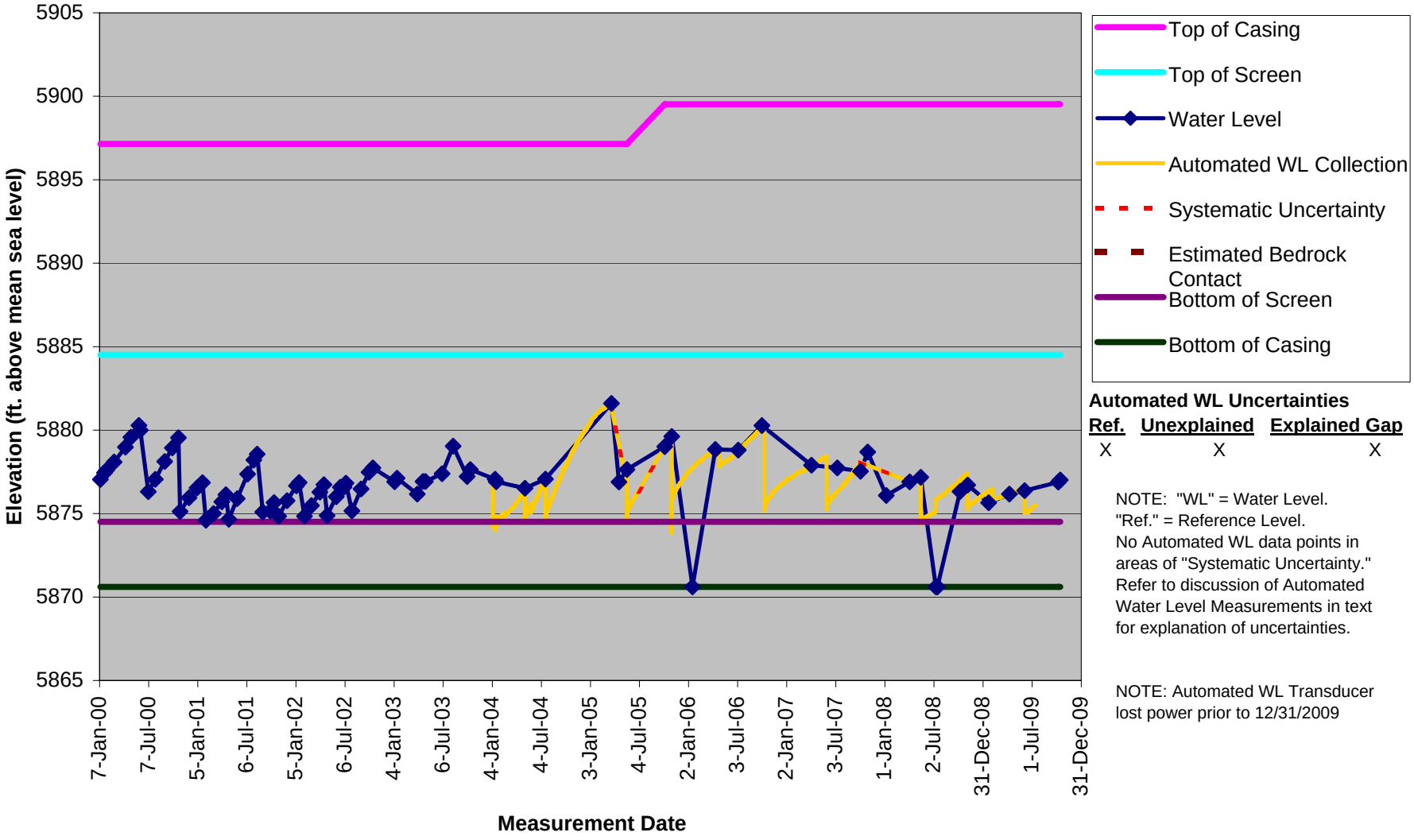
Ref.	Unexplained	Explained Gap
X		

NOTE: "WL" = Water Level.
"Ref." = Reference Level.
Refer to discussion of Automated Water Level Measurements in text for explanation of uncertainties.

NOTE: Automated WL Transducer removed from well prior to 12/31/2009

From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)

Automated and Manual Water Level Measurements from Well(s) 70099



Automated WL Uncertainties

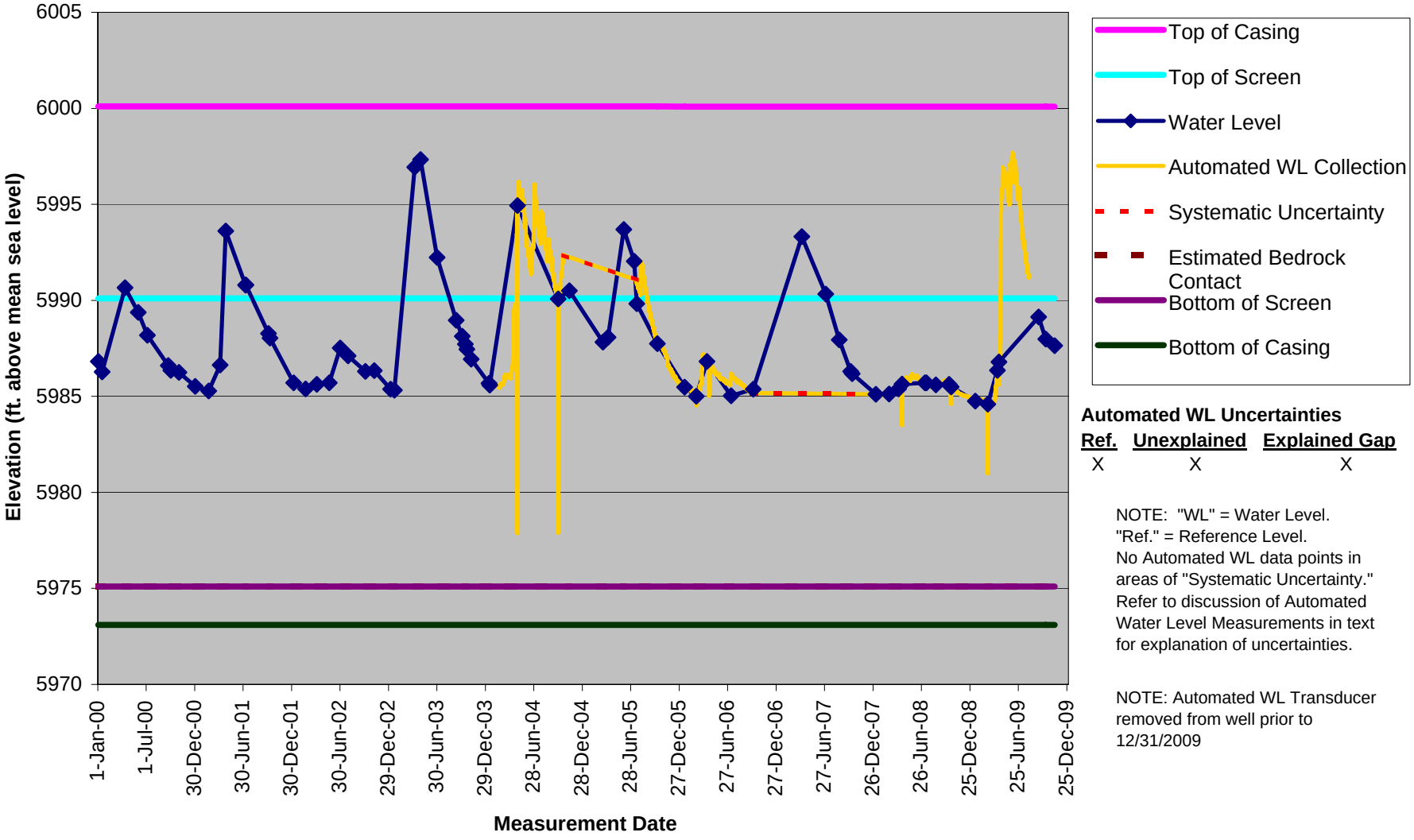
Ref.	Unexplained	Explained Gap
X	X	X

NOTE: "WL" = Water Level.
"Ref." = Reference Level.
No Automated WL data points in areas of "Systematic Uncertainty."
Refer to discussion of Automated Water Level Measurements in text for explanation of uncertainties.

