

Appendix A

Summary of Monitor Well Information

MONITOR WELL REPORT (USEE300) FOR SITE SRK01, SLICK ROCK (BOTH SITES)

REPORT DATE: 9/18/2001 1:34 pm

LOCATION CODE	NORTH COORD. (FT STATE-PLANE)	EAST COORD. (FT STATE-PLANE)	GROUND ELEV. (FT NGVD)	BORE HOLE DEPTH (FT BLS)	BORE HOLE DIA. (INCHES)	TOP OF CASING ELEV. (FT NGVD)	CASING LENGTH (FT)	CASING DIAMETER (INCHES)	SCREEN DEPTH (FT BLS)	SCREEN LENGTH (FT)	FLOW CODE	ZONE OF COMPL.
0300	514743	1025172	5464.9	20.0	-	5467.4	22.4	2.0	9.5	10.0	U	AL
0301	515354	1024746	5461.7	20.0	-	5464.1	22.5	2.0	9.5	10.0	U	AL
0302	519280	1023022	5445.3	15.8	-	5447.9	18.1	2.0	5.0	10.0	O	AL
0303	519058	1022579	5444.4	14.8	-	5446.9	17.4	2.0	4.3	10.0	O	AL
0304	518887	1022299	5444.8	15.0	-	5447.3	17.4	2.0	4.4	10.0	O	AL
0305	518727	1022526	5446.2	20.5	-	5448.8	22.7	2.0	8.7	10.0	O	AL
0306	518636	1022254	5444.7	15.6	-	5447.2	18.1	6.0	4.8	10.0	O	AL
0307	518646	1022285	5444.6	15.0	-	5447.1	17.4	2.0	4.4	10.0	O	AL
0308	518663	1022221	5444.1	15.0	-	5446.6	17.4	2.0	4.5	10.0	O	AL
0309	518177	1021860	5447.7	21.8	-	5450.2	23.2	2.0	10.2	10.0	O	AL
0310	517937	1021363	5447.9	20.2	-	5450.6	22.9	2.0	14.7	5.0	D	AL
0311	518013	1021342	5448.1	20.0	-	5450.7	22.2	2.0	14.1	5.0	D	AL
0312	518098	1021326	5448.5	21.8	-	5451.1	22.7	2.0	14.5	5.0	D	AL
0313	519657	1019552	5436.0	21.0	-	5438.4	21.1	2.0	3.1	15.1	O	AL
0314	520090	1019684	5432.2	17.0	-	5434.6	19.4	6.0	6.1	10.0	O	AL
0315	520110	1019677	5432.1	16.7	-	5434.6	19.2	2.0	6.0	10.4	O	AL
0316	520065	1019710	5432.6	15.5	-	5435.1	17.7	2.0	4.8	10.0	O	AL
0317	520079	1019670	5432.9	43.0	-	5435.2	42.4	2.0	19.5	20.1		JE
0318	520142	1019249	5432.8	15.6	-	5435.2	18.0	2.0	5.0	10.0	O	AL
0319	520757	1018395	5428.1	15.1	-	5430.7	17.6	2.0	4.6	10.0	O	AL
0320	521075	1018326	5424.8	13.0	-	5427.4	13.1	2.0	4.9	5.0	O	AL
0321	521961	1018562	5429.6	21.0	-	5432.1	22.8	6.0	14.4	5.0	D	AL
0322	521971	1018561	5429.3	19.6	-	5431.8	22.1	2.0	9.1	10.0	D	AL
0323	521959	1018596	5429.0	19.6	-	5431.5	22.1	2.0	9.1	10.0	D	AL
0324	520476	1019106	5428.7	37.0	-	5431.2	38.7	2.0	15.6	20.1		JE

MONITOR WELL REPORT (USEE300) FOR SITE SRK01, SLICK ROCK (BOTH SITES)

