APPENDIX K

E.C. WINTER

SVE PILOT TESTING

TABLE 6
SVE Pilot Test
Step Test Results, April 16, 2002

"OVER" Indicates that the measurement was out of the operable range for the TSI Velocicalc.

Vapor Extraction Well: SVE B-5A

		Extraction Well		Monitoring Wells					
		B-5A		B-5B	B-2A	B-2B	H		
Air Dilution	Time	Vacuum (" Wtr)	Flow (scfm)	Vacuum (" Wtr)	Vacuum (" Wtr)	Vacuum (" Wtr)	Vacuum (" Wtr)	Blower Temp. (F)	Blower Vacuum (" Hg)
Full Open	15:45	10	9.05	0.1	0.3	0.05	0.05	145	0.05
	15:50	10	8.65	0.1	0.3	0.05	0.05		
	15:55	10	8.55	0.1	0.3	0.05	0.05	145	0.05
	16:00	10	10.3	0.1	0.3	0.05	0.05		
66% Open	16:01	50	31.1	0.15	0.3	0.1	0.05	153	3
	16:06	50	33.1	0.1	0.3	0.1	0.05		
33% Open	16:07	90	44	0.15	0.4	0.1	0.05	190	9

Shutdown system to prevent overheating of blower. Could not extract at closed dilution.

Vapor Extraction Well: H

		Extraction Well		Monitoring Wells					
		H		B-2A	B-2B	B-5A	B-5B		
Air Dilution	Time	Vacuum (" Wtr)	Flow (scfm)	Vacuum (" Wtr)	Vacuum (" Wtr)	Vacuum (" Wtr)	Vacuum (" Wtr)	Blower Temp. (F)	Blower Vacuum (" Hg)
Full Open	15:00	8	6.75	0.1	0.2	0.1	0.1	145	0.5
	15:05	8	6.7	0.1	0.2	0.1	0.1		
	15:10	8	7.15	0.1	0.3	0.1	0.1	145	0.5
	15:15	8	7.35	0.1	0.3	0.1	0.1		
66% Open	15:16	44	22.6	0.1	0.3	0.1	0.15	155	4
	15:21	48	31.3	0.1	0.3	0.1	0.15		
33% Open	15:22	66	125	0.2	0.3	0.1	0.2	160	4
	15:27	46	OVER	0.2	0.3	0.1	0.2		
Closed	15:28	52	OVER	0.2	0.3	0.1	0.25	168	5
	15:33	56	OVER	0.2	0.3	0.1	0.25		

Vapor Extraction Well: SVE B-2B

		Extraction Well		Monitoring Wells					
		B-2B		B-2A	H	B-5A	B-5B		
Air Dilution	Time	Vacuum (" Wtr)	Flow (scfm)	Vacuum (" Wtr)	Vacuum (" Wtr)	Vacuum (" Wtr)	Vacuum (" Wtr)	Blower Temp. (F)	Blower Vacuum (" Hg)
Full Open	14:25	10	9.55	0.4	0.1	0.05	0.05	100	---
	14:30	10	9.25	0.4	0.1	0.05	0.1		
	14:35	10	9.3	0.3	0.1	0.05	0.1		
	14:40	10	10.3	0.3	0.1	0.05	0.1		
66% Open	14:41	50	24.1	0.4	0.1	0.05	0.1	150	3
	14:46	50	31.8	0.5	0.1	0.05	0.1		
33% Open	14:47	100	38.3	0.7	0.1	0.05	0.1	174	7
	14:52	90	38.6	0.7	0.1	0.05	0.1		

Shutdown system to prevent overheating of blower. Could not extract at closed dilution.

TABLE 6
SVE Pilot Test
Step Test Results, April 16, 2002

Vapor Extraction Well: SVE B-2A

Air Dilution	Time	Extraction Well B-2A Vacuum (" Wtr)	Extraction Well B-2A Flow (scfm)	Monitoring Wells B-2B Vacuum (" Wtr)	Monitoring Wells B-5A Vacuum (" Wtr)	Monitoring Wells B-5B Vacuum (" Wtr)	Monitoring Wells H Vacuum (" Wtr)	Blower Temp. (F)	Blower Vacuum (" Hg)
Full Open	10:40	4	6.75	0.2	0.05	0.05	0.2		
	10:45	4.5	7.3	0.3	0.05	0.05	0.2		
	10:50	5.2	14.4	0.3	0.05	0.05	0.2		
66% Open	10:52	#N/A	#N/A	1.4	0.1	0.05	0.2		
	10:57	30	23.5	1.3	0.1	0.05	0.2		
33% Open	11:00	#N/A	#N/A	2.5	0.2	0.05	0.2		
	11:04	91	35.8	2.5	0.2	0.05	0.2		

Shutdown system to prevent overheating of blower. Could not extract at closed dilution.