NOTE: Automated WL Transducer lost power prior to 12/31/2009

From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)

Automated and Manual Water Level Measurements from Well(s) 70393



Automated WL Uncertainties

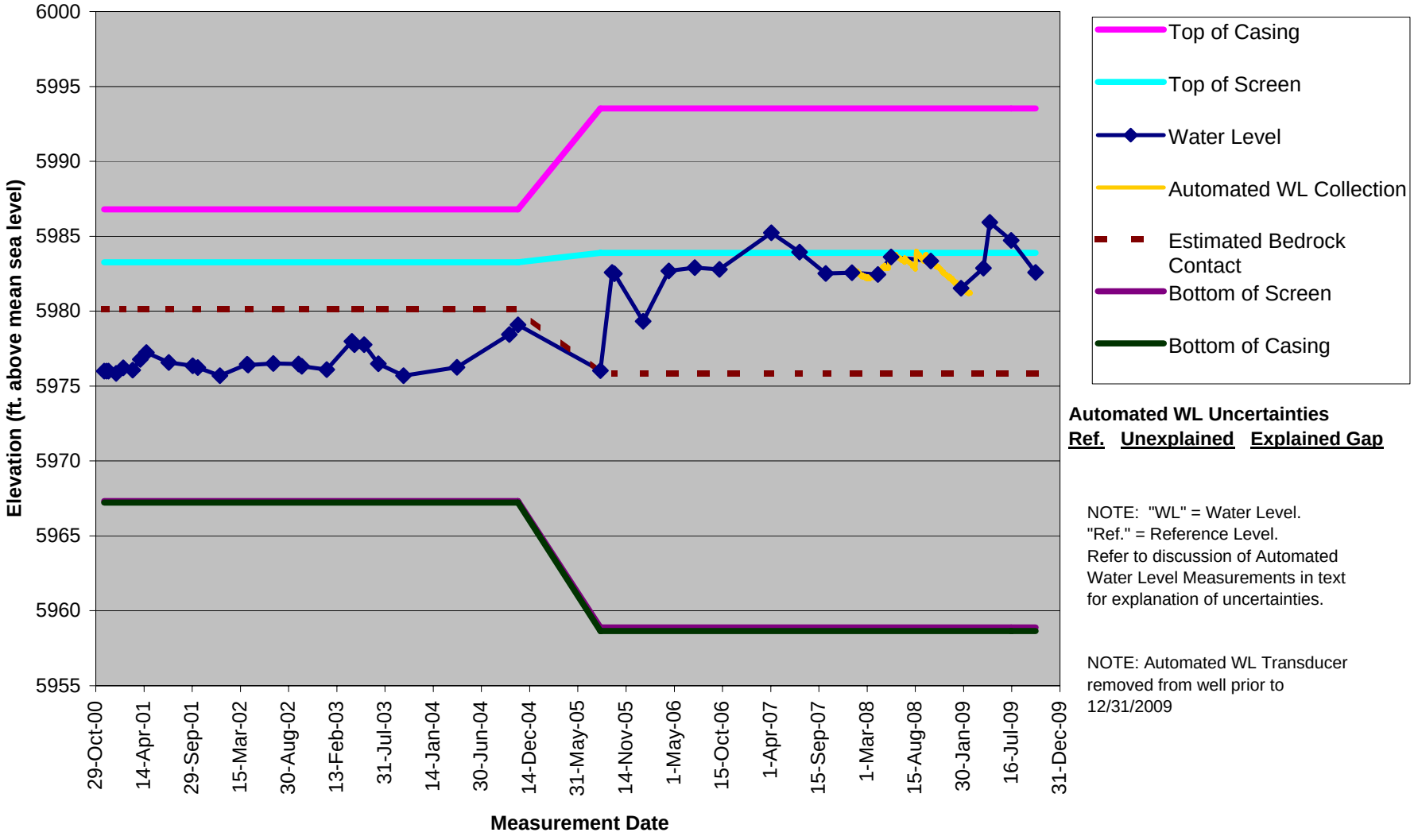
Ref.	Unexplained	Explained Gap
X	X	X

NOTE: "WL" = Water Level.
"Ref." = Reference Level.
No Automated WL data points in areas of "Systematic Uncertainty."
Refer to discussion of Automated Water Level Measurements in text for explanation of uncertainties.

NOTE: Automated WL Transducer removed from well prior to 12/31/2009

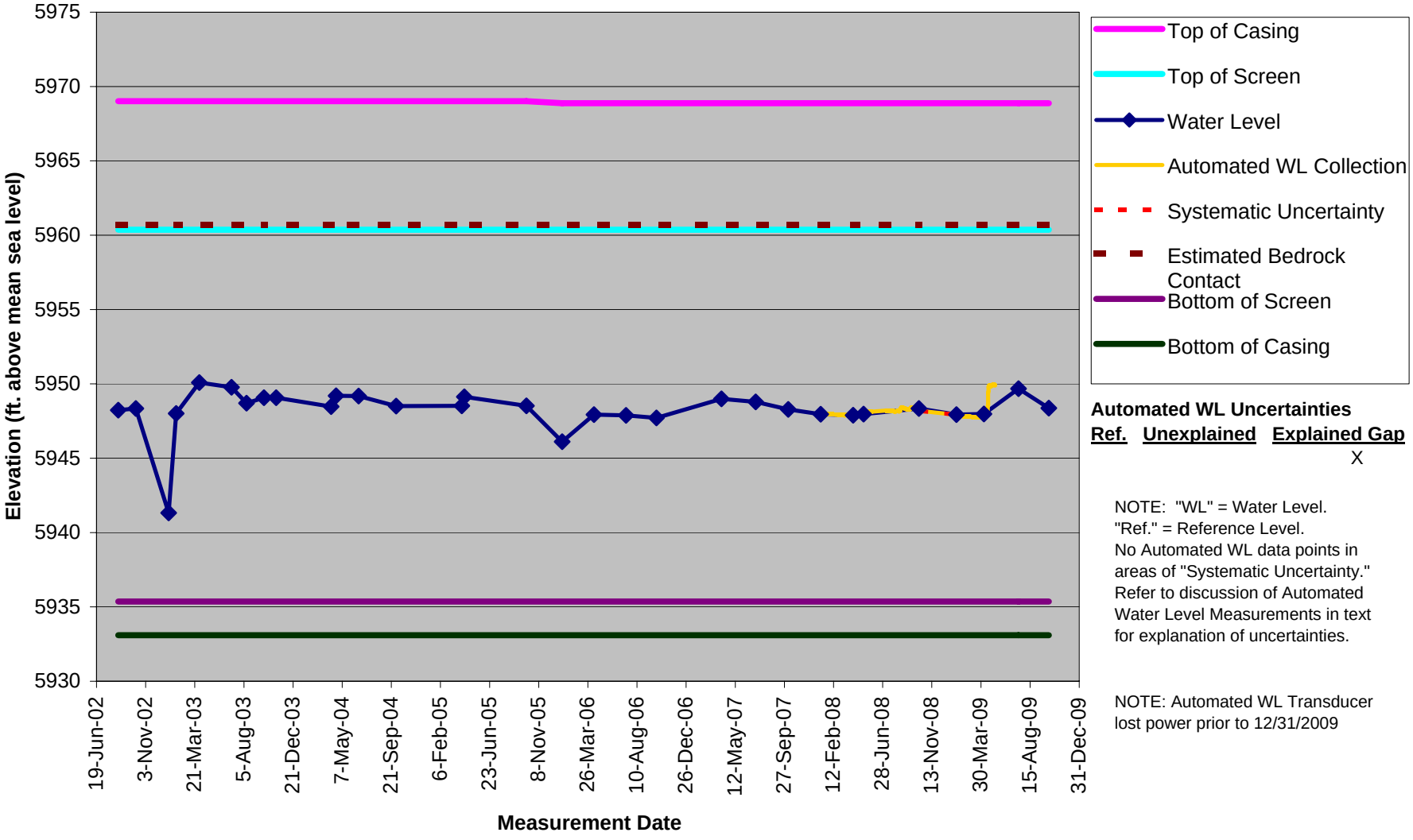
From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)