REPORT DATE: 9/18/2001 1:34 pm

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0325	519852	1018740	5480.8	71.0	-	5483.3	73.5	2.0	40.5	30.0		JE
0326	520374	1018113	5476.4	71.5	-	5478.9	73.7	2.0	55.7	15.1		JE
0327	518618	1022236	5445.0	17.1	-	5447.5	19.7	2.0	6.6	10.0	O	AL
0328	517778	1020539	5444.1	21.5	-	5446.6	23.7	2.0	10.5	10.4	D	AL
0329	517938	1019897	5443.2	18.0	-	5445.8	20.5	2.0	7.2	10.4	D	AL
0330	518124	1019458	5439.9	17.5	-	5442.4	19.9	2.0	7.0	10.1	D	AL
0331	518859	1019281	5439.6	20.2	-	5442.2	22.8	2.0	9.5	10.4	D	AL
0332	520706	1018404	-	10.3	2.0	-	-	1.0	5.0	5.0	O	AL
0333	520756	1018358	-	12.5	2.0	-	-	1.0	7.3	5.0	O	AL
0334	520805	1018389	-	11.5	2.0	-	-	1.0	4.3	5.0	O	AL
0335	520710	1018525	-	12.5	2.0	-	-	1.0	2.3	5.0	O	AL
0336	520869	1018297	-	12.5	2.0	-	-	1.0	5.0	5.0	O	AL
0337	520812	1018348	-	12.8	2.0	-	-	1.0	5.3	5.0	O	AL
0338	520772	1018431	-	12.5	2.0	-	-	1.0	1.3	5.0	O	AL
0501	519318	1023177	5454.8	22.0	-	5456.5	23.7	4.0	12.0	9.0	O	AL
0503	519042	1022758	5457.9	27.0	-	5459.4	28.5	4.0	20.0	6.0	O	AL
0504	518897	1022572	5448.5	19.0	-	5450.8	21.3	4.0	14.0	4.0	D	AL
0505	519533	1019571	5436.4	19.0	-	5441.1	23.6	4.0	11.0	8.0	O	AL
0506	520831	1018447	5431.1	21.0	-	5431.4	19.3	4.0	12.0	7.0	D	AL
0507	520980	1018261	5431.5	20.0	-	5433.1	21.6	4.0	10.0	10.0	D	AL
0508	520477	1019119	5428.3	12.0	-	5430.2	12.9	4.0	1.0	10.0	O	AL
0509	520111	1019661	5432.5	18.4	-	5434.1	20.0	4.0	8.4	10.0	O	AL
0510	520668	1018778	5426.3	15.9	-	5427.9	15.5	4.0	4.9	9.0	O	AL
0512	519189	1022762	5450.4	20.0	-	5452.7	22.3	4.0	12.0	8.0	O	AL
0551	519433	1018011	5524.5	80.0	8.0	5524.0	57.5	4.0	46.0	10.0	U	JE

MONITOR WELL REPORT (USEE300) FOR SITE SRK01, SLICK ROCK (BOTH SITES)

REPORT DATE: 9/18/2001 1:34 pm

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0552	519450	1017977	5524.8	80.0	8.0	5525.0	80.2	4.0	68.0	10.0	U	NA
0553	519466	1018041	5524.5	25.0	8.0	5525.0	24.5	4.0	12.0	10.0	O	AL
0554	520139	1018075	5500.9	50.0	8.0	5500.5	49.1	4.0	37.5	10.0	U	JE
0555	520095	1018093	5502.5	35.0	8.0	5502.0	32.6	4.0	21.0	10.0	O	AL
0556	519511	1017763	5525.3	95.0	8.0	5527.9	92.6	4.0	78.0	10.0	U	NA
0557	519537	1017775	5527.1	45.0	8.0	5527.0	41.9	4.0	30.0	10.0	O	AL
0558	519088	1018352	5524.8	82.0	8.0	5526.0	81.2	4.0	68.0	10.0	U	NA
0559	519357	1018618	5515.3	52.0	8.0	5515.0	49.7	4.0	38.0	10.0	U	JE
0560	520319	1018001	5489.5	25.0	8.0	5492.4	25.0	4.0	10.0	10.0	O	AL
0668	519632	1018224	5520.3	246.4	8.0	5522.5	154.3	2.0	108.4	40.0	U	NA
0669	520485	1019095	5428.5	99.6	8.0	5430.3	101.4	2.0	92.6	5.0	O	NA
0670	520741	1018724	5426.3	89.2	-	5427.9	90.9	2.0	77.2	10.0	O	NA
0672	519085	1021098	-	-	9.9	-	-	-	-	-	U	NA
0675	518369	1019551	5443.2	14.0	36.0	5443.2	14.0	36.0	-	-	N	AL
0684	521938	1018561	5430.3	23.0	6.0	5432.7	25.3	2.0	11.0	10.0	D	AL
0685	523139	1018568	5426.5	27.0	6.0	5428.6	29.1	2.0	15.0	10.0	D	AL
0686	519397	1023272	5455.1	22.0	6.0	5457.3	24.2	2.0	15.0	5.0	U	AL
0687	518032	1022388	5491.8	195.0	6.0	5493.6	196.9	2.0	173.0	20.0	U	NA
0688	521009	1017519	5453.7	70.0	6.0	5455.5	71.8	2.0	53.0	15.0	U	NA
0690	518774	1021384	5506.6	182.0	6.0	5508.9	184.4	2.0	160.0	20.0	U	NA
0702	519622	1018792	5489.6	70.0	8.0	5486.5	64.9	4.0	55.0	10.0	O	JE
0703	519680	1018242	5522.3	55.0	8.0	5526.5	59.0	4.0	41.8	10.0	U	JE
0704	520128	1018405	5489.3	61.5	8.0	5491.7	63.9	4.0	46.0	10.0	O	JE
0807	521127	1016693	-	-	-	5523.5	-	-	-	-	D	JE

