

Table 3-1. Well Information, Composite KLM Horizon 5-Spot Testing

Well ID	Well Type	Completion Zone	Easting, NAD83 (feet)	Northing, NAD83 (feet)	GL Elev (ft amsl)	TOC Elev (ft amsl)	Drilled TD (ft bgs)	Cased Depth (ft bgs)	Casing ID (in)	Screen 1 Interval (ft bgs)	Total Screen Length (feet)
5S-HJ1	Obs. Well	HJ Horizon	2,214,013.36	595,593.04	6,945.32	6,945.83	480	460	4.5	460-480	20
5S-KM3	Recovery Well	KM Horizon	2,213,985.84	595,579.11	6,945.34	6,945.87	540	520	4.5	520-540	20
5S-KM1	Inj/Obs. Well	KM Horizon	2,213,950.03	595,640.32	6,945.65	6,946.20	540	525	4.5	525-545	20
5S-KM2	Inj/Obs. Well	KM Horizon	2,214,046.09	595,609.82	6,945.68	6,946.02	540	520	4.5	520-540	20
M-UKM1	Inj/Obs. Well	KM Horizon	2,214,016.65	595,516.07	6,944.03	6,945.22	550	520	4.5	520-540	20
KPW-1A	Inj/Obs. Well	KM Horizon	2,213,927.10	595,549.83	6,945.49	6,947.58	540	520	5	519-539	20
5S-KM4	Obs. Well	KM Horizon	2,213,954.65	595,562.81	6,944.89	6,945.59	540	520	4.5	520-540	20
KMU-1	Obs. Well	L Horizon	2,214,011.07	595,543.24	6,944.61	6,946.00	740	650	4.5	650-675	25
M-M1	Obs. Well	M Horizon	2,213,988.52	595,525.89	6,943.94	6,945.82	780	750	4.5	750-770	20
5S-N1	Obs. Well	N Horizon	2,213,940.21	595,615.33	6,945.55	6,946.29	900	850	4.5	850-870	20

Table 4-1. Monitoring Equipment Layout, Composite KLM Horizon 5-Spot Testing

Well	Completion Zone	Well Type	Monitoring Equipment *
5S-HJ1	HJ Horizon	Observation	LevelTROLL - 30 psi
5S-KM3	KM Horizon	Pumping	LevelTROLL - 100 psi
5S-KM1	KM Horizon	Observation/Injection	LevelTROLL - 30 psi
5S-KM2	KM Horizon	Observation/Injection	LevelTROLL - 30 psi
M-UKM1	KM Horizon	Observation/Injection	LevelTROLL - 30 psi
KPW-1A	KM Horizon	Observation/Injection	LevelTROLL - 30 psi
5S-KM4	KM Horizon	Observation	LevelTROLL - 30 psi
KMU-1	L Horizon	Observation	LevelTROLL - 30 psi
M-M1	M Horizon	Observation	LevelTROLL - 30 psi
5S-N1	N Horizon	Observation	LevelTROLL - 30 psi

Notes:

- * - Monitoring frequency for all dataloggers during the Extraction Test was 1-minute intervals; during the Injection/Extraction Testing frequency was logarithmic.

**Table 6-1. Pumping Rate Data,
5S-KM3 Extraction Test**

5S-KM3 Extraction Test											
Date/Time	Total Time (min)	Interval Time (min)	Totalizer 1 (gal)	T1 Rate (gpm)	Totalizer 2 (gal)	T2 Rate (gpm)	Interval Gallons, T1	Interval Gallons, T2	Calculated Rate, T1	Calculated Rate, T2	Notes
10/5/12 14:00	0	0	0	0	0	0	0	0	0	0	BEGIN Test, 5S-KM3
10/5/12 14:15	15	15	413	29	400	28	413	400	28	27	
10/5/12 14:35	35	20	969	28	951	27	556	551	28	28	
10/5/12 14:52	52	17	1,507	29	1,466	28	538	515	32	30	
10/5/12 15:25	85	33	2,417	29	2,550	28	910	1,084	28	33	
10/6/12 13:59	1439	1354	40,846	28	39,796	27	38,429	37,246	28	28	Flow from pumping well increased slightly from 28 to 29 on T1.
10/6/12 14:42	1482	43	42,098	29	41,019	28	1,252	1,223	29	28	
10/6/12 17:32	1652	170	47,007	29	45,815	28	4,909	4,796	29	28	
10/7/12 11:32	2732	1080	80,175	29	78,234	28	33,168	32,419	31	30	
10/8/12 7:03	3903	1171	112,387	29	109,728	28	32,212	31,494	28	27	
10/8/12 14:15	4335	432	124,916	29	121,987	28	12,529	12,259	29	28	
10/8/12 16:02	4442	107	128,021	29	125,008	28	3,105	3,021	29	28	
10/8/12 16:30	4470	28	128,841	29	125,815	28	820	807	29	29	
10/8/12 16:31	4471	1	128,852	29	125,826	28	11	11	11	11	Pump was turned off at 16:31 on 10/8/2012

5S-KM3 Extraction Test		
T2 Cumulative Average Rate before rate bump at 1,439 minutes	27.7	gpm
T1 Cumulative Average Rate before rate bump at 1,439 minutes	28.4	gpm
Combined average rate, 0 to 1,439 minutes	28.0	gpm
T2 Cumulative Average Rate, after 1,439 min to end of test	28.4	gpm
T1 Cumulative Average Rate after 1,439 min to end of test	29.0	gpm
Combined average rate, 1,439 minutes to end of test	28.7	gpm
Combined Average Rate, Entire Test	28.5	gpm
Total Minutes	4,471	min

Notes:

Totalizers 1 & 2 - 1.5" turbine flow meter (Turbines Incorporated, FW Series)

**Table 6-2. Observed Drawdown at Shut-In,
5S-KM3 Extraction Test**

Well	Monitored Zone	Distance from Pumping Well (ft)	Ext. Test Drawdown at Shut-in (ft)
5S-KM3	KM Horizon, Pumping Well	—	116.2
5S-KM1	KM Horizon	71	29.4
5S-KM2	KM Horizon	68	37.2
5S-KM4	KM Horizon	35	30.3
KPW-1A	KM Horizon	66	23.2
M-UKM1	KM Horizon	70	61.2
KMU-1	L Horizon	44	6.1
M-M1	M Horizon	53	1.1
5S-HJ1	HJ Horizon	31	0.1 (No Response)
5S-N1	N Horizon	58	-0.1 (No Response)

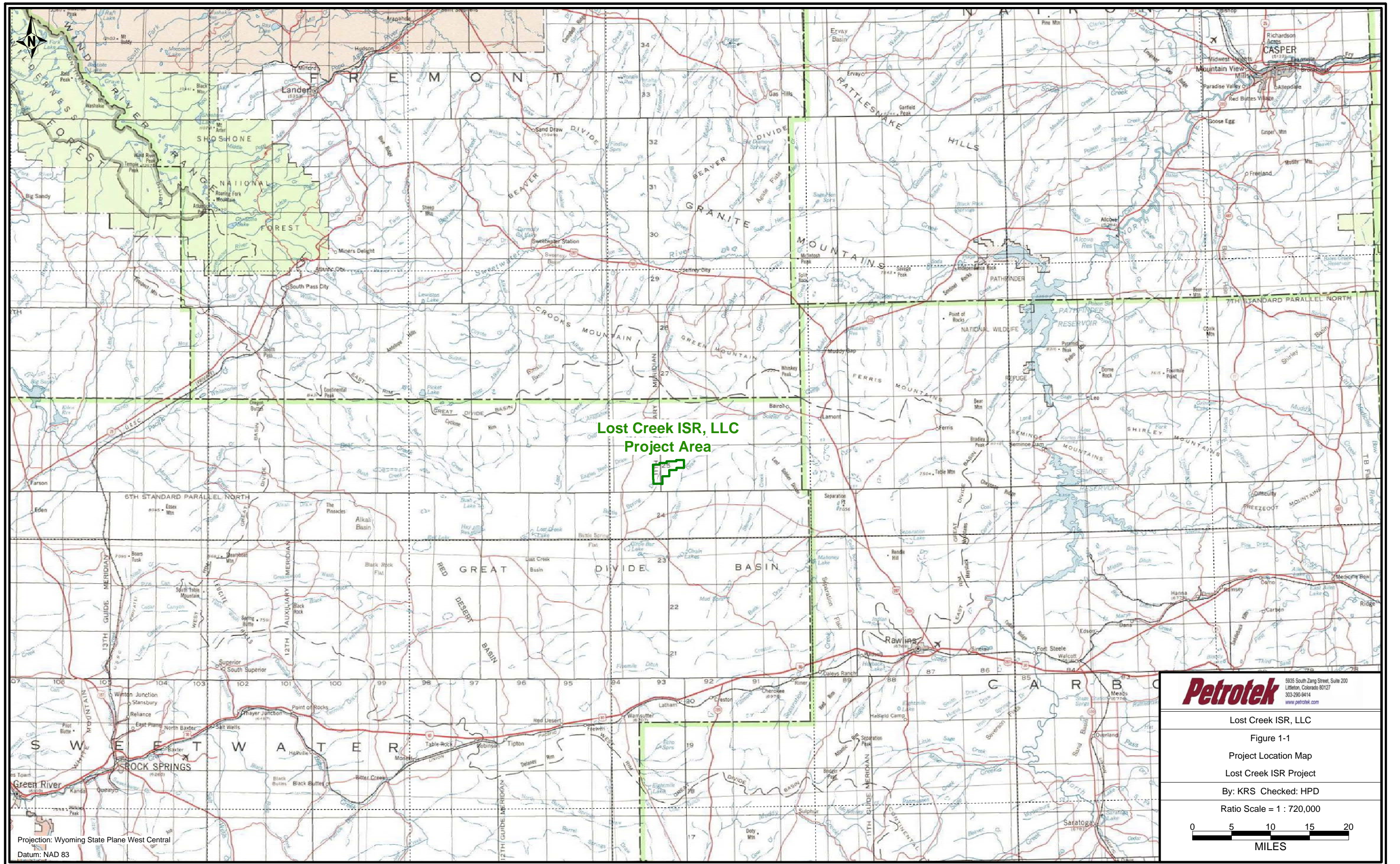
Table 6-3. Pumping and Injection Rate Data, Injection/Extraction Tests