Automated and Manual Water Level Measurements from Well(s) 00200 / 70705



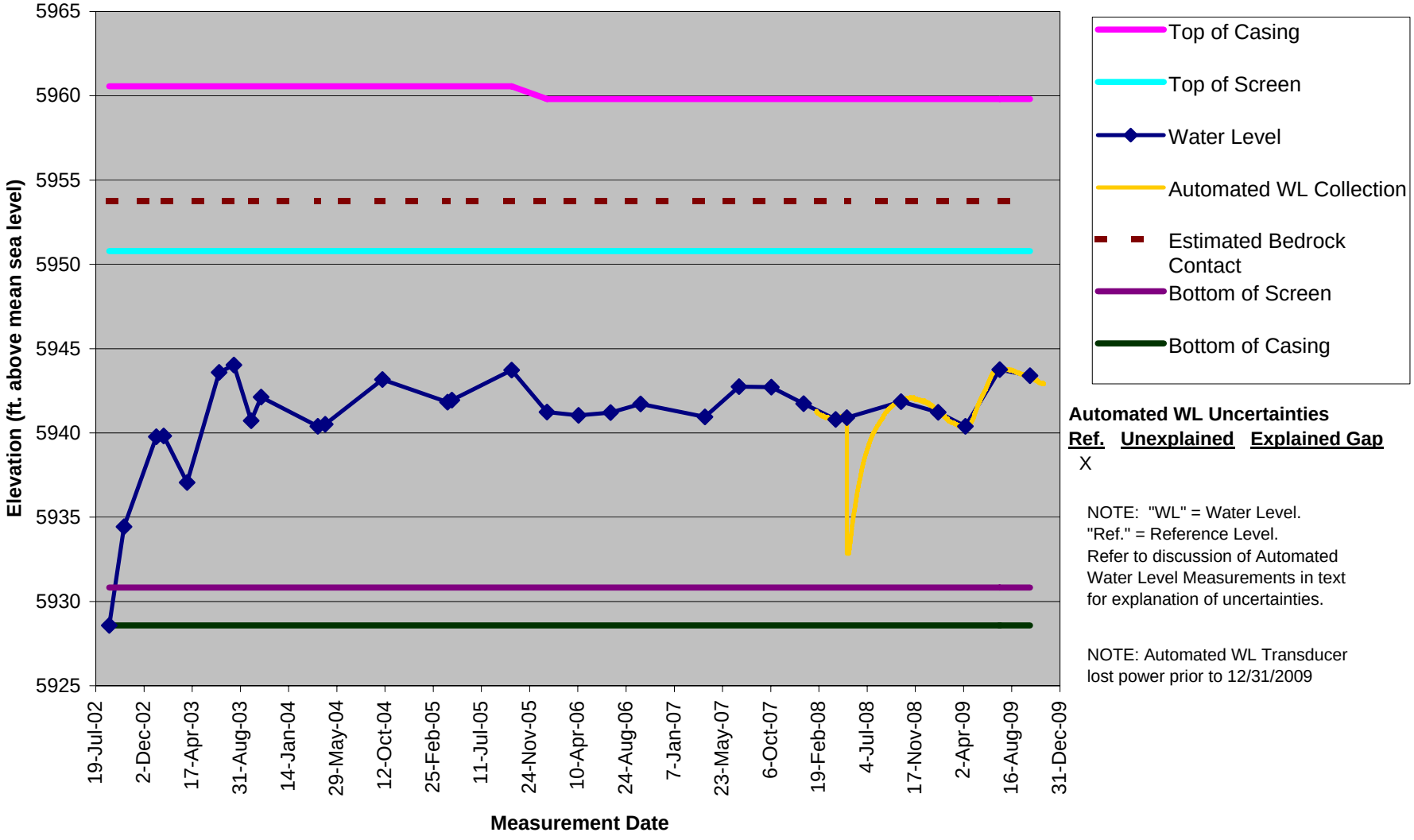
From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)

Automated and Manual Water Level Measurements from Well(s) 79102



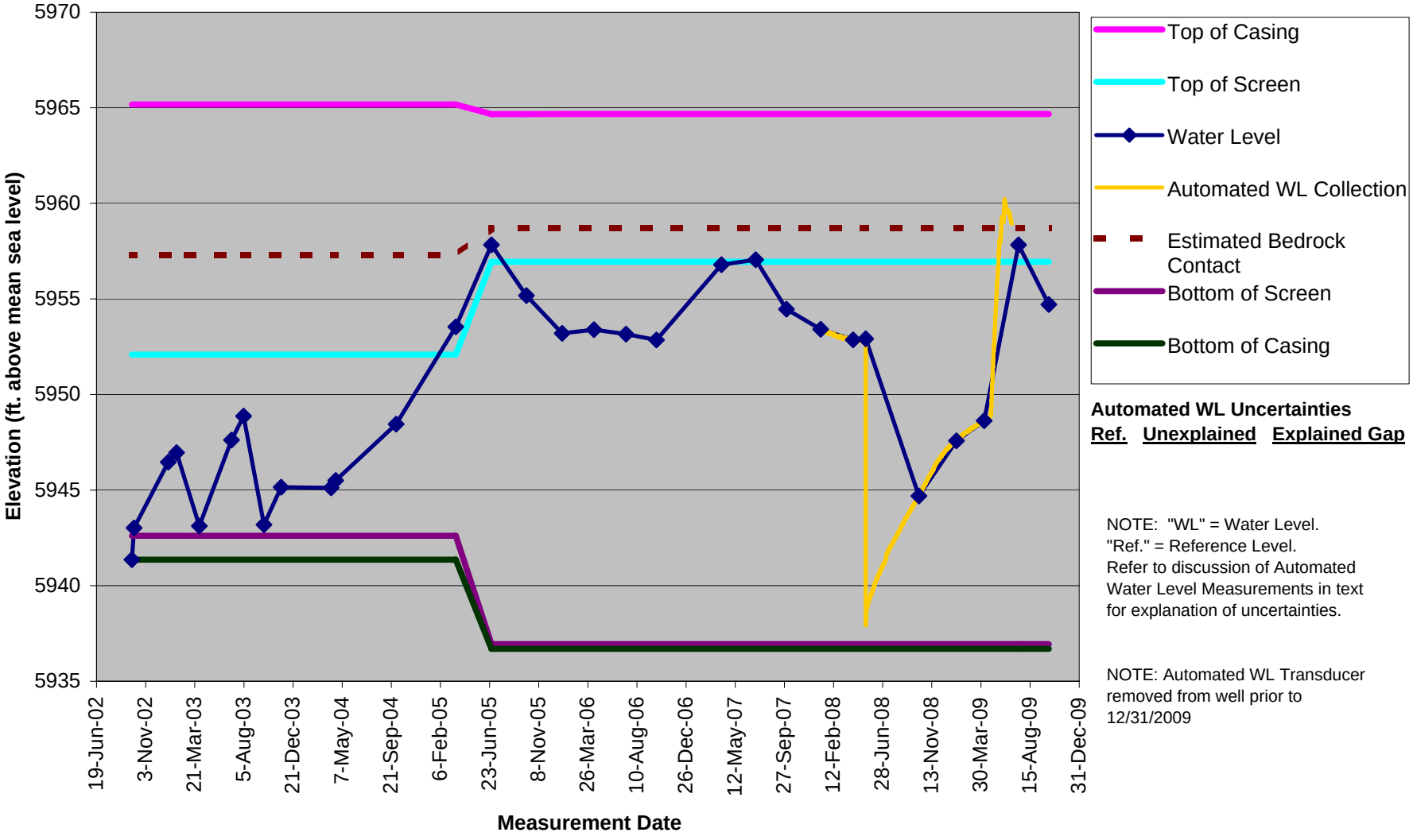
From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)