MONITOR WELL REPORT (USEE300) FOR SITE SRK01, SLICK ROCK (BOTH SITES)

REPORT DATE: 9/18/2001 1:34 pm

LOCATION CODE	NORTH COORD. (FT STATE- PLANE)	EAST COORD. (FT STATE- PLANE)	GROUND ELEV. (FT NGVD)	BORE HOLE DEPTH (FT BLS)	BORE HOLE DIA. (INCHES)	TOP OF CASING ELEV. (FT NGVD)	CASING LENGTH (FT)	CASING DIAMETER (INCHES)	SCREEN DEPTH (FT BLS)	SCREEN LENGTH (FT)	FLOW CODE	ZONE OF COMPL.
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RECORDS: SELECTED FROM USEE300 WHERE site_code='SRK01' AND location_code

in('0275','0300','0301','0302','0303','0304','0305','0306','0307','0308','0309','0310','0311','0312','0313','0314','0315','0316','0317','0318','0319','0320','0321','0322','0323','0324','0325','0326','0327','0328','0329','0330','0331','0332','0333','0334','0335','0336','0337','0338','0501','0503','0504','0512','0687','0690','0675','0505','0509','0508','0510','0506','0551','0552','0556','0558','0554','0560','0672','0668','0688','0702','0703','0704','0669','0670','0684','0685','0686','0807','0507','0553','0557','0559','0555')

FLOW CODES: D DOWN GRADIENT N UNKNOWN O ON-SITE U UPGRADIENT

ZONES OF COMPLETION:

AL ALLUVIUM

JE JURASSIC ENTRADA SANDSTONE FORMATION

NA NAVAJO SANDSTONE

Appendix B

Monitor Well Logs and Borehole Logs (SRK01)

provided on CD-ROM

Appendix C

Ground Water and Surface Water Levels

provided on CD-ROM

Appendix D

Summary of Ground Water and Surface Water Quality (2000-2001)

Site Code	Location Code	Date Sampled	Alkalinity mg/L	Benzene µg/L	Bromide mg/L	Ca mg/L	Cd mg/L	Chloride mg/L	DO mg/L	EC µmhos/cm	Ethylbenzene µg/L	Fe mg/L	Gross Alpha pCi/L	Gross Beta pCi/L
Surface Water														
SRK01	0346	02/26/2001	67	---	0.0775	51.2	<0.0003	26.3	---	555	---	0.0122	<3.53	<3.95
		05/15/2001	100	---	---	61.5	<0.0002	15.2	---	620	---	0.0407	<3.48	<3.95
SRK01	0347	02/26/2001	97	---	0.0692	51.9	<0.0003	26.4	---	554	---	0.013	<3.58	<3.95
		05/15/2001	106	---	---	61.7	<0.0002	15.3	---	608	---	0.167	<3.53	<3.96
SRK01	0349	02/27/2001	126	---	0.0965	56.3	<0.0003	30.2	---	608	---	0.302	<3.75	<3.97
		05/15/2001	117	---	---	61.4	<0.0002	15.1	---	622	---	0.0378	<3.5	<3.94
SRK01	0692	09/27/2000	102	---	<0.0665	38	<0.0003	21.8	---	310	---	0.0161	<4.6	<6.06
		09/27/2000	---	---	<0.0665	38	<0.0003	21.8	---	---	---	0.0195	<4.44	<6.05
		12/19/2000	133	---	<0.0665	49.8	<0.0003	37.2	---	490	---	0.0594	<3.36	<3.88
		02/26/2001	82	---	0.0833	55	<0.0003	26.1	---	572	---	<0.0134	<3.71	4.01
		02/26/2001	---	---	<0.0665	55.4	<0.0003	26.1	---	---	---	0.025	<3.65	<3.96
		05/15/2001	137	---	---	63.5	<0.0002	15.7	---	603	---	0.0371	<3.54	<3.94
		05/15/2001	---	---	---	63.3	<0.0002	15.6	---	---	---	0.0391	<3.58	<3.95
SRK01	0693	09/21/2000	97	---	<0.0665	35.7	<0.0003	19.1	---	299	---	0.0223	<4.2	<6.01
		12/19/2000	103	---	0.124	49.2	<0.0003	44.2	---	310	---	0.0253	<3.39	<3.88
		02/26/2001	88	---	0.0681	51.2	<0.0003	26.7	---	554	---	0.0159	<3.55	<3.94
		05/15/2001	115	---	---	61.7	<0.0002	15.4	---	607	---	0.0389	<3.6	<3.95
SRK01	0694	09/21/2000	97	---	<0.0665	36.2	<0.0003	18.8	---	305	---	<0.0179	<4.2	<6
		12/14/2000	89	---	<0.0665	43.2	<0.0003	26.7	---	430	---	0.0184	<3.12	<3.86
		12/14/2000	---	---	<0.0665	43.6	<0.0003	26.7	---	---	---	0.0121	<3.11	<3.86
		02/26/2001	108	---	0.0749	51.9	<0.0003	27	---	565	---	0.0167	<3.58	<3.95
		05/15/2001	117	---	---	62.4	<0.0002	15.3	---	619	---	0.136	<3.57	<3.95
SRK01	0696	09/27/2000	110	---	<0.0665	37.5	<0.0003	19.6	---	376	---	0.0201	<4.37	<6.02
		12/19/2000	181	---	<0.0665	49.5	<0.0003	36.2	---	590	---	0.0241	<3.35	<3.88
		02/26/2001	100	---	<0.0665	53.8	<0.0003	26.1	---	563	---	<0.0271	<3.6	<3.95
		05/15/2001	106	---	---	61.7	<0.0002	15.1	---	574	---	0.0465	<3.56	4.12