Vapor Extraction Well: SVE B-5B

Air Dilution	Time	Extraction Well B-5B Vacuum (" Wtr)	Extraction Well B-5B Flow (scfm)	Monitoring Wells B-5A Vacuum (" Wtr)	Monitoring Wells B-2A Vacuum (" Wtr)	Monitoring Wells B-2B Vacuum (" Wtr)	Monitoring Wells H Vacuum (" Wtr)	Blower Temp. (F)	Blower Vacuum (" Hg)
Full Open	16:10	10	8.9	0.15	0.2	0.1	0.05		
	16:15	10	8.6	0.15	0.2	0.1	0.05		
	16:20	10	8.95	0.15	0.2	0.1	0.05		
	16:25	10	8.55	0.15	0.2	0.1	0.05		
66% Open	16:26	44	28.2	0.15	0.2	0.1	0.1	150	3
	16:31	44	33.5	0.15	0.2	0.1	0.1		
33% Open	16:32	82	56	0.15	0.2	0.1	0.1	176	6
	16:37	90	63	0.15	0.2	0.1	0.1		
Closed	16:38	+100	96.5	0.15	0.2	0.1	0.1	200	8
	16:43	+100	105	0.15	0.2	0.1	0.1		

TABLE 7

EC Winter Site

SVE Pilot Test, Extraction Test Results, April 16 and 17 2002

Measurements shown in italics represent readings over the maximum range of the recording instrument or gauge.

Extraction Well: SVE B-2A

Time	Flowrate (scfm)	Velocity (fpm)	Wellhead Vacuum ("H2O)	Extracted Gas Temp (F)	PID Reading (ppm) GAC Inlet	PID Reading (ppm) GAC Outlet	% O2	% CO2	% CH4	Monitoring Wells H Vacuum ("H2O)	Monitoring Wells B-2B Vacuum ("H2O)	Monitoring Wells B-5A Vacuum ("H2O)	Monitoring Wells B-5B Vacuum ("H2O)
11:10	60.5	3000	*100*	81.1	3.6	0	18.8	1.8	0	0.2	3.1	0.3	0.05
11:15	64.5	3080	*100*	78.5	5.3	0	18.2	2.4	0	0.2	3.1	0.3	0.05
11:30	64.5	3030	*100*	81.1	4.7	0	18.1	2.3	0	0.2	3.2	0.3	0.05
11:45	71	3080	*100*	82.3	4.1	0	17.8	2.4	0	0.2	3.2	0.3	0.05
12:00	65.5	3100	*100*	82.3	5.3	0	18	2.4	0	0.2	3.4	0.3	0.05
12:15	77	3090	*100*	81.6	3.9	0	18.3	2	0	0.2	3.5	0.3	0.05
12:30	73.5	3010	*100*	81.2	5.3	0	17.8	2.3	0	0.2	3.5	0.3	0.05
12:45	64.5	3010	*100*	79.4	4.5	0	17.5	2.4	0	0.2	3.6	0.3	0.05
13:30	54	2440	93	86	3	0	18.5	1.4	0	0.2	3	0.15	0.05
13:45	64.5	2880	*100*	83.4	3.6	0	17.9	1.9	0	0.2	3	0.15	0.05
14:00	64.5	2950	*100*	82.7	3.7	0	17.9	1.9	0	0.2	3	0.15	0.05

Test equipment was operating with dilution valve approximately 33% open during testing to prevent equipment overheating.

Well was sampled at 14:05, 4/17/02

Extraction Well: H

Time	Flowrate (scfm)	Velocity (fpm)	Wellhead Vacuum ("H2O)	Extracted Gas Temp (F)	PID Reading (ppm) GAC Inlet	PID Reading (ppm) GAC Outlet	% O2	% CO2	% CH4	Monitoring Wells B-2A Vacuum ("H2O)	Monitoring Wells B-2B Vacuum ("H2O)	Monitoring Wells B-5A Vacuum ("H2O)	Monitoring Wells B-5B Vacuum ("H2O)
14:10	*125*	OVER	66	84.4	6.1	0	13.6	4.9	0	0.05	0.6	0.15	0.15
14:25	*125*	OVER	60	83.5	7.5	0	13.9	5	0	0.05	0.6	0.15	0.15
14:40	*125*	OVER	55	83.4	7.5	0	14.4	4.5	0	0.05	0.05	0.15	0.15
14:55	*125*	OVER	50	81.9	7.2	0	14.4	4.5	0	0.05	0.05	0.15	0.15
15:00	*125*	OVER	55	82.1	6.3	0	15.1	4.1	0	0.05	0.05	0.15	0.15

Test equipment was operating with dilution valve fully closed during testing.