Date & Time	Elapsed Time (min)	SS-KM3 Extraction Well, Totalizer 1			SS-KM3 Extraction Well, Totalizer 2			SS-KM2 Injection Well			M-UKM1 Injection Well			SS-KM1 Injection Well			Comments	
		MCII Totalizer, T1 (gal)	T1 Instant. Rate (gpm)	T1 Calc. Rate (gpm)	GPI Totalizer, T2 (gal)	T2 Instant. Rate (gpm)	T2 Calc. Rate (gpm)	SSKM-2 Totalizer	SSKM-2 Instant. Rate (gpm)	SSKM-2 Calc. Rate (gpm)	M-UKM1 Totalizer	M-UKM1 Instant. Rate (gpm)	M-UKM1 Calc. Rate (gpm)	SSKM-1 Totalizer	SSKM-1 Instant. Rate (gpm)	SSKM-1 Calc. Rate (gpm)		
Start Inj/Ext Test #1																		
10/19/2012 11:00	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	Adjusted M-UKM1, SS-KM1 & SS-KM2 to 4 gpm each	
10/19/2012 11:32	32	370	10.9	11.6	383	11.2	12.0	129	3.9	4.0	127	3.8	4.0	128	3.9	4.0		
10/19/2012 13:55	175	1,919	10.8	10.8	1,970	11.1	11.1	679	3.8	3.8	669	3.8	3.8	679	3.8	3.9		
10/19/2012 18:30	450	4,866	10.7	10.7	5,005	11.0	11.0	1,721	3.8	3.8	1,698	3.7	3.7	1,731	3.9	3.8		
10/20/2012 7:45	1,245	13,316	10.6	10.6	13,711	10.9	11.0	4,711	3.7	3.8	4,619	3.6	3.7	4,787	3.8	3.8		
10/20/2012 8:30	1,290	13,804	11.4	10.8	14,215	11.8	11.2	4,883	4.0	3.8	4,795	4.0	3.9	4,960	4.0	3.8		
10/20/2012 11:00	1,440	15,540	11.5	11.6	15,960	11.8	11.6	5,472	4.0	3.9	5,399	4.0	4.0	5,548	4.0	3.9		
End Inj/Ext Test #1																		
Total Time (min) =		SS-KM3 (Ext) Avg Calc. Rate, T1 (gpm) =			SS-KM3 (Ext) Avg Calc. Rate, T2 (gpm) =			SS-KM2 (Inj) Avg. Calc. Inj. Rate (gpm) =			M-UKM1 (Inj) Avg. Calc. Inj. Rate (gpm) =			SS-KM1 (Inj) Avg. Calc. Inj. Rate (gpm) =			Shut-in M-UKM1 and bump rates for SS-KM1 and SS-KM2 for next test #2	
End Inj/Ext Test #1																		
Total Extracted Volume, Average of Totalizers (gal) =		15,750																
Start Inj/Ext Test #2																		
10/20/2012 12:20	1,520	17,281	22.3	21.8	17,790	22.9	22.9	6,477	12.5	12.6	5,399	0.0	0.0	6,550	12.4	12.5	Shut-in all wells. END Injection/Extraction Tests	
10/20/2012 17:15	1,815	23,839	22.2	22.2	24,548	22.9	22.9	10,140	12.5	12.4	5,399	0.0	0.0	10,229	12.5	12.5		
10/21/2012 8:10	2,710	43,727	22.2	22.2	45,044	22.9	22.9	21,251	12.5	12.4	5,399	0.0	0.0	21,409	12.5	12.5		
10/21/2012 14:20	3,080	51,955	22.2	22.2	53,525	22.9	22.9	25,860	12.5	12.5	5,399	0.0	0.0	26,024	12.5	12.5		
10/22/2012 8:33	4,173	76,223	22.2	22.2	78,543	22.9	22.9	39,424	12.5	12.4	5,399	0.0	0.0	39,648	12.5	12.5		
10/22/2012 14:24	4,524	84,025	22.2	22.2	86,590	22.9	22.9	43,788	12.5	12.4	5,399	0.0	0.0	44,029	12.5	12.5		
10/23/2012 7:40	5,560	107,070	22.2	22.2	110,308	22.9	22.9	56,650	12.5	12.4	5,399	0.0	0.0	56,948	12.4	12.5		
10/23/2012 11:05	5,765	111,567	22.2	21.9	114,990	22.9	22.8	59,181	12.5	12.3	5,399	0.0	0.0	59,494	12.5	12.4		
End Inj/Ext Test #2																		
Total Time (min) =		SS-KM3 (Ext) Avg Calc. Rate, T1 (gpm) =			SS-KM3 (Ext) Avg Calc. Rate, T2 (gpm) =			SS-KM2 (Inj) Avg. Calc. Inj. Rate (gpm) =			M-UKM1 (Inj) Avg. Calc. Inj. Rate (gpm) =			SS-KM1 (Inj) Avg. Calc. Inj. Rate (gpm) =				
End Inj/Ext Test #2																		
Total Extracted Volume, Average of Totalizers (gal) =		97,529																

Table 7-1. Analytical Results, 5S-KM3 Extraction Test

Well	Well Type	Hantush-Jacob		Calculated Hydraulic Conductivity (ft/d)
		Transmissivity (ft ² /d)	Storativity	
5S-KM3	Pumping Well - KM Horizon	—	—	—
5S-KM1	Observation Well - KM Horizon	115	1.2E-04	1.0
5S-KM2	Observation Well - KM Horizon	97	4.7E-05	0.8
5S-KM4	Observation Well - KM Horizon	131	3.3E-04	1.1
KPW-1A	Observation Well - KM Horizon	132	3.5E-04	1.1
M-UKM1	Observation Well - KM Horizon	80	1.3E-06*	0.7
Average		111	2.1E-04	1.0

* - S Values for M-UKM1 not included in average calculation.



Projection: Wyoming State Plane West Central
Datum: NAD 83

Petrotek
5935 South Zang Street, Suite 200
Littleton, Colorado 80127
303-290-9414
www.petrotek.com