Site Code	Location Code	Date Sampled	Alkalinity mg/L	Benzene µg/L	Bromide mg/L	Ca mg/L	Cd mg/L	Chloride mg/L	DO mg/L	EC µmhos/cm	Ethylbenzene µg/L	Fe mg/L	Gross Alpha pCi/L	Gross Beta pCi/L
Ground Water														
SRK01	0300	09/27/2000	589	---	3.68	587	<0.0003	190	---	9490	---	19.6	<78.89	<78.33
		12/19/2000	530	---	2.65	490	<0.0003	841	---	6970	---	12.4	<60.23	<58.97
		02/28/2001	547	---	2.91	488	0.00037	858	---	8030	---	6.81	<57.07	<59.58
		05/14/2001	506	---	~3	554	<0.0002	870	---	8020	---	6.49	<57.69	<59.69
		05/14/2001	---	---	~3.02	549	<0.0002	848	---	---	---	6.2	<57.64	<59.5
SRK01	0301	09/27/2000	360	---	0.464	173	<0.0003	~153	---	2520	---	2.73	<16.7	<15.81
		09/27/2000	---	---	0.48	174	<0.0003	155	---	---	---	2.75	<16.98	<15.84
		12/19/2000	---	---	0.402	160	<0.0003	141	---	1950	---	3.97	<13.03	<11.85
		02/28/2001	351	---	0.451	135	<0.0003	138	---	2280	---	0.719	<12.85	<12.01
		05/14/2001	367	---	~0.541	191	<0.0002	202	---	2720	---	0.0131	<16.87	<17.03
SRK01	0302	09/27/2000	391	---	0.564	119	<0.0003	185	---	2320	---	0.133	~172.94	66.18
		12/15/2000	394	---	0.465	124	<0.0003	203	---	2530	---	0.175	252.38	79.72
		02/28/2001	374	---	0.555	123	<0.0003	176	---	2390	---	0.113	213.57	66.05
		05/14/2001	293	---	~0.536	123	<0.0002	179	---	2300	---	0.0034	~181.3	49.12
SRK01	0303	09/26/2000	480	---	0.316	110	<0.0003	~250	---	2860	---	1.92	~895.15	295.61
		12/19/2000	502	---	0.263	91.9	<0.0003	298	---	2960	---	2.67	1385.87	354.66
		02/28/2001	428	---	0.303	86.3	<0.0003	234	---	2630	---	1.71	1266.07	233.73
		05/15/2001	376	---	~0.233	95.2	<0.0002	190	---	2130	---	1.52	~959.3	172.19
SRK01	0304	09/26/2000	251	---	0.077	95	<0.0003	~38.6	---	1038	---	0.299	~71.65	45.96
		12/15/2000	266	---	<0.0665	92.4	<0.0003	46.2	---	1090	---	0.129	105.91	61.03
		02/28/2001	251	---	0.104	94	<0.0003	45.9	---	1044	---	0.0529	79.85	50.03
		05/15/2001	230	---	---	104	<0.0002	48.1	---	990	---	0.01	~91.47	39.04
SRK01	0305	09/26/2000	451	---	0.778	153	<0.0003	~321	---	3550	---	0.281	~885.24	325.2
		12/15/2000	447	---	0.663	145	<0.0003	56.4	---	3040	---	0.454	1302.93	355.47
		02/28/2001	418	---	0.777	135	<0.0003	311	---	3470	---	0.164	1243.7	301.71
		05/14/2001	415	---	~0.743	156	<0.0002	320	---	3420	---	0.0246	~1147.12	236.41
SRK01	0306	09/26/2000	610	---	1.18	193	<0.0003	677	---	6840	---	4.07	~396.05	108.47
		09/26/2000	---	---	1.22	194	<0.0003	687	---	---	---	4.19	~331.58	121.05
SRK01	0307	09/26/2000	657	---	1.04	169	<0.0003	~633	---	6400	---	2.32	~381.45	130.98