Automated and Manual Water Level Measurements from Well(s) 79302



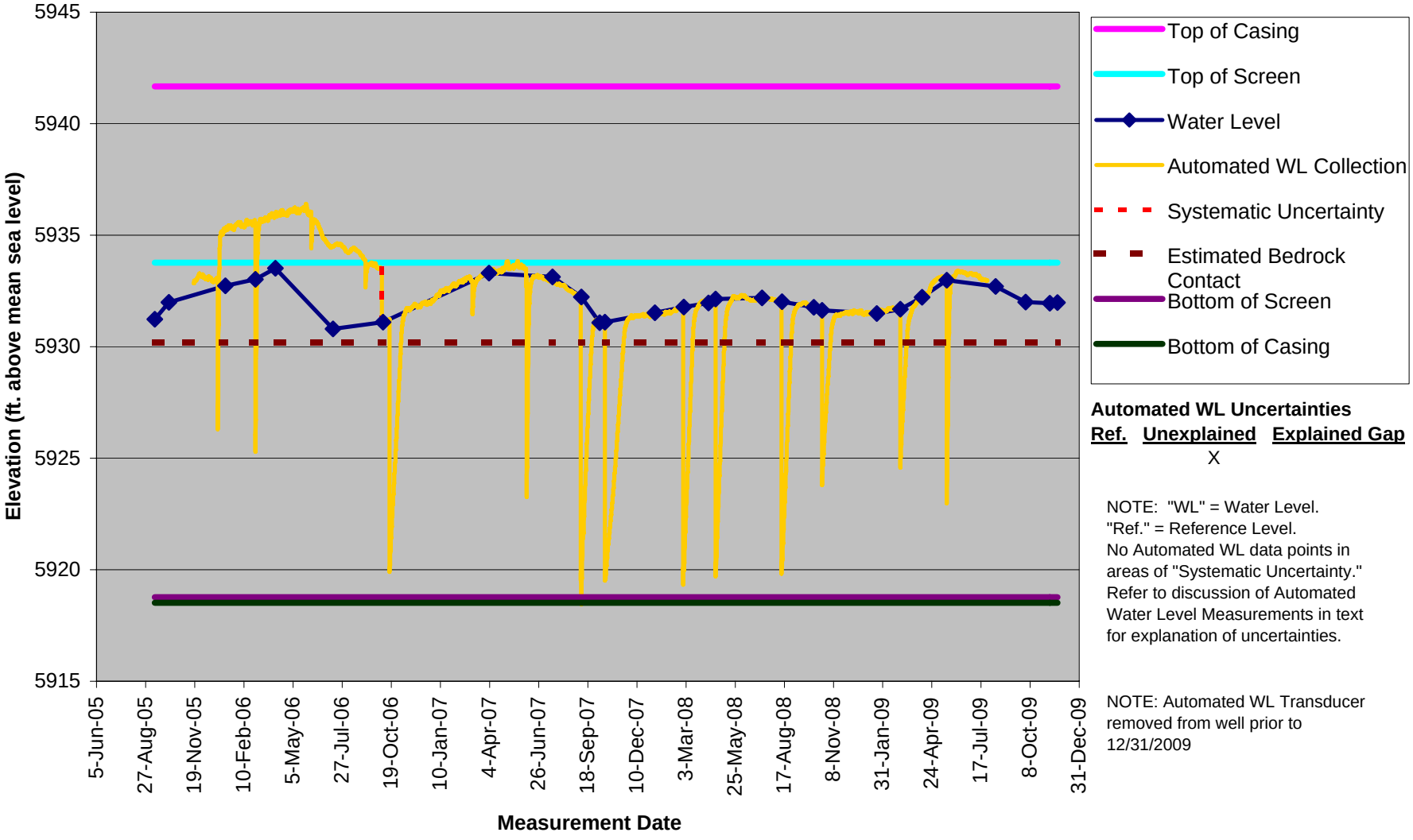
From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)

Automated and Manual Water Level Measurements from Well(s) P207989 / 79605



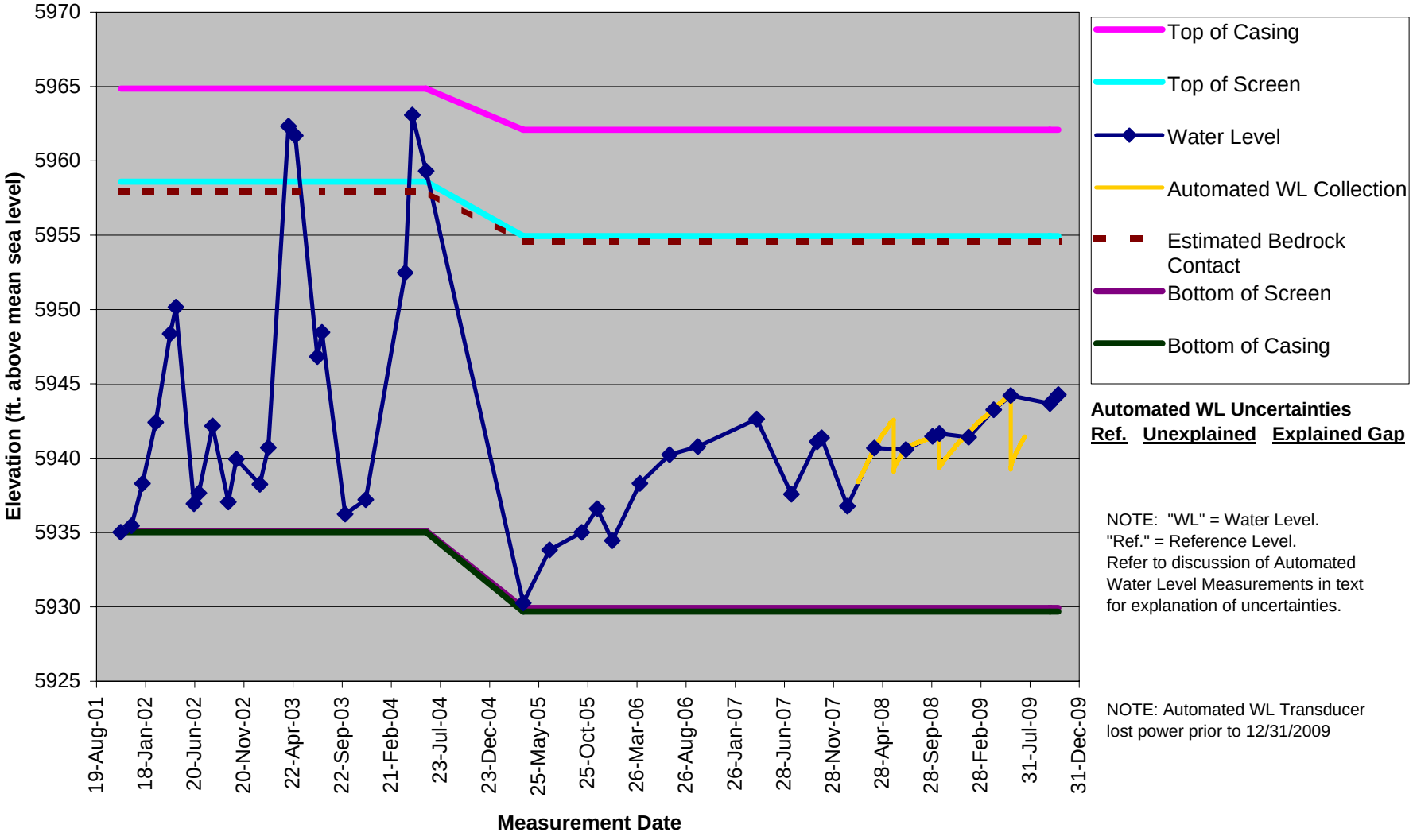
From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)

Automated and Manual Water Level Measurements from Well(s) 80205



From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)