Lost Creek ISR, LLC

Figure 1-1

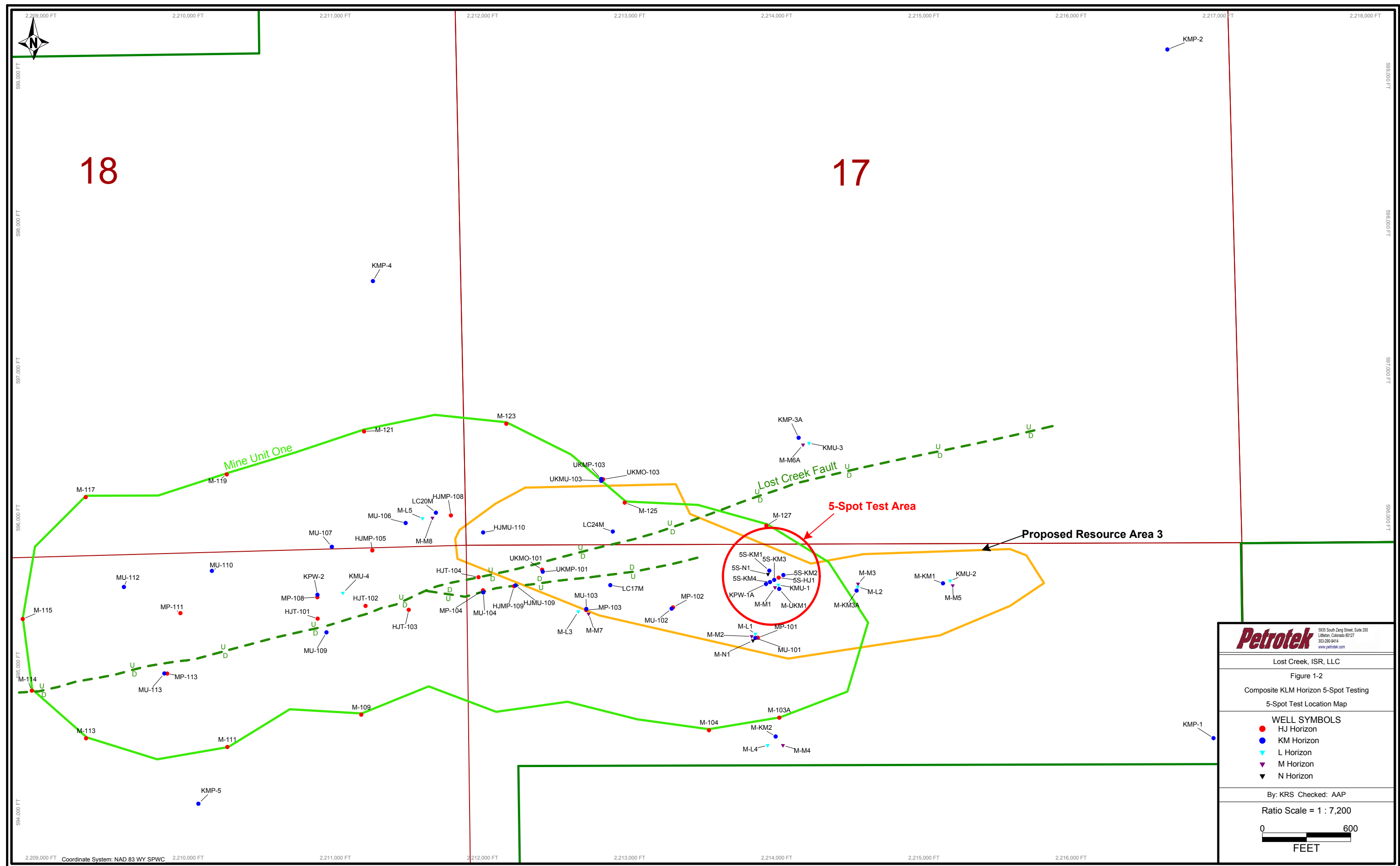
Project Location Map

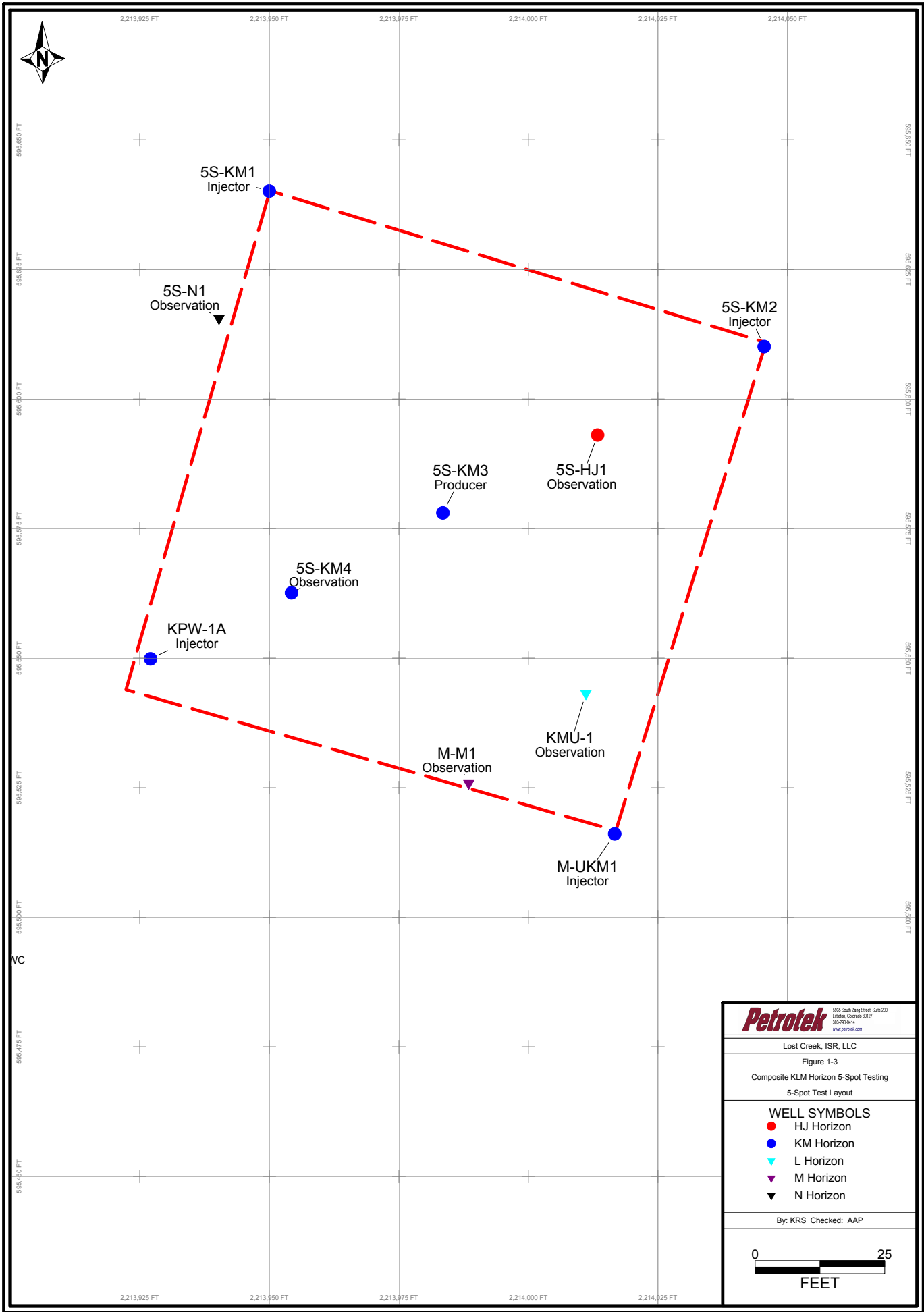
Lost Creek ISR Project

By: KRS Checked: HPD

Ratio Scale = 1 : 720,000

0 5 10 15 20
MILES





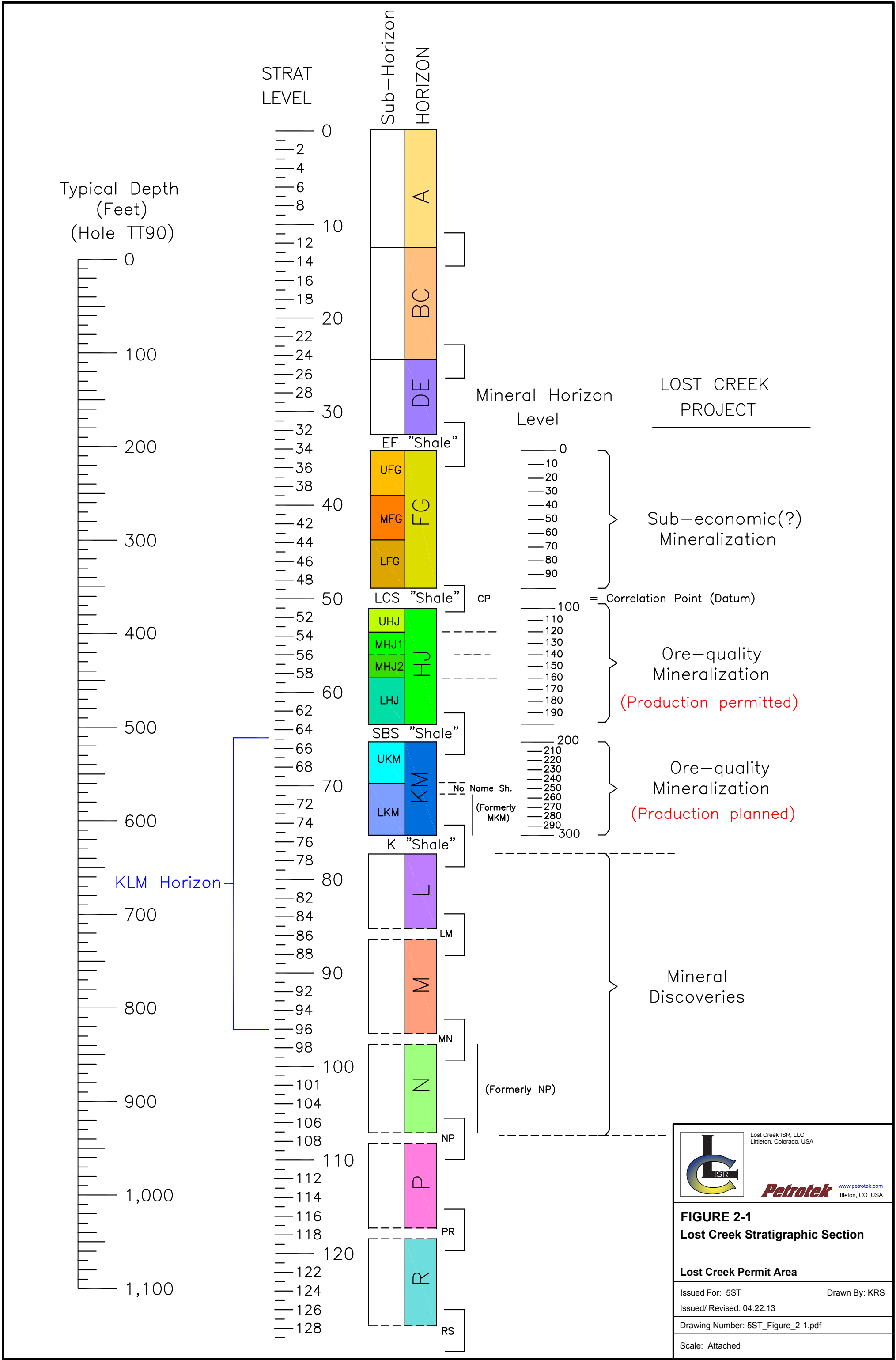


Figure 6-1. KM Horizon Production Zone of the Composite KLM Horizon, Water Levels vs. Pumping Well
5S-KM3 Extraction Test