Well was sampled at 15:15, 4/17/02

TABLE 7

EC Winter Site

SVE Pilot Test, Extraction Test Results, April 16 and 17 2002

Extraction Well: SVE B-2B

Time	Flowrate (scfm)	Velocity (fpm)	Wellhead Vacuum ("H2O)	Extracted Gas Temp (F)	PID Reading (ppm)		% O2	% CO2	% CH4	Monitoring Wells			
					GAC Inlet	GAC Outlet				B-2A Vacuum ("H2O)	H Vacuum ("H2O)	B-5A Vacuum ("H2O)	B-5B Vacuum ("H2O)
12:20	40.9	1890	84	93.5	2.2	0	19.1	1.1	0	0.9	0.3	0.05	0.2
12:35	44.1	2050	82	85.6	1.4	0	18.9	1.1	0	1.2	0.3	0.05	0.2
12:50	54.5	2460	86	85	1.9	0	18.6	1.6	0	1.6	0.3	0.05	0.2
13:05	59.5	2760	86	84.6	2.2	0	18.4	1.7	0	1.95	0.3	0.05	0.2
13:20	64.5	2900	82	84.4	2	0	18.4	1.7	0	+2.0	0.3	0.05	0.2

Test equipment was operating with dilution valve approximately 33% open during testing to prevent equipment overheating.

Well was sampled at 13:25, 4/17/02

Extraction Well: SVE B-5A

Time	Flowrate (scfm)	Velocity (fpm)	Wellhead Vacuum ("H2O)	Extracted Gas Temp (F)	PID Reading (ppm)		% O2	% CO2	% CH4	Monitoring Wells			
					GAC Inlet	GAC Outlet				B-5B Vacuum ("H2O)	H Vacuum ("H2O)	B-2A Vacuum ("H2O)	B-2B Vacuum ("H2O)
11:10	54	2300	*100*	89.5	5.5	0	17.3	1.9	0	0.05	0.05	0.05	0.5
11:25	45.3	1600	88	93.2	5	0	19	1.5	0	0.05	0.05	0.05	0.45
11:40	43.4	2110	90	93.2	5	0	18.9	1.5	0	0.05	0.05	0.05	0.5
11:55	44.3	2030	90	93.3	5	0	19	1.5	0	0.05	0.05	0.05	0.5
12:10	36.2	1650	78	91.2	5.2	0	19	1.4	0	0.05	0.05	0.05	0.4

Test equipment was operating with dilution valve approximately 33% open during testing to prevent equipment overheating.

Well was sampled at 12:15, 4/17/02

TABLE 7

EC Winter Site

SVE Pilot Test, Extraction Test Results, April 16 and 17 2002

Extraction Well: SVE B-5B

Time	Flowrate (scfm)	Velocity (fpm)	Wellhead Vacuum ("H2O)	Extracted Gas Temp (F)	PID Reading (ppm)		% O2	% CO2	% CH4	Monitoring Wells			
					GAC Inlet	GAC Outlet				B-5A Vacuum ("H2O)	H Vacuum ("H2O)	B-2A Vacuum ("H2O)	B-2B Vacuum ("H2O)
8:25	50.5	2350	48	75.8	16.4	50.5	19.1	2.2	0	0	0.05	0.05	0.5
8:35	---	---	---	---	7.5	0	---	---	---	---	---	---	---
8:40	109	5270	94	79.4	**71.4**	0	15	5	0	0.05	0.15	0.05	0.6
8:55	117	5330	82	78.4	8.1	0	14.8	5.2	0	0.05	0.15	0.05	0.6
9:10	*125*	OVER	76	84.1	4.9	0	14.9	5.3	0	0.05	0.15	0.05	0.6
9:25	*125*	OVER	76	85.8	4.8	0	15.1	4.8	0	0.05	0.15	0.05	0.6
9:40	*125*	OVER	74	87.6	4.3	0	15.2	4.7	0	0.05	0.15	0.05	0.6
9:55	*125*	OVER	68	86.7	3.8	0	15.3	4.5	0	0.05	0.15	0.05	0.6
10:10	*125*	OVER	68	86.9	3.8	0	15.3	4.6	0	0.05	0.15	0.05	0.6
10:25	*125*	OVER	67	86.7	2.4	0	15.4	4.1	0	0.1	0.15	0.1	0.6
10:40	*125*	OVER	70	87.2	2.9	0	15.4	4.1	0	0.1	0.15	0.1	0.55
10:55	*125*	OVER	70	87.5	3.1	0	15.3	4.2	0	0.1	0.15	0.1	0.55

Test equipment was operating with dilution valve fully closed during testing.