Automated and Manual Water Level Measurements from Well(s) 88101 / 88104

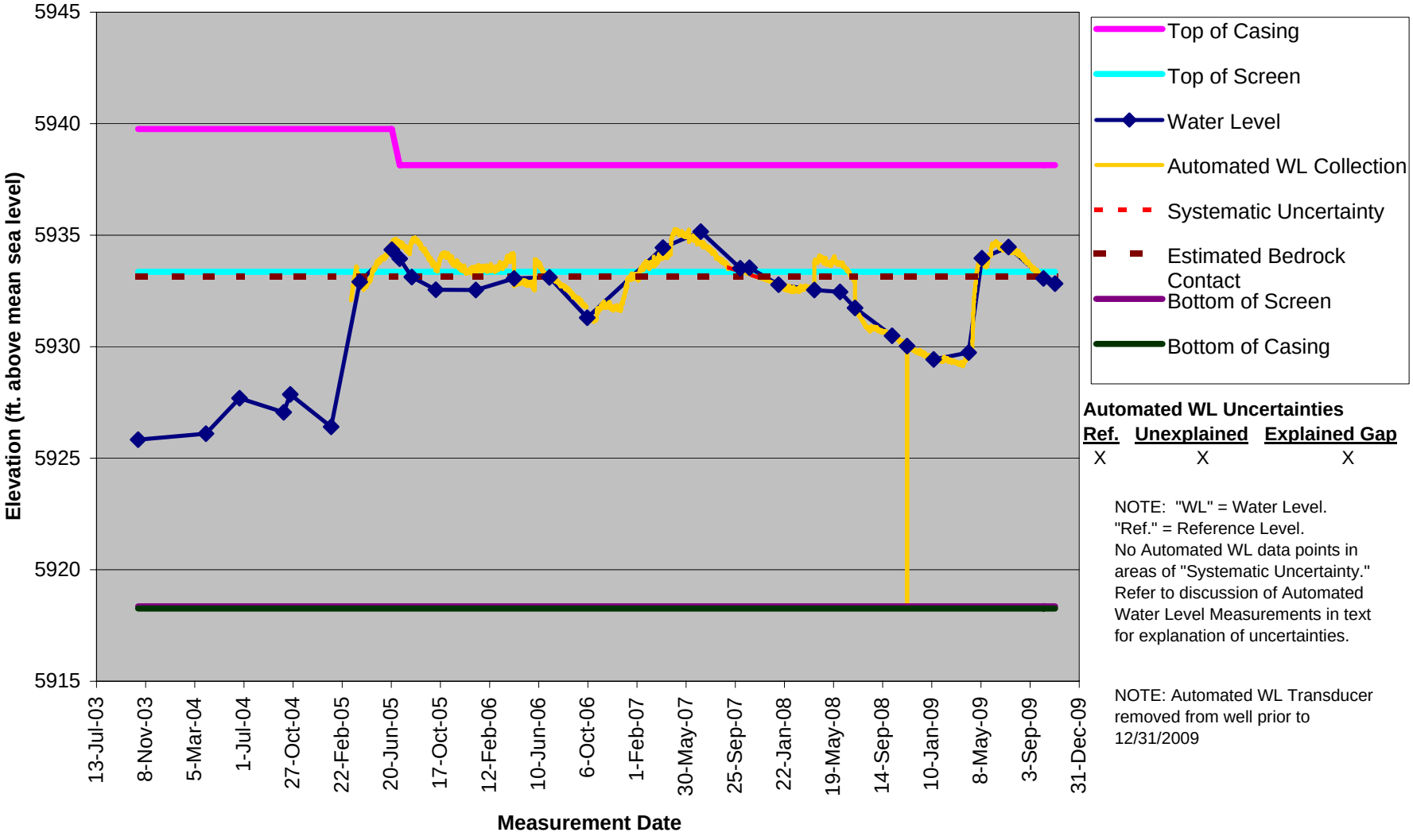


NOTE: "WL" = Water Level.
"Ref." = Reference Level.
Refer to discussion of Automated Water Level Measurements in text for explanation of uncertainties.

NOTE: Automated WL Transducer lost power prior to 12/31/2009

From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)

Automated and Manual Water Level Measurements from Well(s) 91203



Automated WL Uncertainties

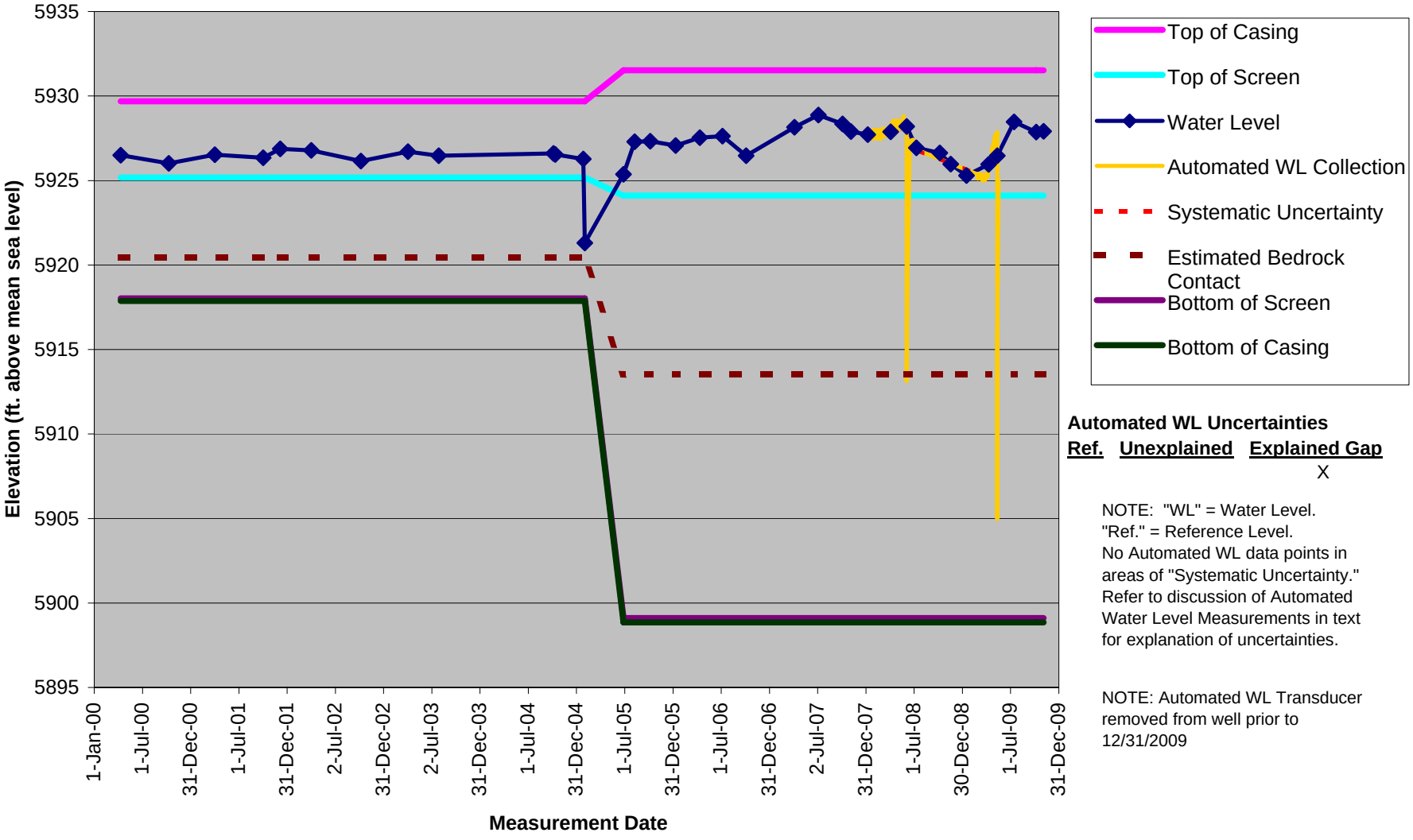
Ref.	Unexplained	Explained Gap
X	X	X

NOTE: "WL" = Water Level.
"Ref." = Reference Level.
No Automated WL data points in areas of "Systematic Uncertainty."
Refer to discussion of Automated Water Level Measurements in text for explanation of uncertainties.

NOTE: Automated WL Transducer removed from well prior to 12/31/2009

From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)

Automated and Manual Water Level Measurements from Well(s) 2187 / 91305



Automated WL Uncertainties

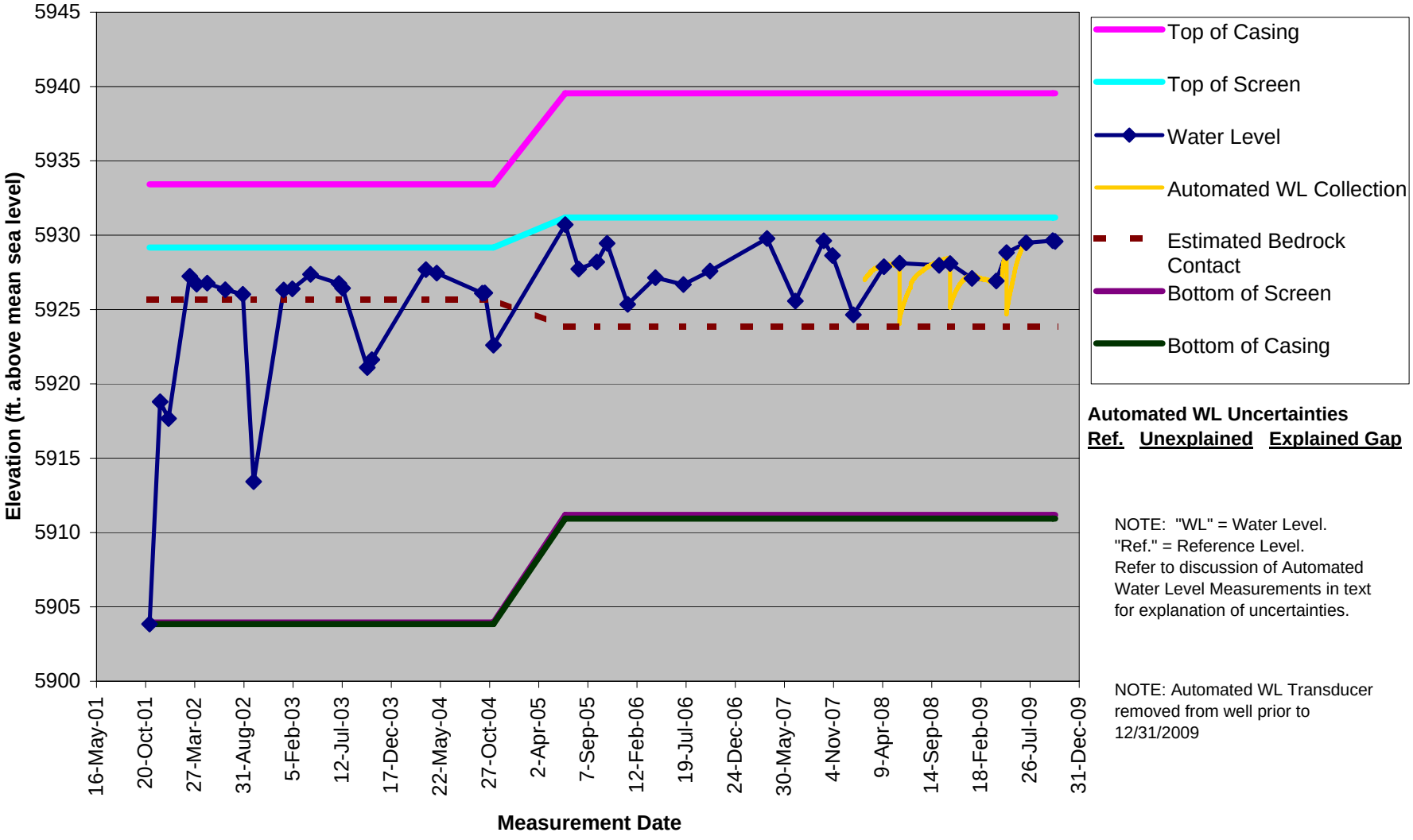
Ref.	Unexplained	Explained Gap
		X

NOTE: "WL" = Water Level.
"Ref." = Reference Level.
No Automated WL data points in areas of "Systematic Uncertainty."
Refer to discussion of Automated Water Level Measurements in text for explanation of uncertainties.