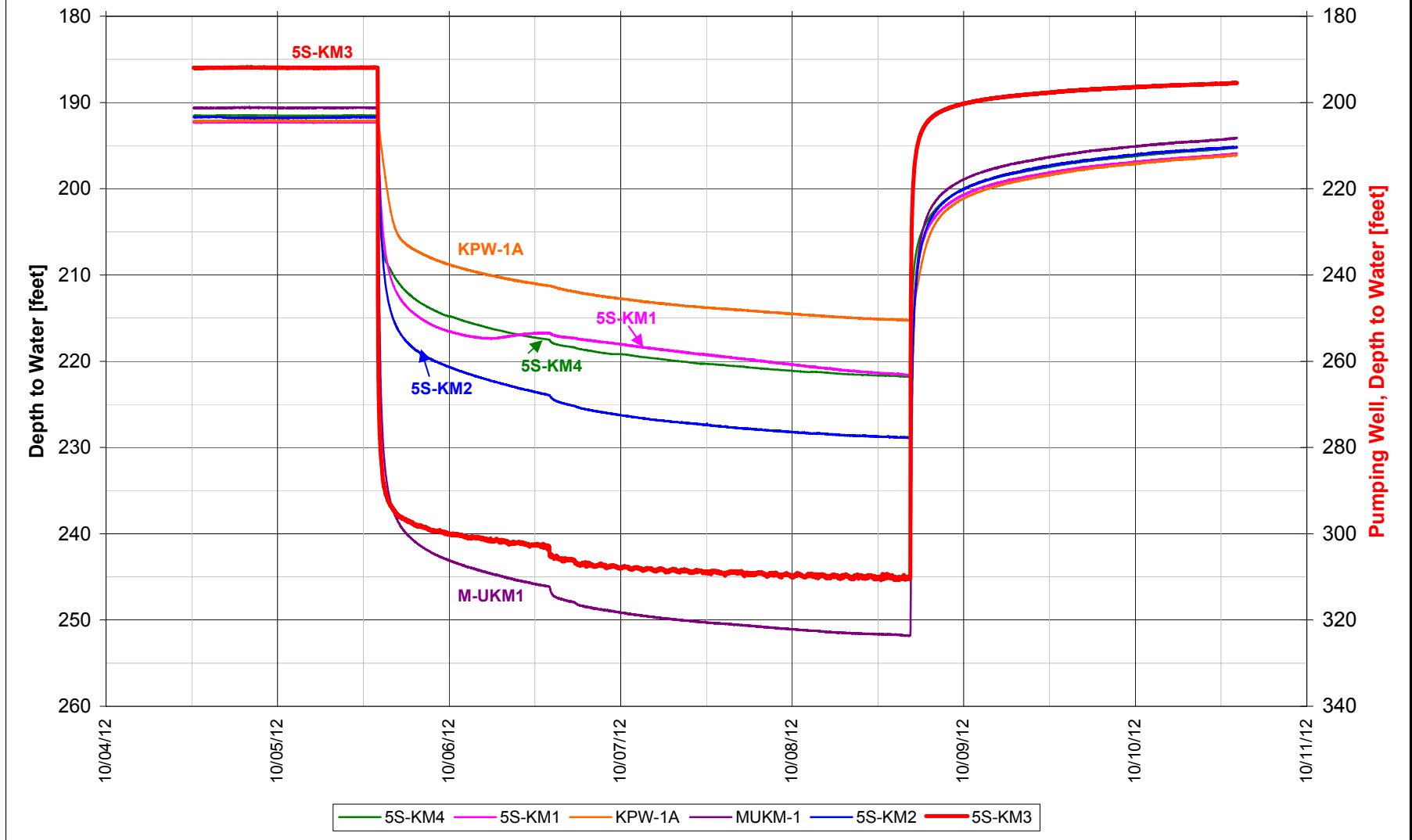


Figure 6-2. L and M Horizons of the Composite KLM Horizon, Water Levels vs. Pumping Well
5S-KM3 Extraction Test

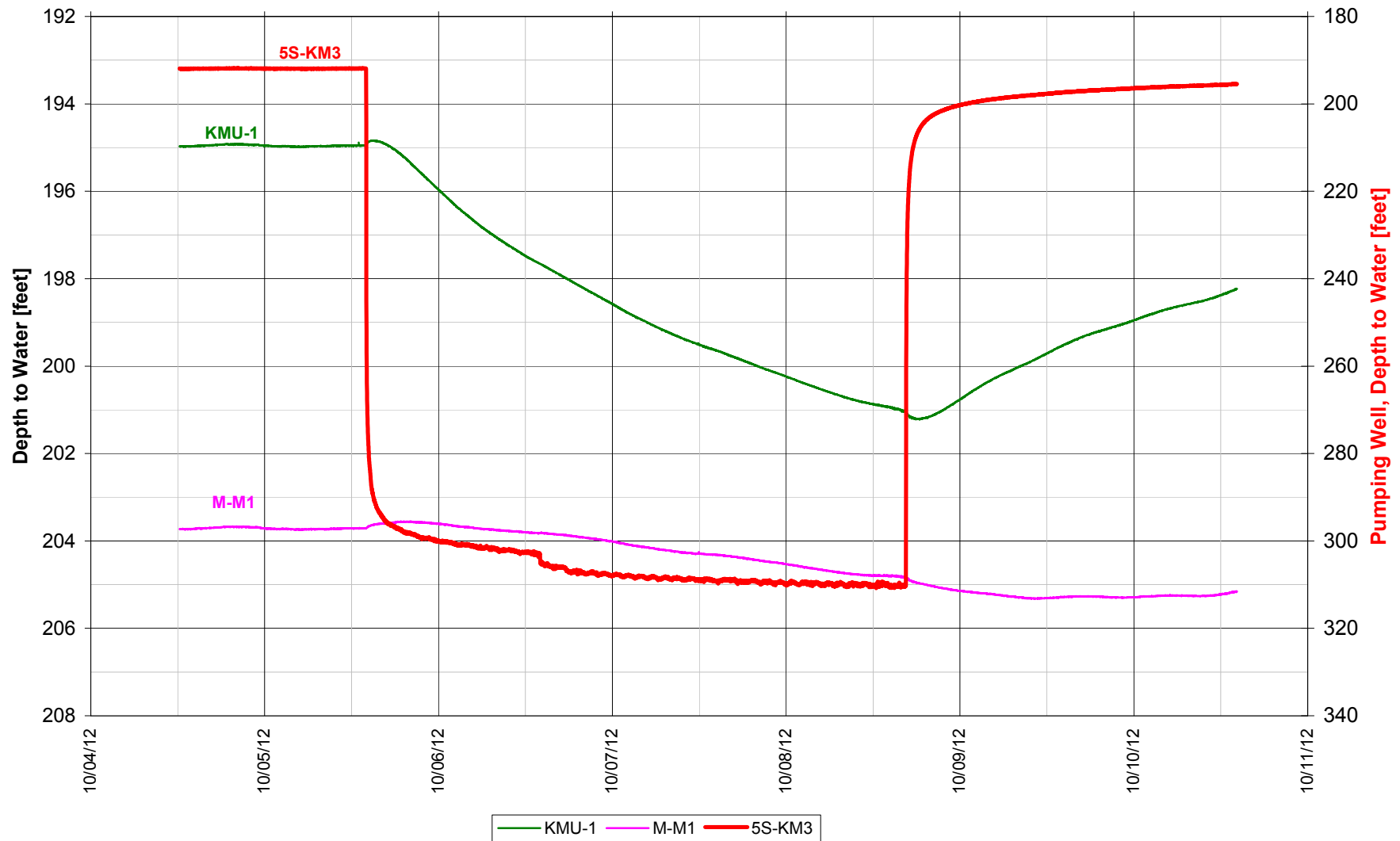


Figure 6-3. Overlying HJ Horizon Water Level vs. Pumping Well
5S-KM3 Extraction Test