Site Code	Location Code	Date Sampled	Alkalinity mg/L	Benzene µg/L	Bromide mg/L	Ca mg/L	Cd mg/L	Chloride mg/L	DO mg/L	EC µmhos/cm	Ethylbenzene µg/L	Fe mg/L	Gross Alpha pCi/L	Gross Beta pCi/L
		12/15/2000	616	---	0.863	160	<0.0003	636	---	5730	---	2.53	360.64	162.05
		03/01/2001	615	---	1.12	152	<0.0003	626	---	6710	---	2.31	455.54	140.46
		05/14/2001	619	---	~1.08	170	<0.0002	568	---	6560	---	2.57	~475.64	122.68
SRK01	0308	09/26/2000	446	---	0.556	188	<0.0003	~313	---	3800	---	2.46	~435.74	131.21
SRK01	0309	09/26/2000	1063	---	1.19	67.2	<0.0003	890	---	6570	---	2.03	~227.09	93.71
		12/15/2000	1020	---	0.876	71.6	<0.0003	809	---	6200	---	2.26	141	52.29
		03/01/2001	905	---	1.02	78.2	<0.0003	672	---	5620	---	2.59	132.53	62.98
		05/14/2001	933	---	~1.02	92.2	<0.0002	653	---	6000	---	1.48	~129.45	36.73
SRK01	0310	09/27/2000	153	---	<0.0665	64.7	<0.0003	17.7	---	619	---	0.573	~6.83	8.05
		12/14/2000	160	---	<0.0665	66.7	<0.0003	19.4	---	660	---	0.641	~7.61	8.2
		02/28/2001	156	---	0.0884	63.3	<0.0003	22.3	---	636	---	0.512	5.93	5.19
		05/16/2001	146	---	~0.07	71.7	<0.0002	21.9	---	636	---	~0.532	~5.25	5.83
SRK01	0311	09/27/2000	262	---	0.0764	104	<0.0003	19.4	---	894	---	<0.0117	~18.94	13.95
		12/14/2000	---	---	<0.0665	101	<0.0003	20.1	---	690	---	0.0188	~17.98	10.07
		02/28/2001	220	---	0.0725	95.1	<0.0003	20.1	---	852	---	0.0168	18.05	9.53
		05/16/2001	220	---	---	115	<0.0002	26.3	---	904	---	<0.001	~15.55	11.44
SRK01	0312	09/27/2000	271	---	0.249	57.7	<0.0003	67.4	---	1586	---	0.0696	23.05	20.36
		12/15/2000	235	---	0.137	53.8	<0.0003	47.2	---	1360	---	0.0371	21.99	20.49
		02/28/2001	212	---	0.158	50.3	<0.0003	38.9	---	1143	---	0.0362	18.7	12.07
		05/16/2001	210	---	---	50.8	<0.0002	38.3	---	1012	---	<0.008	~17.21	12.24
SRK01	0313	09/19/2000	320	---	0.279	106	<0.0003	65.9	---	1693	---	0.471	14.46	16.11
		12/19/2000	347	---	0.245	102	<0.0003	65.4	---	1410	---	0.306	31.92	16.64
		02/27/2001	357	---	0.277	101	<0.0003	64.5	---	1719	---	0.518	~15.2	12.28
		05/16/2001	341	---	~0.252	107	<0.0002	71.8	---	1638	---	~0.35	~19.73	11.07
SRK01	0314	09/19/2000	324	---	0.233	196	<0.0003	57	---	1812	---	1.02	18.38	15.84
SRK01	0315	09/20/2000	343	---	0.228	209	<0.0003	57.3	---	1747	---	0.0215	12.87	16.58
		12/13/2000	368	---	0.176	202	<0.0003	53.2	---	1776	---	<0.011	~23.34	14.45
SRK01	0316	09/20/2000	287	---	0.175	173	<0.0003	46.1	---	1693	---	<0.0117	10.24	17.21