NOTE: Automated WL Transducer removed from well prior to 12/31/2009

From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)

Automated and Manual Water Level Measurements from Well(s) 99301 / 99305



Automated WL Uncertainties

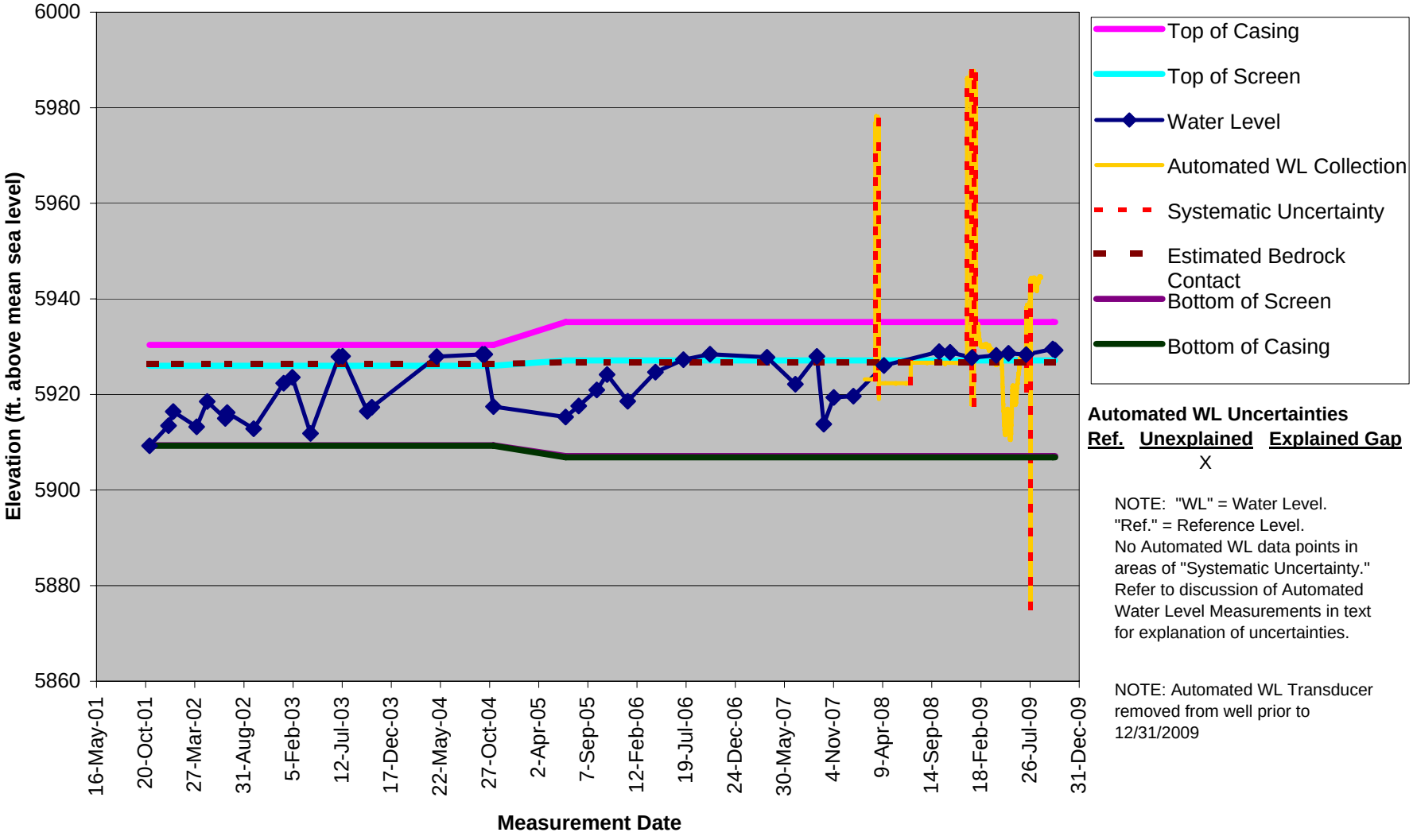
Ref.	Unexplained	Explained Gap

NOTE: "WL" = Water Level.
"Ref." = Reference Level.
Refer to discussion of Automated Water Level Measurements in text for explanation of uncertainties.

NOTE: Automated WL Transducer removed from well prior to 12/31/2009

From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)

Automated and Manual Water Level Measurements from Well(s) 99401 / 99405



Automated WL Uncertainties

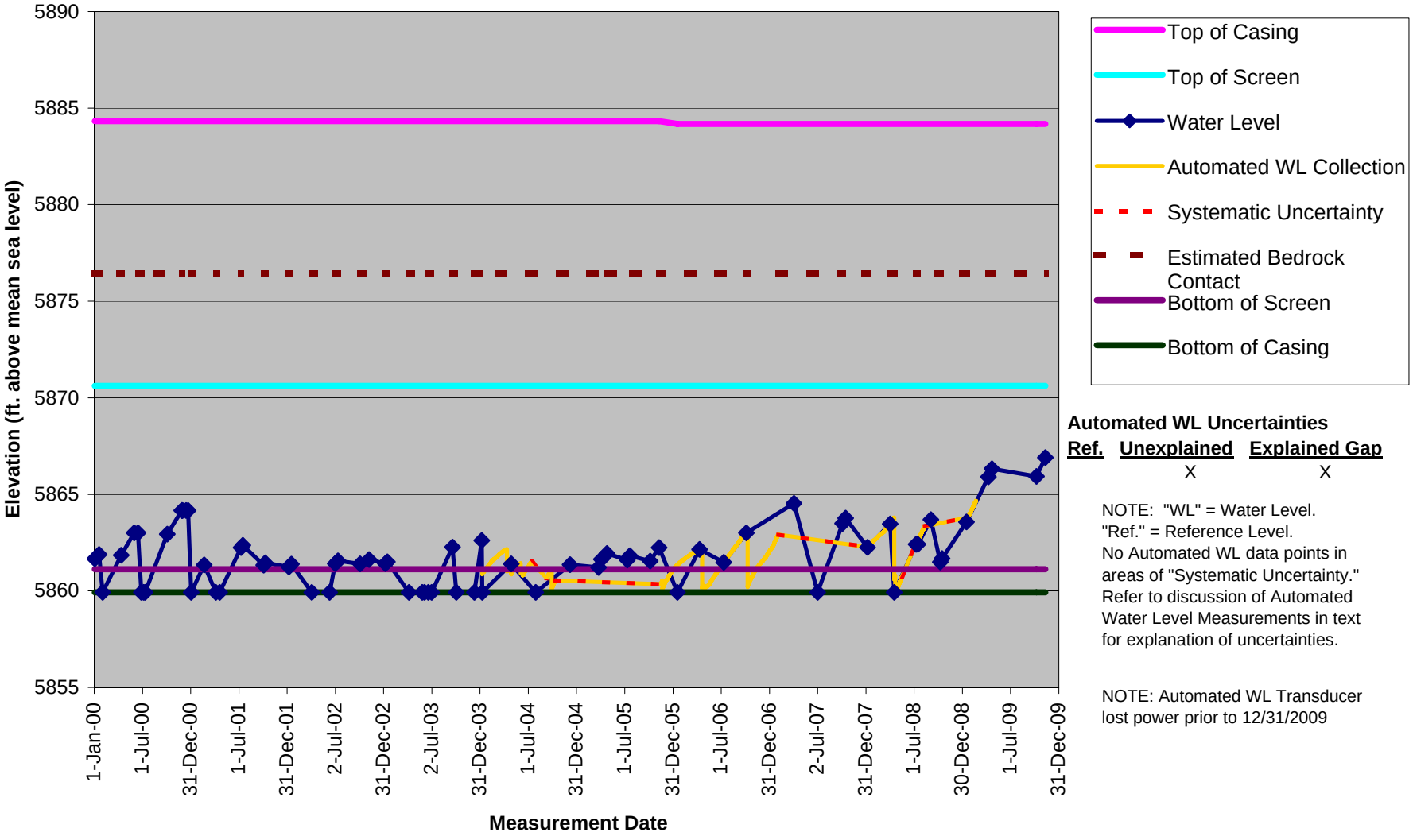
Ref.	Unexplained	Explained Gap
	X	

NOTE: "WL" = Water Level.
"Ref." = Reference Level.
No Automated WL data points in areas of "Systematic Uncertainty."
Refer to discussion of Automated Water Level Measurements in text for explanation of uncertainties.