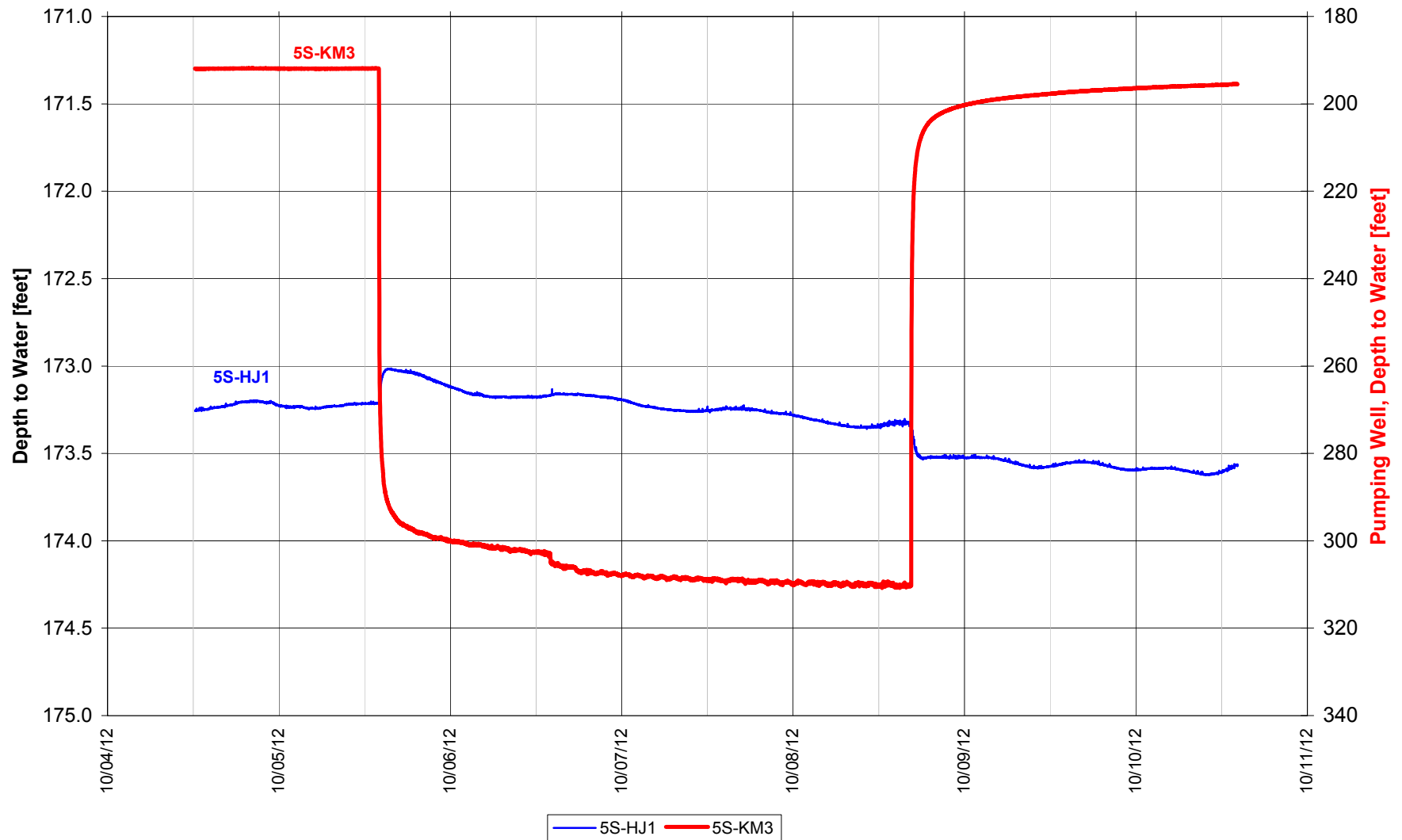


Figure 6-4. N Horizon Water Level vs. Pumping Well
5S-KM3 Extraction Test

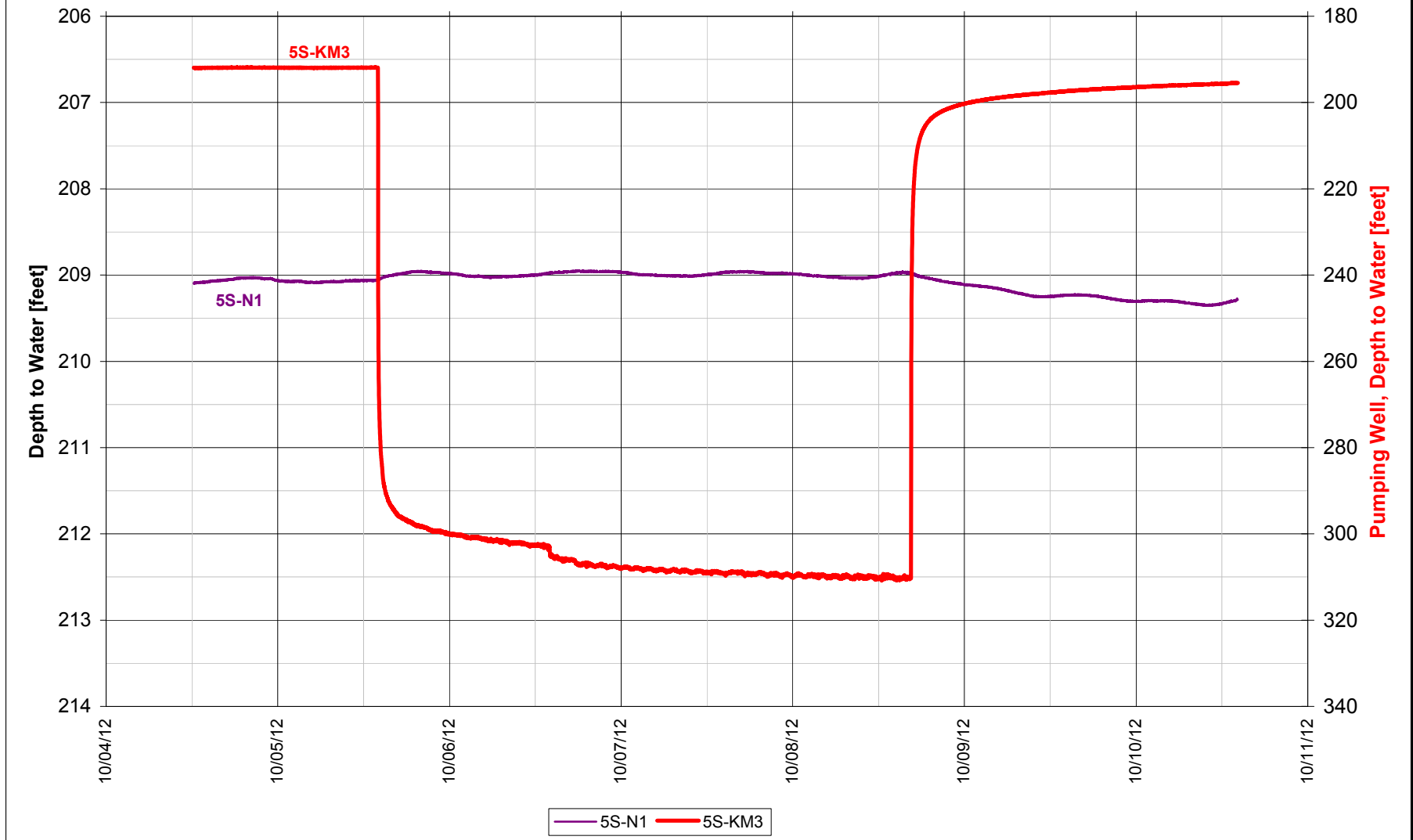


Figure 6-5. KM Horizon Production Zone of the Composite KLM Horizon, Pre-Test Background Monitoring Prior to Injection/Extraction Testing

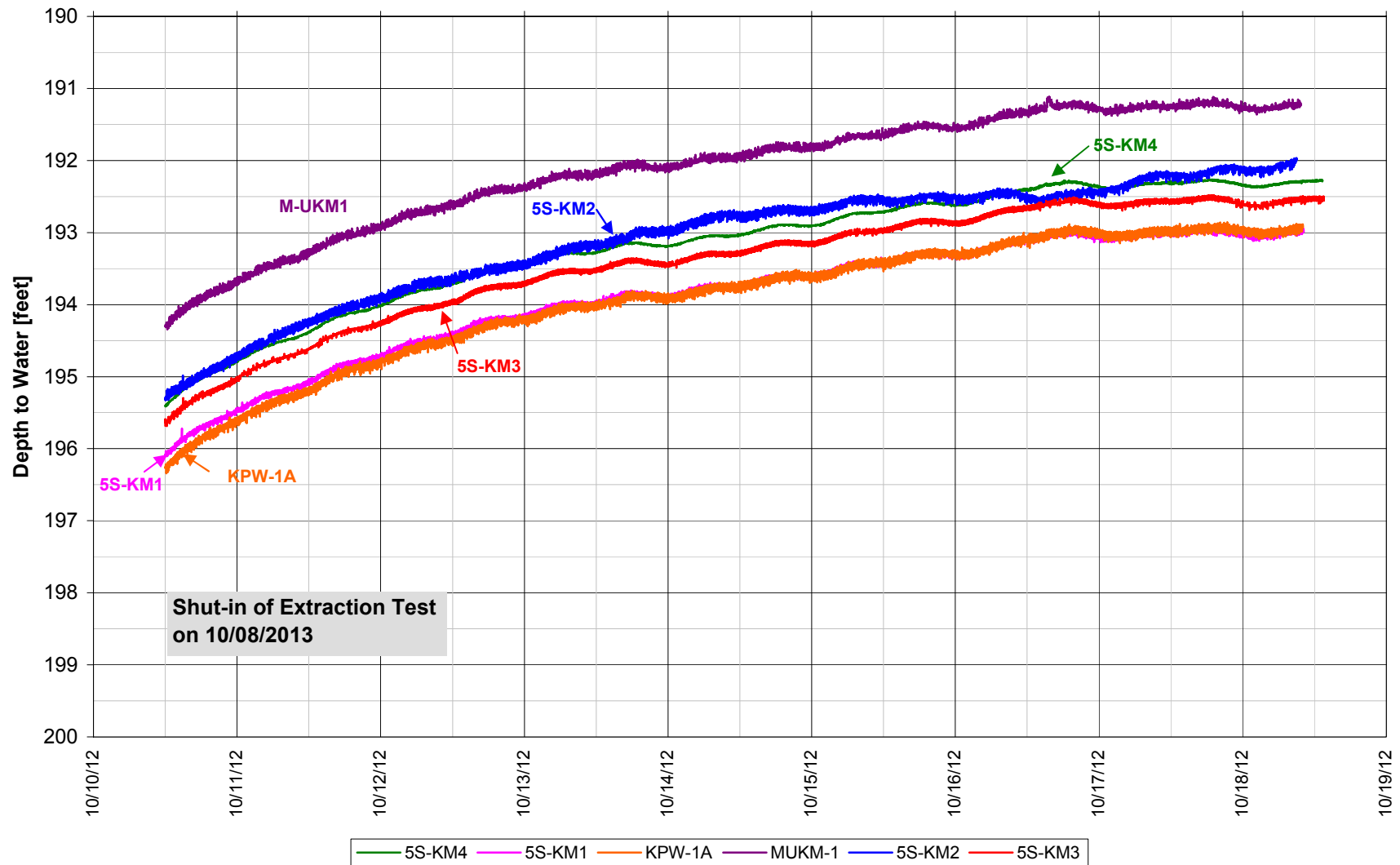


Figure 6-6. L and M Horizons of the Composite KLM Horizon, Pre-Test Background Monitoring Prior to Injection/Extraction Testing