Site Code	Location Code	Date Sampled	Alkalinity mg/L	Benzene µg/L	Bromide mg/L	Ca mg/L	Cd mg/L	Chloride mg/L	DO mg/L	EC µmhos/cm	Ethylbenzene µg/L	Fe mg/L	Gross Alpha pCi/L	Gross Beta pCi/L
SRK01	0317	09/28/2000	237	---	0.189	105	<0.0003	56.8	---	1778	---	0.97	11.92	12.21
		12/14/2000	229	---	0.154	119	<0.0003	62.2	---	2400	---	0.0614	~12.06	25.28
		03/01/2001	268	---	0.162	98.6	<0.0003	43.6	---	1610	---	0.0779	13.44	13.48
		05/17/2001	238	---	---	128	0.00024	69.4	---	2370	---	<0.001	~17.72	22.78
SRK01	0318	09/19/2000	290	---	0.62	1060	0.0014	106	---	7230	---	0.0199	<50.39	<43.05
		12/13/2000	312	---	0.345	665	0.00083	92	---	5210	---	<0.011	<22.26	<19.84
		02/27/2001	295	---	0.517	786	0.0012	97	---	6320	---	<0.011	<43.13	<40.03
		05/17/2001	273	---	---	1250	0.0017	124	---	8120	---	~0.0244	<55.3	<50.23
SRK01	0319	09/28/2000	1373	14100	10.4	177	<0.0003	3640	---	10010	345	22.2	<73.12	<64.09
		12/19/2000	1324	6940	14.7	211	<0.0003	5470	---	12640	367	26.1	<69.43	<59.51
		03/02/2001	1407	10200	11.3	266	<0.0003	4050	0	11200	358	32	<72.71	<66.62
		05/18/2001	1149	19800	~22.1	147	<0.0002	4250	---	8090	475	~18	<48.13	<49.62
SRK01	0320	09/20/2000	312	---	0.199	97.2	<0.0003	28.3	---	1089	---	1.13	11.55	15.15
		09/29/2000	312	<5	---	---	---	---	---	1089	<5	---	---	---
		12/14/2000	406	---	0.145	100	<0.0003	30.6	---	1140	---	0.798	~15.46	13.83
		12/14/2000	---	---	0.16	97.6	<0.0003	32.8	---	---	---	0.748	~14.12	14.09
		03/02/2001	484	<5	0.197	92.3	<0.0003	28.2	0.7	1100	<5	0.781	16.37	13.28
		05/17/2001	402	<5	~0.184	96.3	<0.0002	32.8	---	1055	<5	~0.748	~13.7	13.4
SRK01	0321	09/19/2000	185	---	<0.0665	78.1	<0.0003	17.2	---	686	---	0.249	<5.71	6.44
SRK01	0322	09/28/2000	177	---	<0.0665	77.9	<0.0003	17.2	---	672	---	0.43	<5.78	<6.23
SRK01	0323	09/28/2000	183	---	0.0679	76.3	<0.0003	18	---	635	---	<0.0117	<5.6	<6.19
		09/28/2000	---	---	0.0718	75.8	<0.0003	18.1	---	---	---	<0.0117	<5.61	<6.19
SRK01	0324	09/19/2000	259	---	0.115	75.5	<0.0003	20.6	---	1321	---	0.0165	28.42	19.15
		12/14/2000	237	---	<0.0665	59.6	<0.0003	15.5	---	1130	---	0.0141	~14.35	11.29
		02/27/2001	228	---	0.0713	52.7	<0.0003	15.6	---	1111	---	0.0513	~21.75	11.96
SRK01	0325	09/20/2000	146	---	0.145	23.5	<0.0003	12.7	---	341	---	0.0283	<4.36	<6.03
		12/18/2000	157	---	0.135	22.8	<0.0003	14	---	370	---	0.013	<3.06	<3.87
		03/05/2001	163	---	0.173	20.6	<0.0003	12.9	---	349	---	<0.011	<3.08	<3.91