NOTE: Automated WL Transducer removed from well prior to 12/31/2009

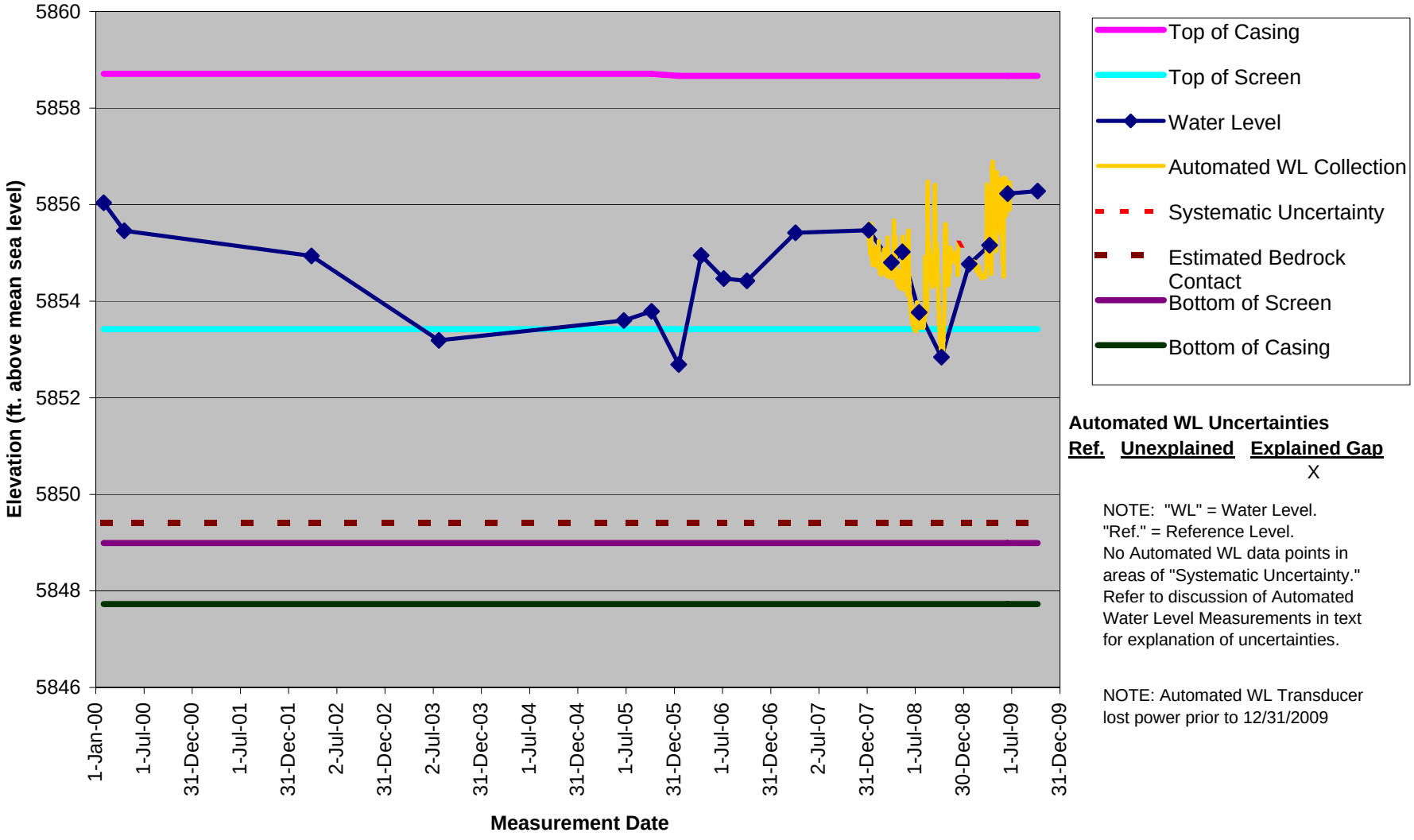
From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)

Automated and Manual Water Level Measurements from Well(s) B206989



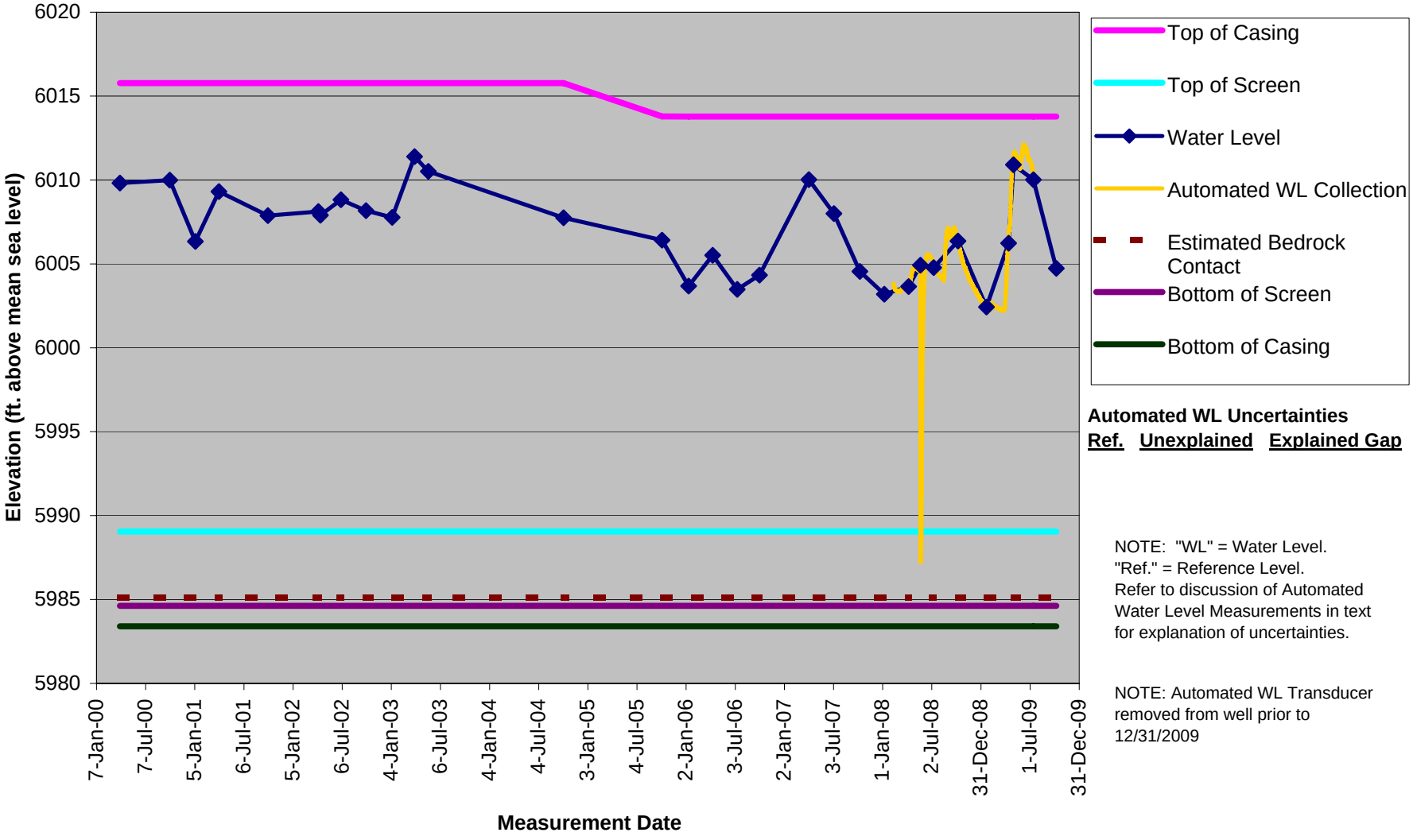
From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)