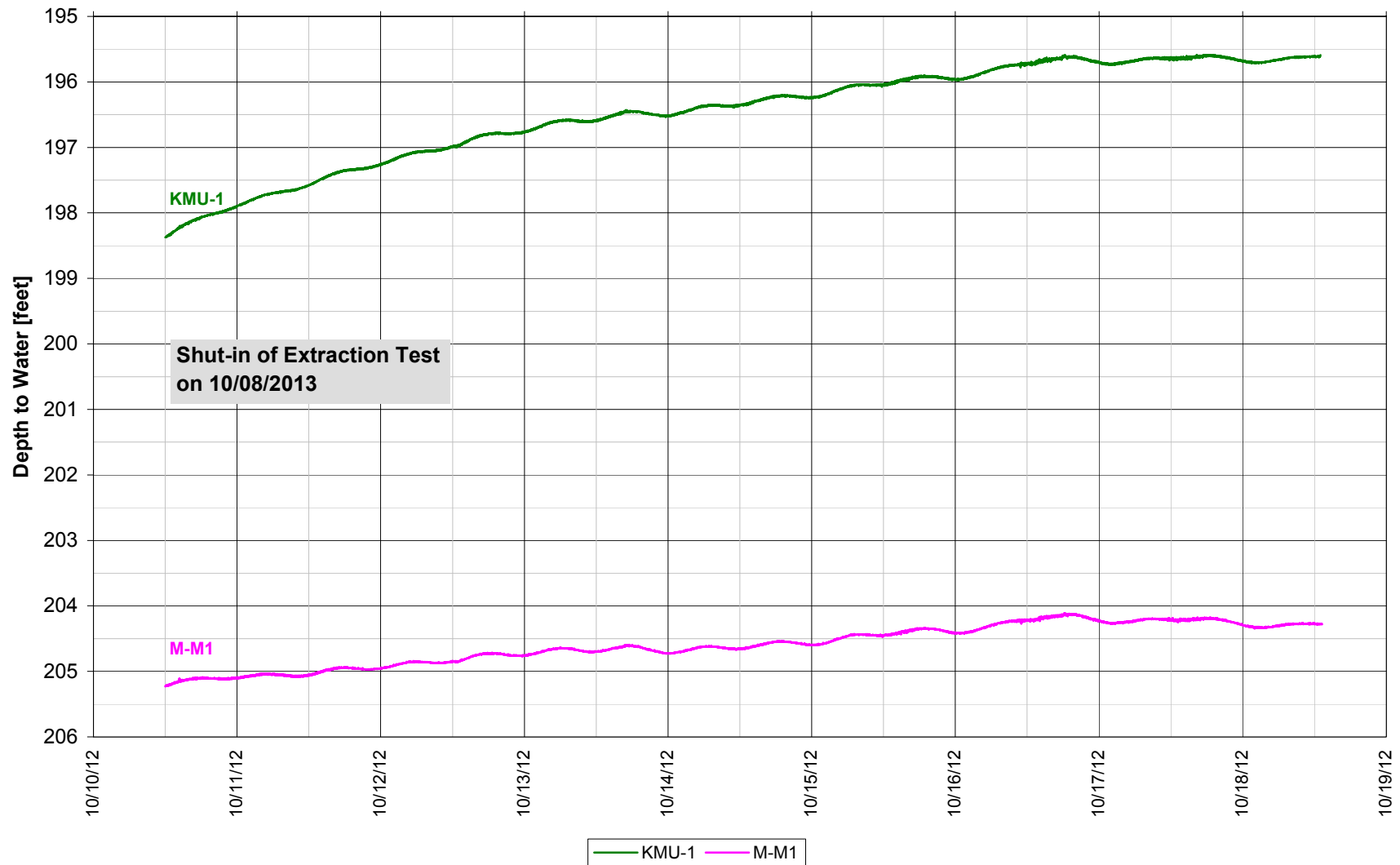


Figure 6-7. Overlying HJ Horizon Pre-Test Background Monitoring Prior to Injection/Extraction Testing

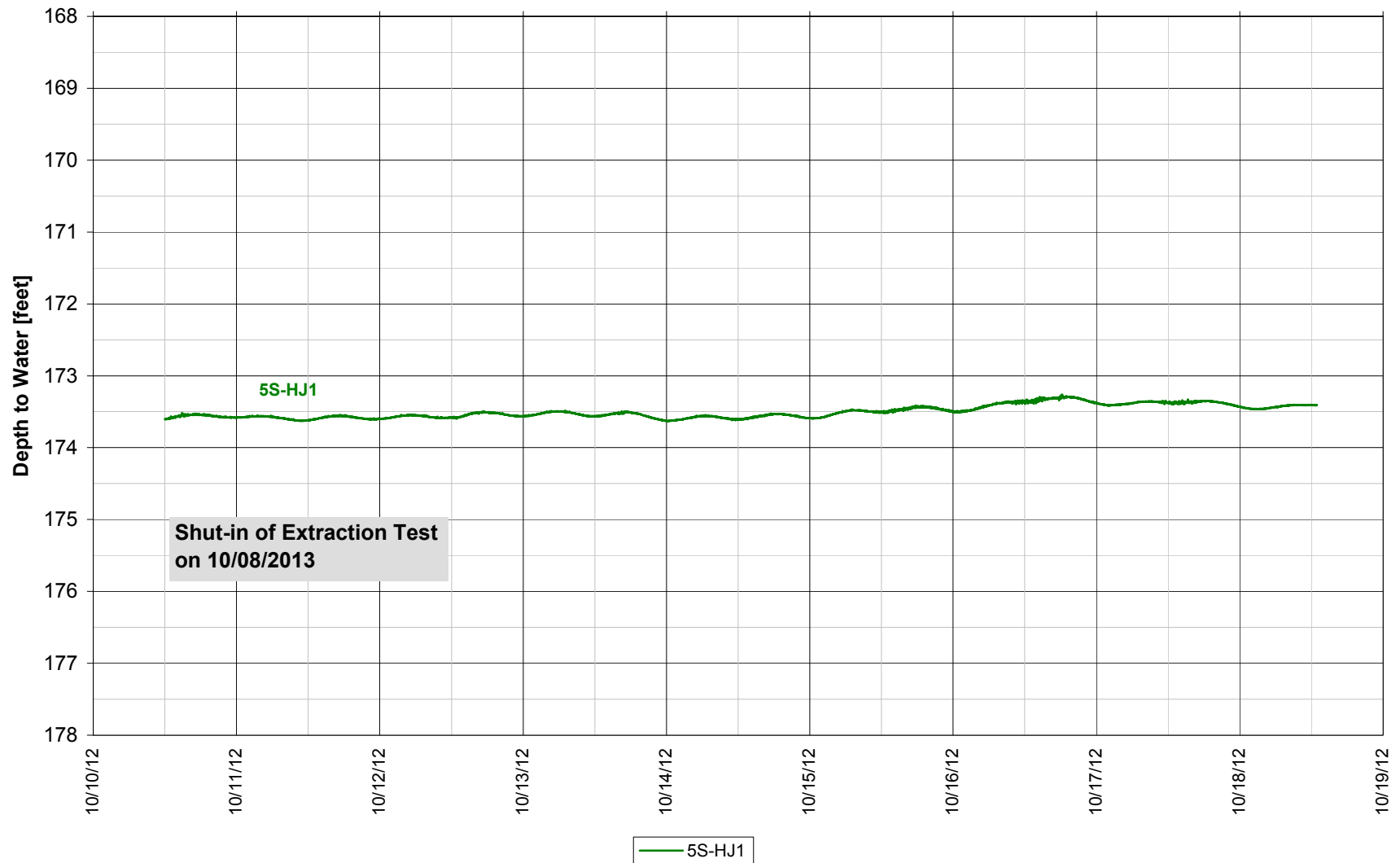


Figure 6-8. N Horizon Pre-Test Background Monitoring Prior to Injection/Extraction Testing