Site Code	Location Code	Date Sampled	Alkalinity mg/L	Benzene µg/L	Bromide mg/L	Ca mg/L	Cd mg/L	Chloride mg/L	DO mg/L	EC µmhos/cm	Ethylbenzene µg/L	Fe mg/L	Gross Alpha pCi/L	Gross Beta pCi/L
		05/15/2001	163	---	~0.171	25.9	<0.0002	16.1	---	357	---	0.282	<3.02	6.6
SRK01	0326	09/29/2000	276	114	0.255	29	<0.0003	49.4	---	811	2	0.285	<6.54	14.5
		12/19/2000	---	8	<0.0665	26.3	<0.0003	14.8	---	670	<5	0.0143	7.92	13.69
		03/05/2001	294	<5	0.099	25.2	<0.0003	12.5	2	575	<5	0.0127	4.83	9.1
		05/16/2001	303	<5	~0.0926	29.2	<0.0002	13.7	---	494	<5	0.009	<3.94	9.15
SRK01	0327	09/26/2000	599	---	1.52	173	<0.0003	~797	---	8100	---	0.697	~421.03	228.01
SRK01	0328	09/27/2000	381	---	0.19	89.1	<0.0003	~37	---	1302	---	0.0166	<8.92	<8
		12/14/2000	389	---	0.164	92	<0.0003	39.8	---	1350	---	0.0684	<8.01	<7.4
		02/28/2001	357	---	0.222	82.8	<0.0003	42.1	---	1365	---	<0.011	<7.13	<6.06
SRK01	0329	09/27/2000	299	---	0.207	92.3	<0.0003	47.7	---	1271	---	0.0254	9.42	11.04
		12/14/2000	---	---	0.173	84.1	<0.0003	46.9	---	1240	---	0.155	~13.24	10.82
		02/28/2001	298	---	0.176	92.2	<0.0003	44.5	---	1421	---	0.0803	8	<6.71
		05/16/2001	273	---	~0.198	93.1	<0.0002	55.3	---	1440	---	~0.0775	<8.13	11.92
SRK01	0330	09/27/2000	302	---	0.155	92.8	<0.0003	36.3	---	1255	---	0.0271	13.43	8.62
		12/14/2000	293	---	0.114	85.7	<0.0003	60.1	---	1110	---	0.0333	~6.9	8.09
		02/27/2001	300	---	0.169	80.6	<0.0003	36.9	---	1240	---	0.0274	~7.61	8.91
		05/16/2001	273	---	~0.158	88	<0.0002	44.7	---	1235	---	<0.001	~9.57	6.57
SRK01	0331	09/28/2000	349	---	0.293	111	<0.0003	66.5	---	1787	---	0.025	25.1	17.37
		12/14/2000	349	---	0.194	103	<0.0003	60.4	---	1390	---	0.0324	~15.39	15.05
		02/27/2001	324	---	0.258	92.3	<0.0003	57.5	---	1665	---	<0.011	~28.76	20.63
		05/15/2001	338	---	~0.256	107	<0.0002	66	---	1703	---	<0.0033	~18.6	9.5
SRK01	0332	12/19/2000	---	14100	---	---	---	---	---	---	319	---	---	---
		03/02/2001	---	17400	---	---	---	---	0.2	36700	244	---	---	---
		05/18/2001	---	14600	---	---	---	---	---	21300	414	---	---	---
SRK01	0333	12/19/2000	---	5340	---	---	---	---	---	---	329	---	---	---
		03/02/2001	---	8520	---	---	---	---	2.6	20600	256	---	---	---
		05/17/2001	---	7990	---	---	---	---	---	26700	342	---	---	---
SRK01	0334	12/19/2000	---	<5	---	---	---	---	---	---	<5	---	---	---