Automated and Manual Water Level Measurements from Well(s) B210489



From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)

Automated and Manual Water Level Measurements from Well(s) P115589



Automated WL Uncertainties

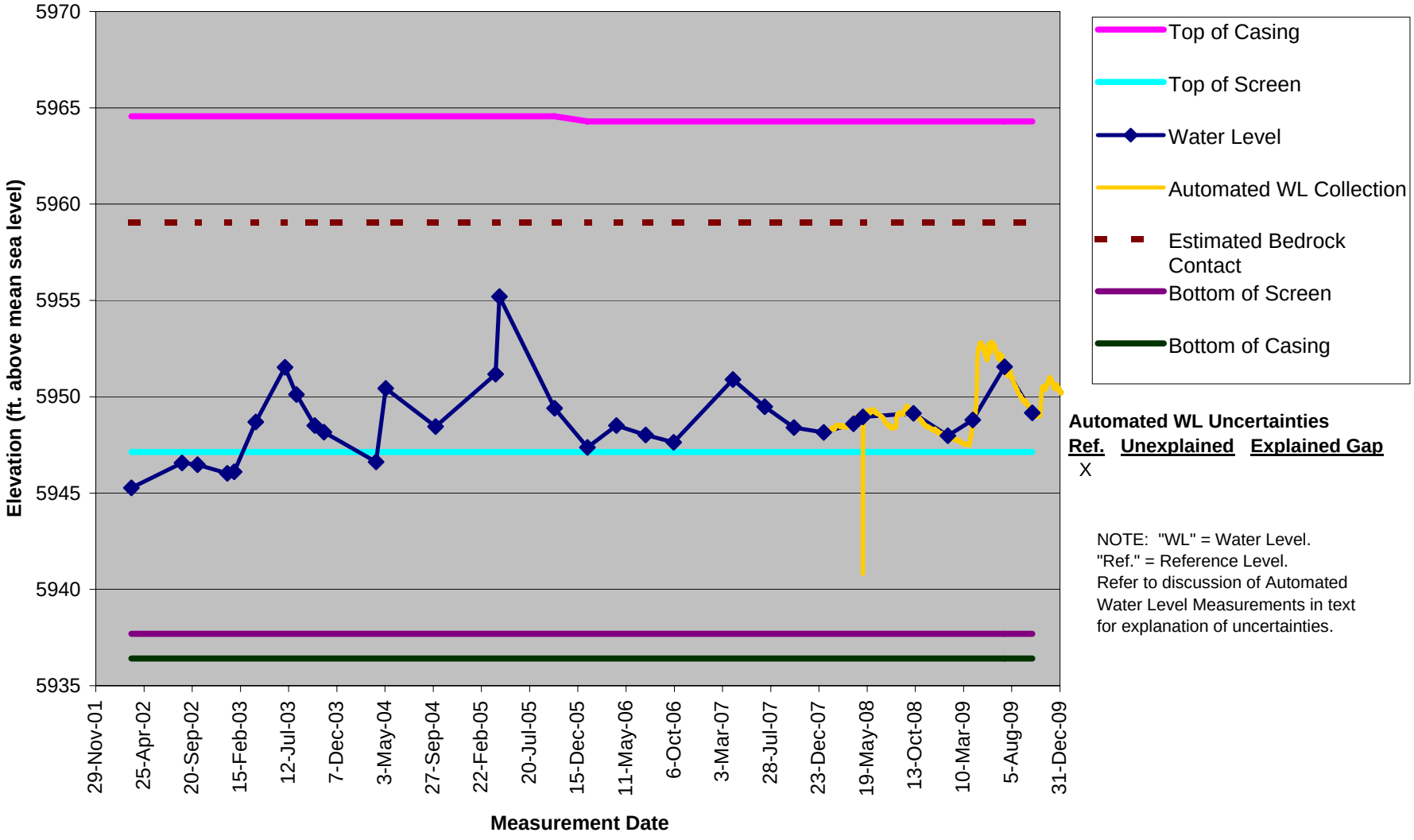
Ref.	Unexplained	Explained Gap

NOTE: "WL" = Water Level.
"Ref." = Reference Level.
Refer to discussion of Automated Water Level Measurements in text for explanation of uncertainties.

NOTE: Automated WL Transducer removed from well prior to 12/31/2009

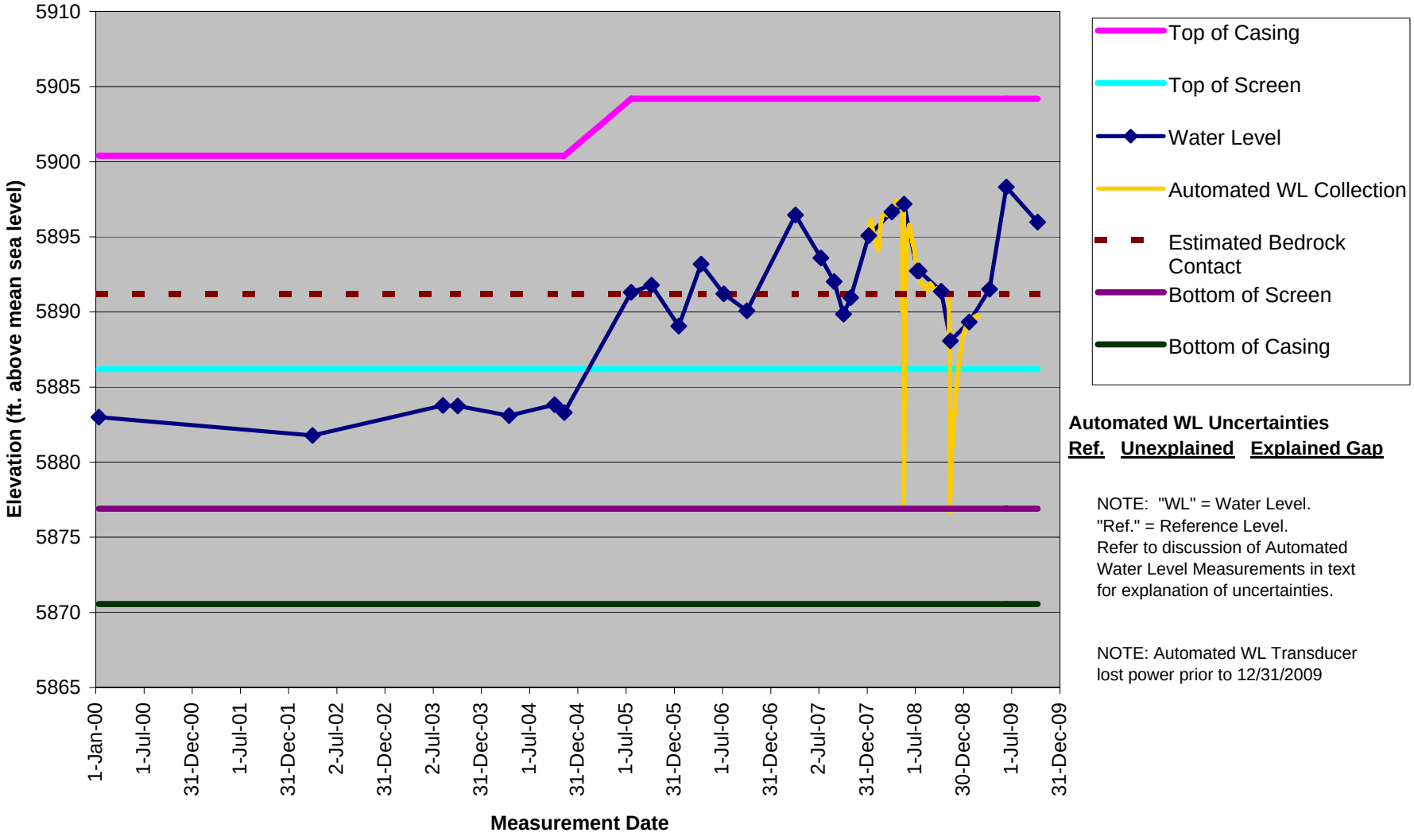
From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)

Automated and Manual Water Level Measurements from Well(s) P208989



From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)

Automated and Manual Water Level Measurements from Well(s) P210089



Automated WL Uncertainties

Ref.	Unexplained	Explained Gap

NOTE: "WL" = Water Level.
"Ref." = Reference Level.
Refer to discussion of Automated Water Level Measurements in text for explanation of uncertainties.

NOTE: Automated WL Transducer lost power prior to 12/31/2009

From: Calendar Year 2009 Annual Report for the Rocky Flats Site, Appendices. (See report text for additional information.)

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