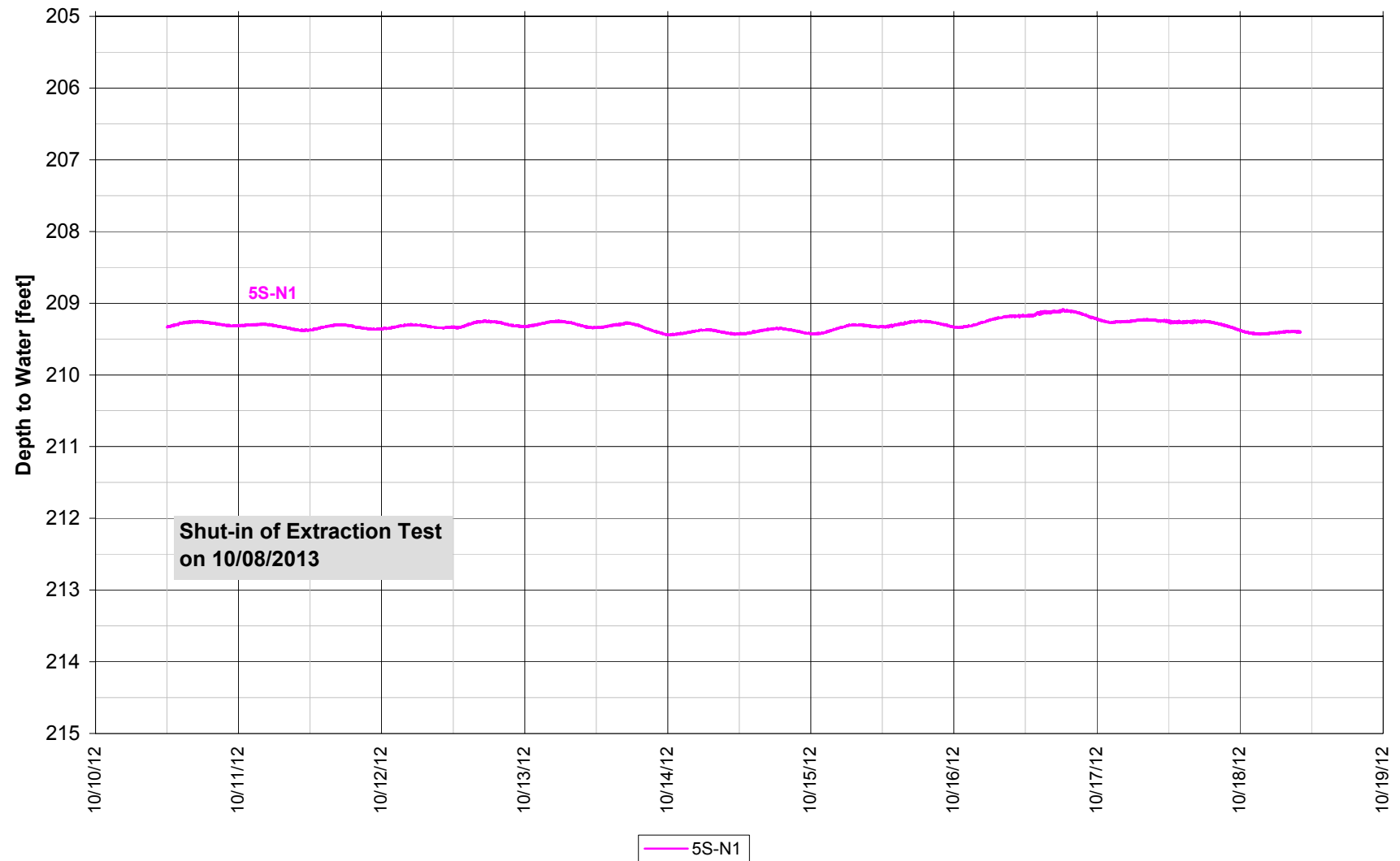


Figure 6-9. KM Horizon Production Zone of the Composite KLM Horizon, Water Levels vs. Pumping Well, Injection Wells 5S-KM1, 5S-KM2, and Observation Well 5S-KM4

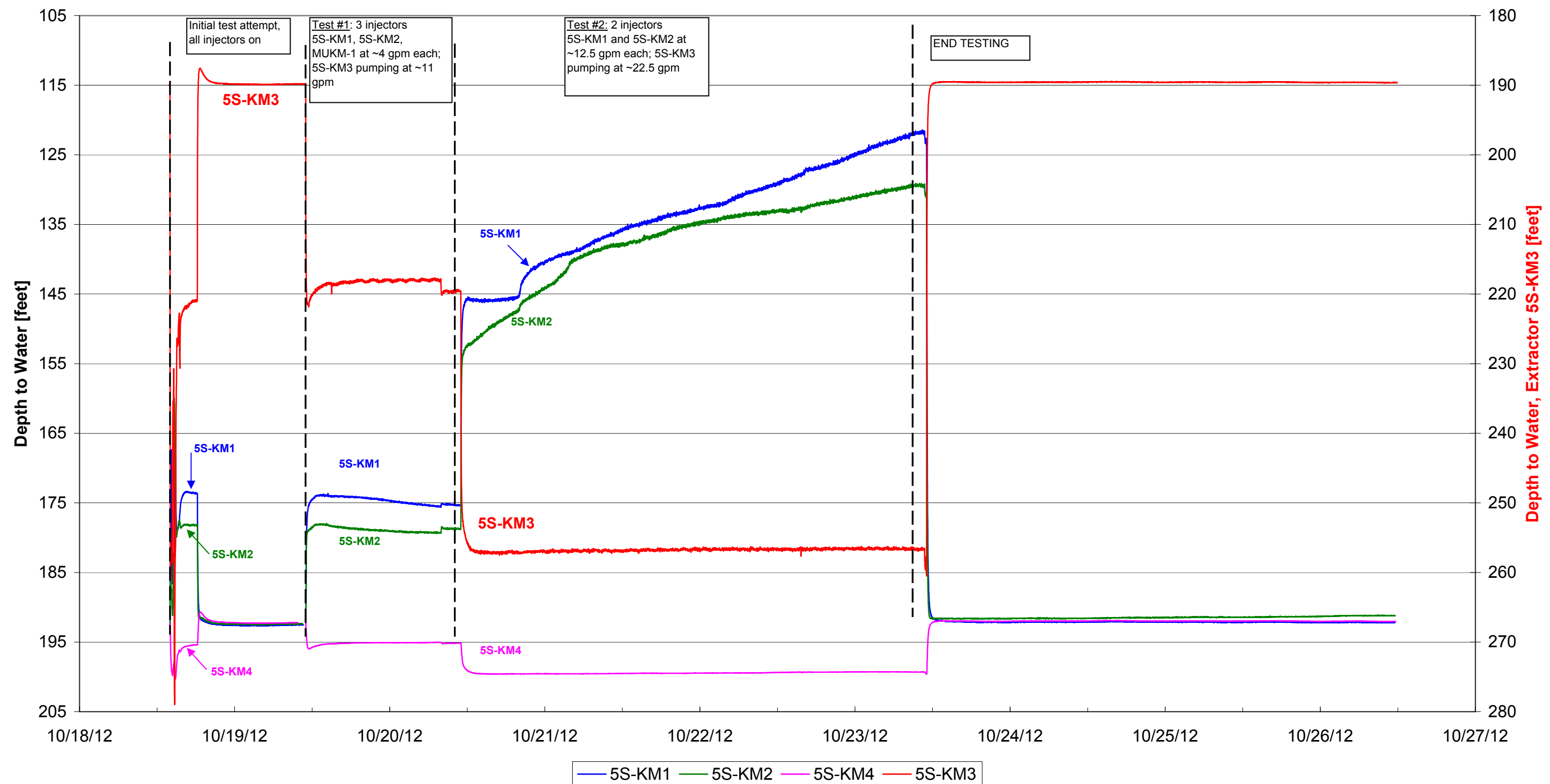


Figure 6-10. KM Horizon Production Zone of the Composite KLM Horizon, Water Levels vs. Pumping Well, Injection Wells KPW-1A and M-UKM1