Well was sampled at 11:00, 4/17/02

TABLE 8

EC Winter Site

SVE Pilot Test Sample Results, April 17, 2002

Well ID	Results (ppbv)							
	Volatile Fuel Hydrocarbons	1,1,1-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	Chloroform	Tetrachloroethene	Trichloroethene	Trichlorofluoroethane
2A	<49000	39	150	49	52	230	1400	36
2B	<49000	240	340	<20	<20	1100	1300	24
5A	<49000	79	340	46	30	350	2400	38
5B	<49000	200	250	<20	<20	1100	1800	26
H	<49000	160	120	<20	<20	1600	710	<20

TABLE 9
EC Winter Site
SVE Pilot Test Injection Test Results, April 18, 2002

Injection Well: **SVE B-2B**

Injection Well Monitoring			Well Monitoring: B-2A					Well Monitoring: H					Well Monitoring: B-5A					Well Monitoring: B-5B				
Time	Flowrate (scfm)	Trailer Pressure	PID (ppm)	Pressure (" H2O)	% O2	% CO2	% CH4	PID (ppm)	Pressure (" H2O)	% O2	% CO2	% CH4	PID (ppm)	Pressure (" H2O)	% O2	% CO2	% CH4	PID (ppm)	Pressure (" H2O)	% O2	% CO2	% CH4
9:05	12	---	---	0	---	---	---	---	0	---	---	---	---	0	---	---	---	---	0.15	---	---	---
9:35	14	3	21.4	0	20.1	0.9	0	33.2	0	12.9	5.3	0	890	0	20.2	0.3	0.5	365	0.15	17.6	3	0
10:05	14	2	42.3	0	20.6	0.4	0	29.5	0	14.8	4.4	0	48.8	0	19.1	1.7	0	197	0.15	16.8	3.6	0
10:35	14	1.5	14	0	19.8	0.1	0	19.2	0	14.3	4.3	0	42.7	0	17.9	2.2	0	146	0.15	16.4	3.6	0
11:05	14	1.5	9.1	0	19.4	0.4	0	16.6	0.05	13.8	4.7	0	30.5	0	17.3	2.6	0	89.9	0.15	16.3	3.6	0
11:35	14	1.5	8.3	0	19.8	0	0	12.2	0.05	15.4	3.5	0	21.7	0	17	1.9	0	65.2	0.15	16.2	3.7	0
12:05	14	1.5	7.6	0	18	0	0	24.3	0.05	12.4	4.9	0.1	15.3	0	17	2.1	0	52	0.15	16.1	3.3	0
12:35	15	1.5	3.7	0	---	---	---	12.3	0.05	12.2	4.9	0.1	18.5	0	17	2.3	0	36.8	0.15	16.1	3.4	0
13:05	15	1.5	5.6	0	19.7	0.2	0	17.7	0.05	12.2	5.3	0	18.3	0	16.5	2.8	0	28.6	0.15	16.3	3.4	0
13:35	15	1.5	2	0	20.4	0.2	0	16.8	0.05	11.3	5.7	0	16.8	0	17	2.6	0	26.9	0.15	16.2	3.3	0
14:05	15	1.5	2.1	1	20.1	0.3	0	15.1	0.05	12	5.2	0	15.1	0	16.9	2.7	0	20.2	0.15	17.1	2.6	0
14:35	16	1.5	2.7	1.5	20.2	0	0	---	0.05	---	---	---	---	0	---	---	---	---	0.15	---	---	---
15:05	16	1.5	2.8	---	20.2	0	0	---	0.05	---	---	---	---	0	---	---	---	---	0.15	---	---	---
5/24/2002 10:30	---	---	---	---	20.1	0.7	0	---	---	20.5	0.3	0	---	---	17.6	3.8	0	---	---	18.1	2.9	0

Sampling pump stopped operating at 14:35, but samples were obtained from well 1A, due to air flowing out of the hose barb in the well cap.

Background Monitoring

Well ID: SR-84-301
Well Port Depth: 40 feet

4/16/2002	**4/18/2002**
02: 19.1%	02: 19.1%
C02: 1.1%	C02: 1.0%
CH4: 0.0%	CH4: 0.0%

Figure 3
Extraction PID Readings vs. Time

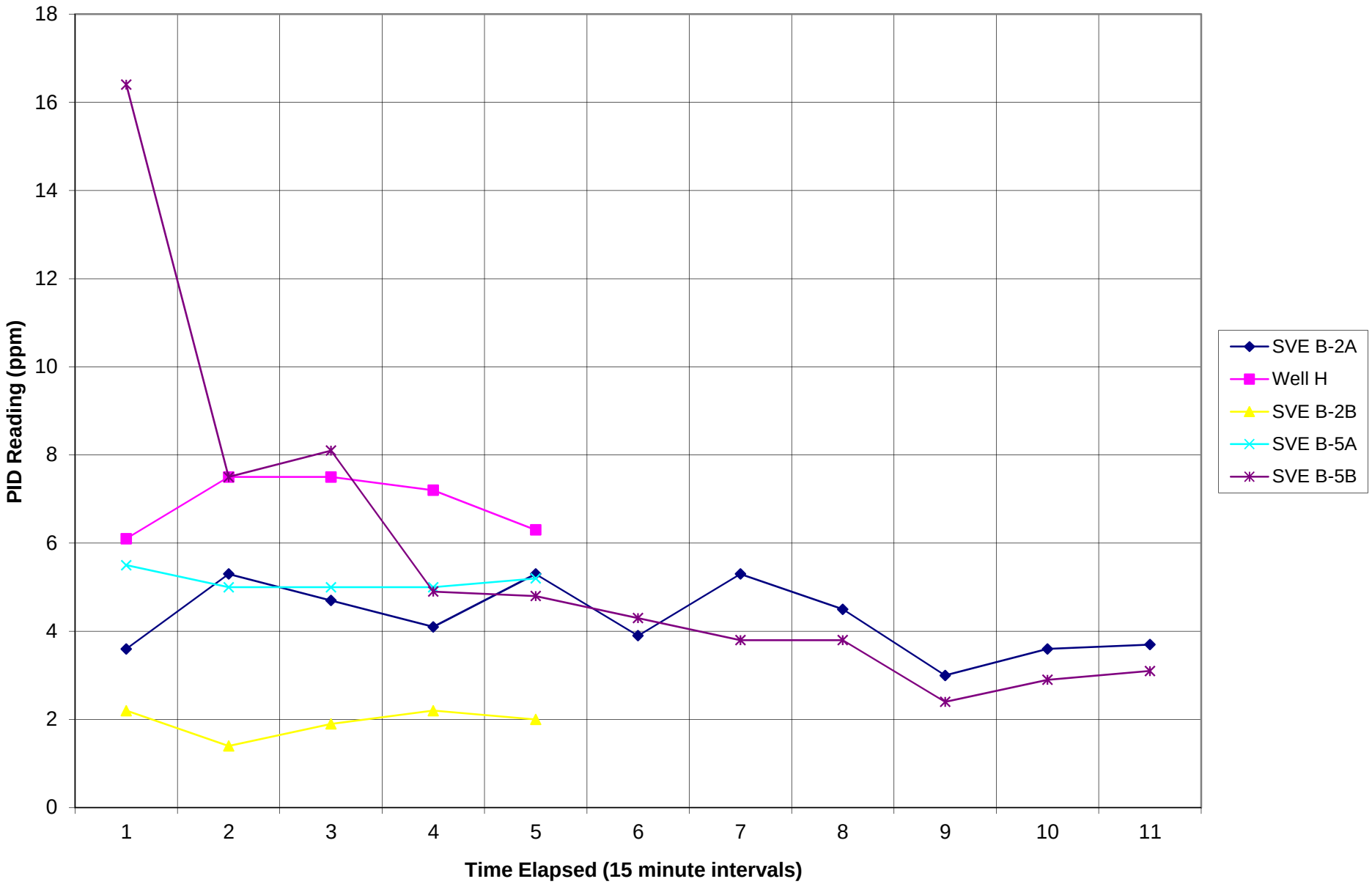

Figure 4
Flowrate vs. Vacuum