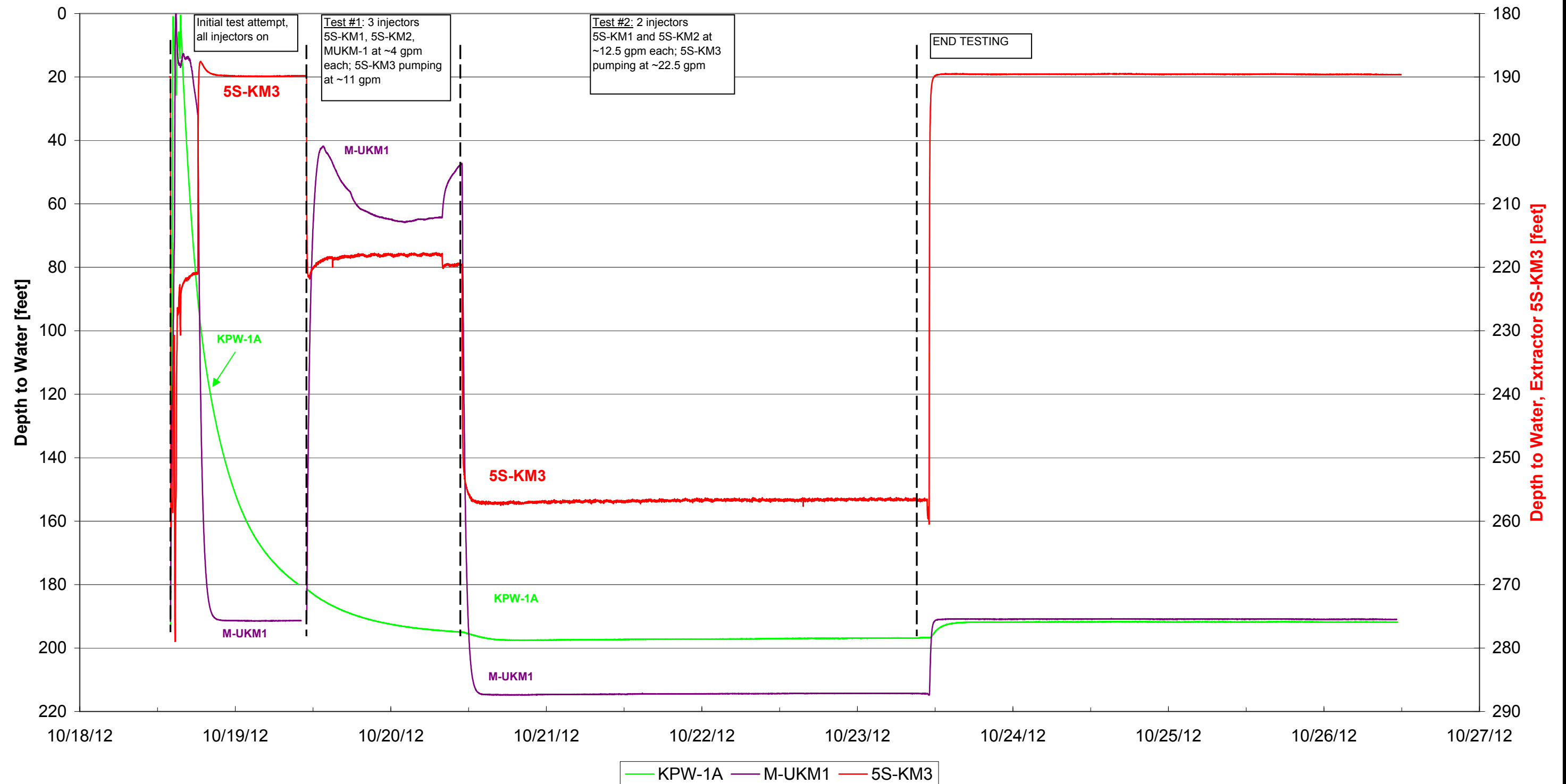


Figure 6-11. L and M Horizons of the Composite KLM Horizon, Water Levels vs. Pumping Well

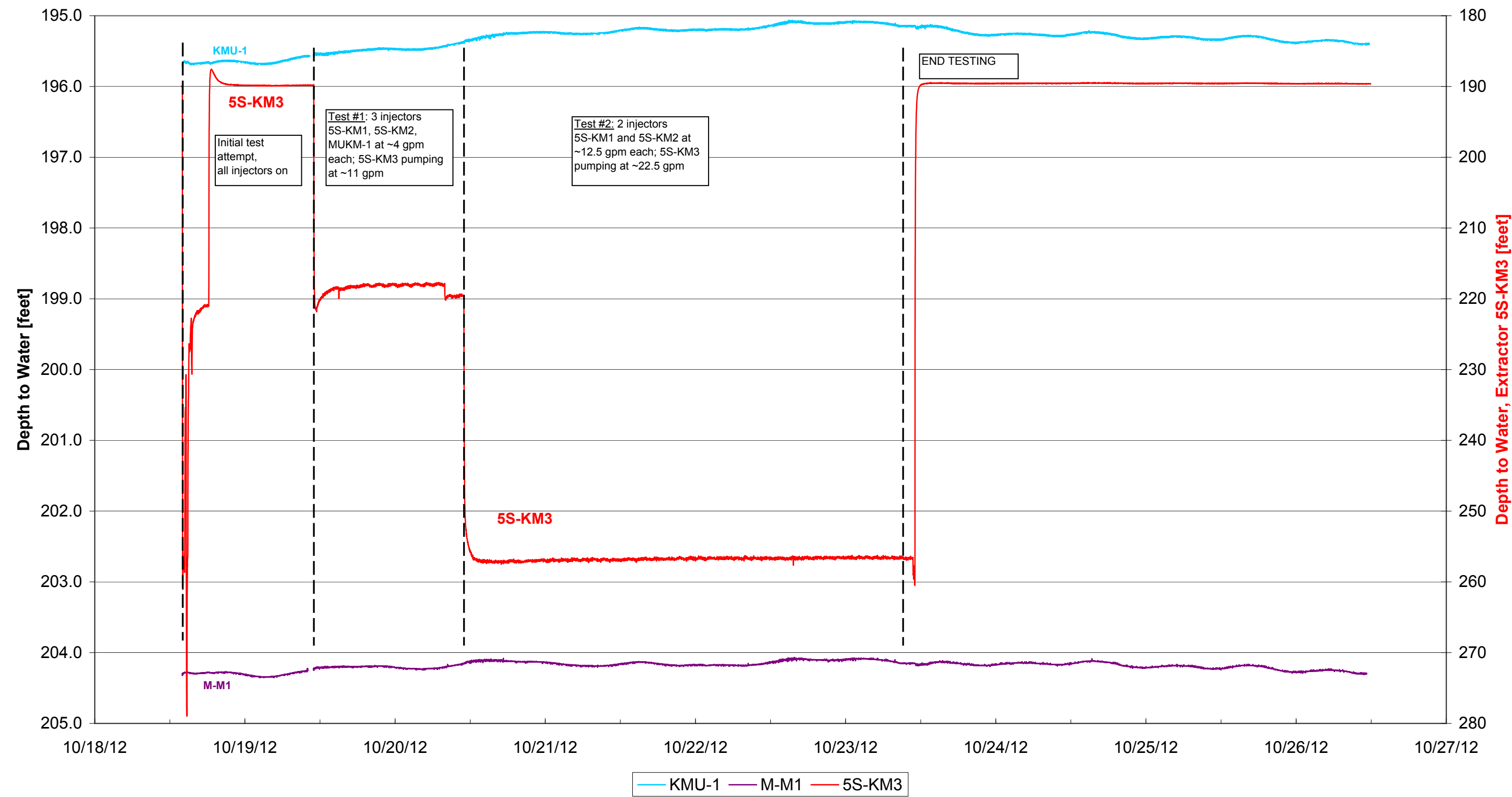


Figure 6-12. Overlying HJ Horizon Water Levels vs. Pumping Well

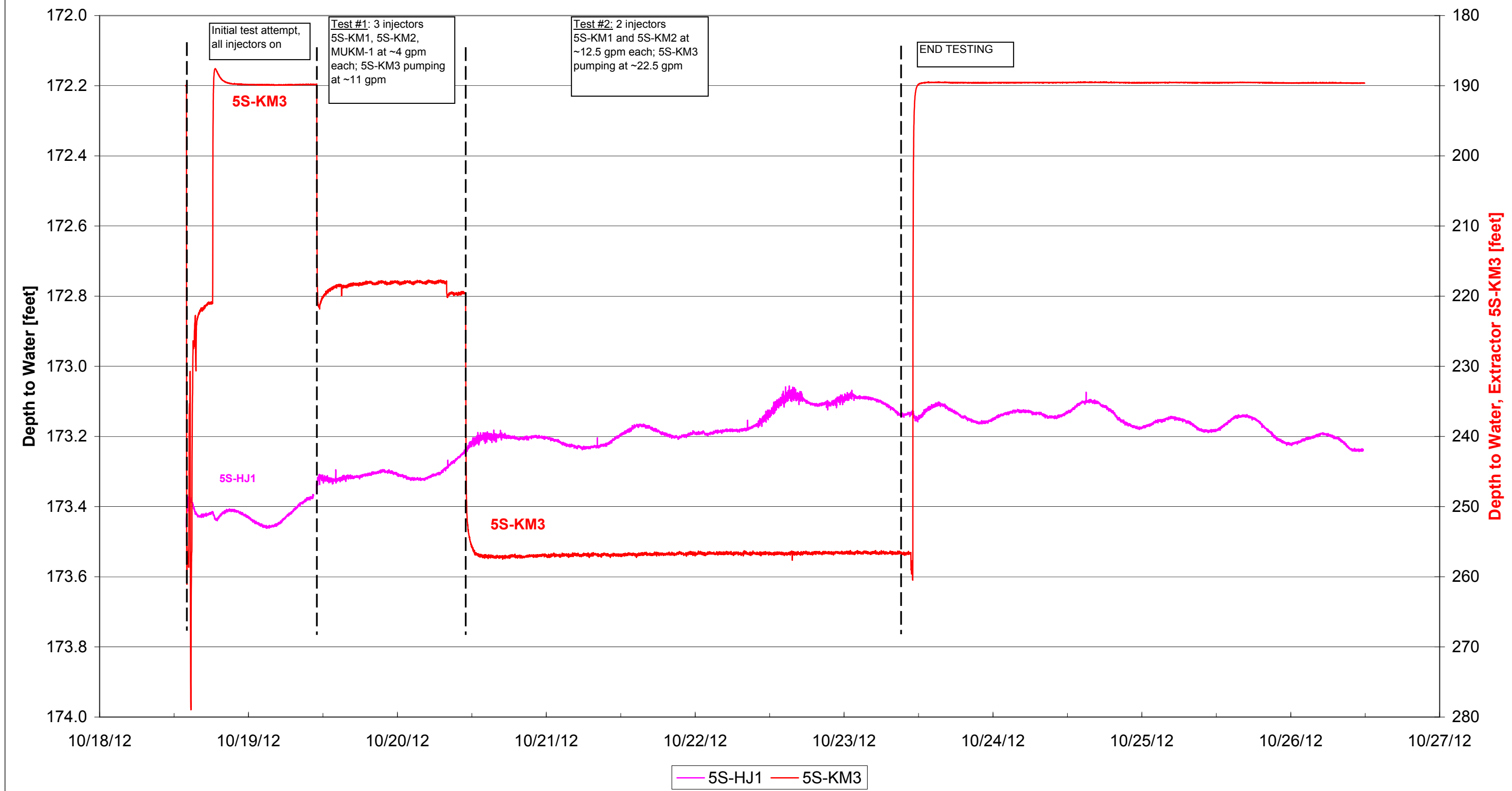


Figure 6-13. N Horizon Water Levels vs. Pumping Well