SVE Step Testing at the E.C. Winter Site

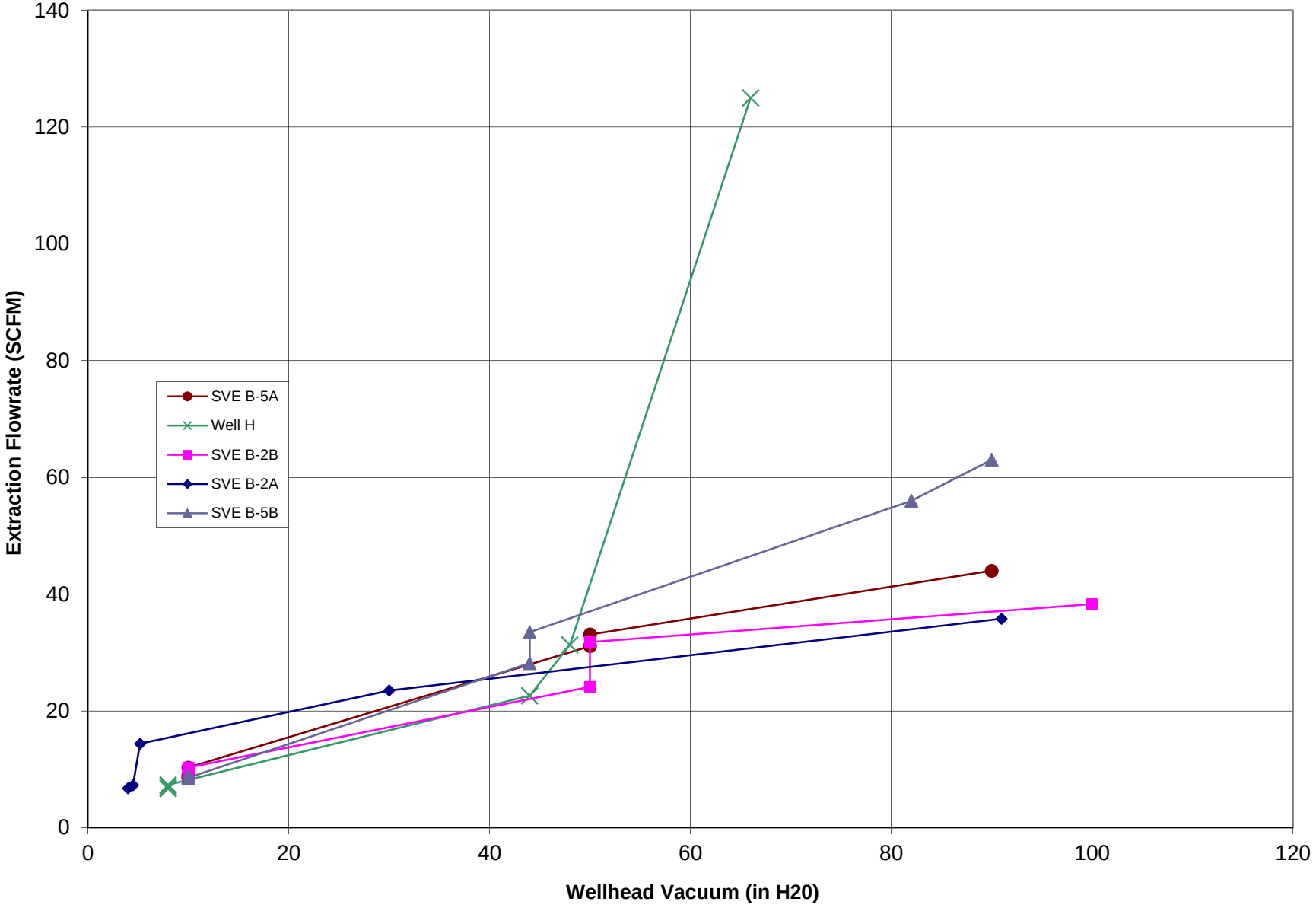

Figure 5
Injection Well B-2B
Oxygen Readings vs. Time During Injection Testing

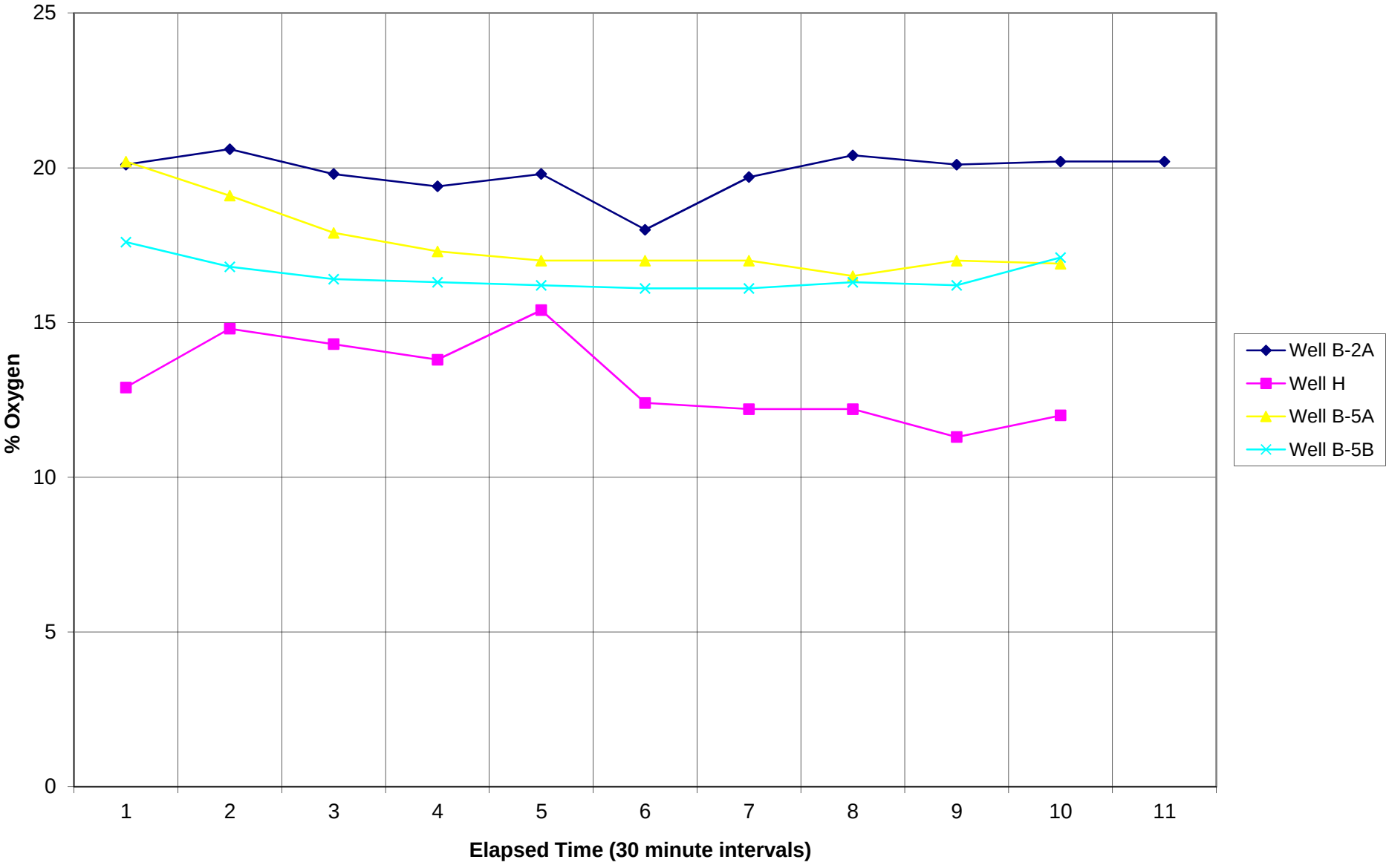

Figure 6
Injection Testing (Well B-2B)
PID Readings vs. Time During Injection Testing

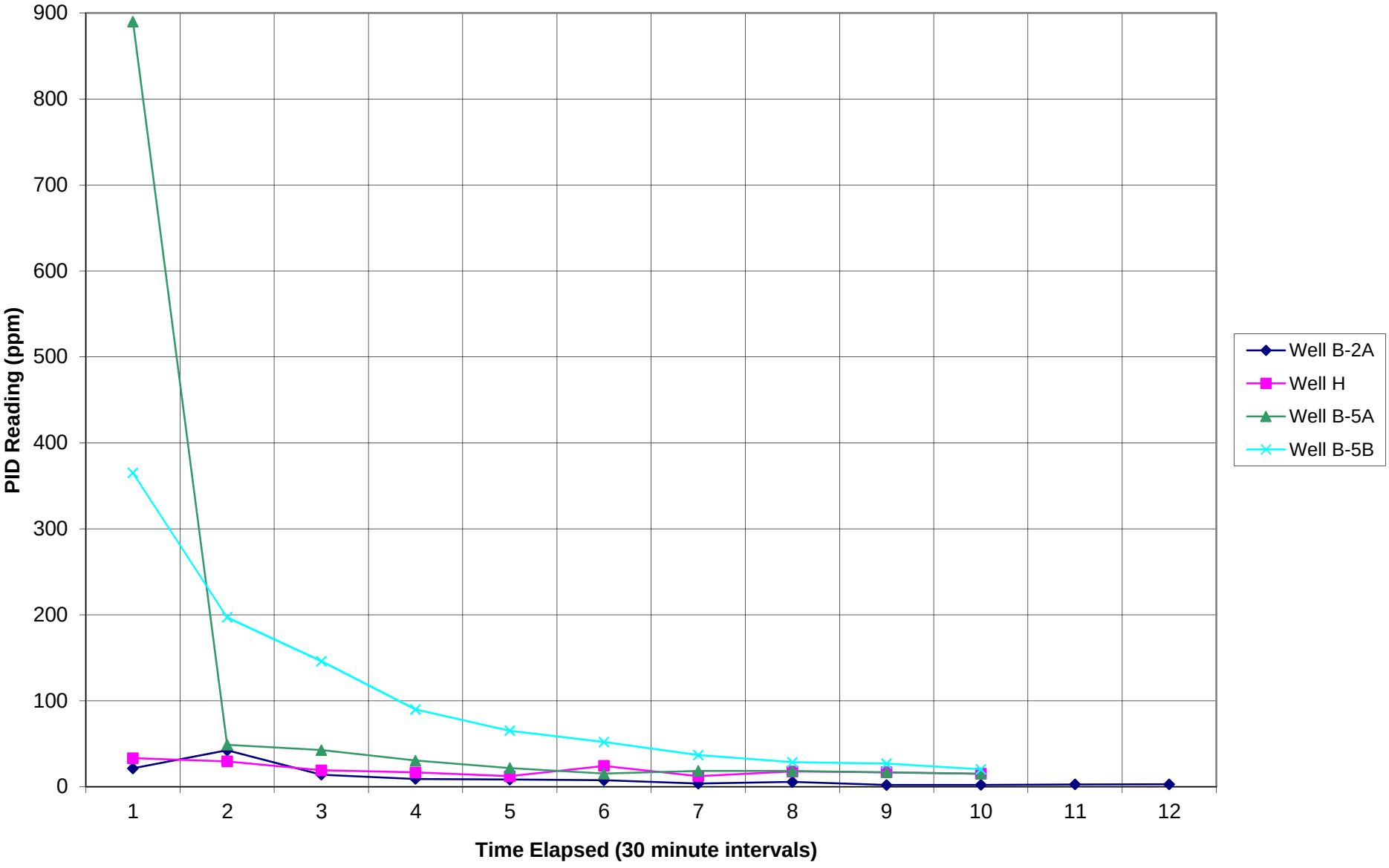
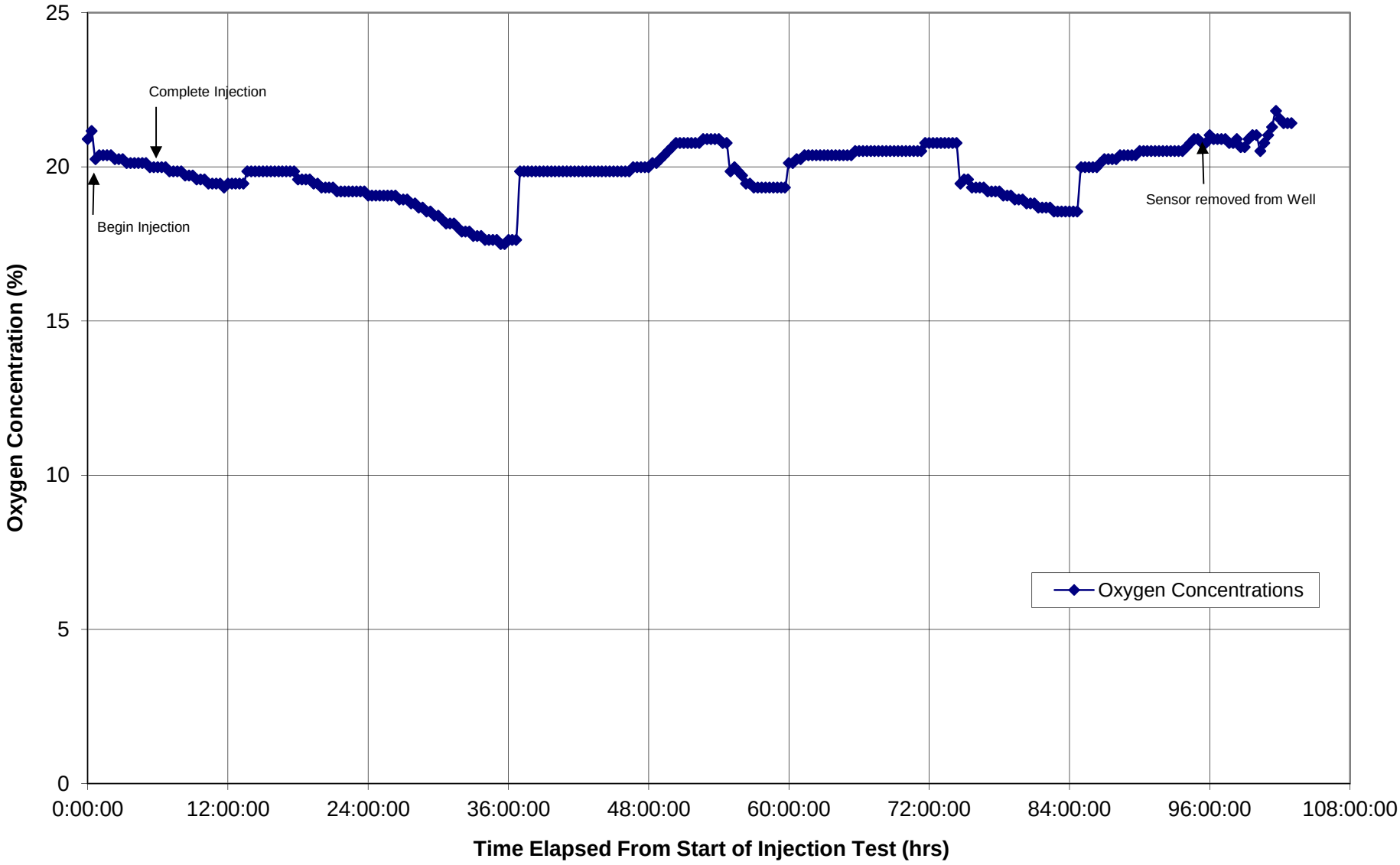
Figure 7
Oxygen Concentrations Measured at Well B-2A
During and After Injection Testing