Site Code	Location Code	Date Sampled	Alkalinity mg/L	Benzene µg/L	Bromide mg/L	Ca mg/L	Cd mg/L	Chloride mg/L	DO mg/L	EC µmhos/cm	Ethylbenzene µg/L	Fe mg/L	Gross Alpha pCi/L	Gross Beta pCi/L
SRK01	0335	03/01/2001	---	<5	---	---	---	---	0	4450	<5	---	---	---
		05/17/2001	---	<5	---	---	---	---	---	4190	<5	---	---	---
		12/19/2000	---	<5	---	---	---	---	---	---	<5	---	---	---
		03/01/2001	469	<5	---	---	---	---	1	4660	<5	---	---	---
		05/17/2001	---	<5	---	---	---	---	---	4710	<5	---	---	---
SRK01	0336	12/19/2000	---	<5	---	---	---	---	---	---	<5	---	---	---
		03/01/2001	472	<5	---	---	---	---	0	1279	<5	---	---	---
		05/17/2001	---	<5	---	---	---	---	---	1121	<5	---	---	---
SRK01	0337	12/19/2000	---	8	---	---	---	---	---	---	6	---	---	---
		03/01/2001	564	<5	---	---	---	---	0	1686	<5	---	---	---
		05/17/2001	---	<5	---	---	---	---	---	1467	<5	---	---	---
SRK01	0338	12/19/2000	---	647	---	---	---	---	---	---	584	---	---	---
		03/01/2001	---	594	---	---	---	---	---	3770	224	---	---	---
		05/17/2001	---	354	---	---	---	---	---	4220	121	---	---	---
SRK01	0508	09/20/2000	291	---	0.561	592	0.0097	109	---	5060	---	0.0536	36.78	<31.75
		12/14/2000	298	---	<0.332	573	0.0089	105	---	5400	---	0.038	~54.35	<24.02
		02/27/2001	315	---	0.459	547	0.0083	105	---	5320	---	<0.011	~34.65	<30.21
		05/17/2001	304	---	---	582	0.0076	119	---	5140	---	~0.0122	<29.08	<29.85
SRK01	0509	09/28/2000	330	---	0.214	153	<0.0003	54.8	---	1759	---	<0.0117	<10.74	16.66
		12/14/2000	314	---	0.149	139	<0.0003	51.9	---	1780	---	<0.011	~22.86	17.34
		02/27/2001	318	---	0.198	138	<0.0003	50.3	---	1675	---	0.0549	~18.27	19.27
		05/17/2001	261	---	~0.163	112	0.00023	50	---	1757	---	<0.001	~18.45	19.55
SRK01	0510	09/20/2000	293	---	0.645	644	0.0013	101	---	4750	---	<0.0117	<34.49	37.11
		12/14/2000	311	---	0.522	603	0.0014	104	---	4770	---	<0.011	~55.14	25.41
		02/27/2001	340	---	0.585	543	0.0014	107	---	4980	---	0.0135	~61.6	35.33
		02/27/2001	---	---	0.586	564	0.0016	106	---	---	---	<0.011	~37.94	40.92
		05/17/2001	303	---	~0.624	581	0.0015	122	---	4790	---	<0.001	~37.67	<29.93
		05/17/2001	---	---	~0.553	577	0.0017	122	---	---	---	<0.001	~39.38	<29.84
SRK01	0556	09/29/2000	223	---	0.183	38.2	<0.0003	22.2	---	665	---	<0.0117	<6.08	9.75

Site Code	Location Code	Date Sampled	Alkalinity mg/L	Benzene µg/L	Bromide mg/L	Ca mg/L	Cd mg/L	Chloride mg/L	DO mg/L	EC µmhos/cm	Ethylbenzene µg/L	Fe mg/L	Gross Alpha pCi/L	Gross Beta pCi/L
SRK01	0668	09/29/2000	246	---	0.0687	26.9	<0.0003	8.73	---	396	---	<0.0177	<5.46	<6.18
SRK01	0669	09/20/2000	246	---	<0.0665	46.8	<0.0003	4.98	---	544	---	0.244	<5.45	13.06
SRK01	0670	09/20/2000	244	---	<0.0665	44	<0.0003	8.74	---	543	---	0.0892	<8.42	<12.03
SRK01	0672	09/28/2000	---	---	<0.0665	22.4	<0.00033	7.75	---	528	---	<0.0225	<5.63	7.88
SRK01	0684	09/28/2000	166	---	<0.0665	75.7	<0.0003	18.7	---	698	---	<0.0117	7.04	9.21
		12/13/2000	166	---	<0.0665	72.6	<0.0003	18	---	592	---	<0.011	<4.16	12.23
		12/13/2000	---	---	<0.0665	71.9	<0.0003	18	---	---	---	0.0214	<4.11	8.04
		02/26/2001	184	---	<0.0665	66.5	<0.0003	17.7	---	671	---	0.077	<4.3	7.76
		02/26/2001	---	---	0.0668	66.5	<0.0003	17.7	---	---	---	0.0837	<4.21	6.48
		05/16/2001	174	---	---	66.5	<0.0002	21	---	626	---	<0.001	~4.16	7.41
SRK01	0685	09/19/2000	341	---	0.231	133	<0.0003	58.9	---	1435	---	0.0443	<9.73	14.78
		12/13/2000	308	---	0.152	122	<0.0003	54.2	---	1032	---	0.0473	<8.1	14.48
		02/27/2001	326	---	0.229	121	<0.0003	56.5	---	1400	---	<0.011	<8.27	12.01
		05/16/2001	321	---	~0.202	126	<0.0002	60.2	---	1332	---	<0.005	<7.79	10.35
SRK01	0687	09/29/2000	365	---	<0.0665	22.9	<0.0003	9	---	833	---	<0.0474	7.7	17.34
SRK01	0688	09/21/2000	295	---	0.133	56.8	<0.0003	22.5	---	552	---	<0.0117	<5.83	8.66
SRK01	0690	09/29/2000	239	---	<0.0665	20.7	<0.0003	7.97	---	492	---	<0.0117	<5.41	<6.17
SRK01	0807	09/21/2000	131	---	0.1	20.5	<0.0003	10	---	274	---	<0.0152	5.2	<6.05

Site Code	Location Code	Date Sampled	K mg/L	Mg mg/L	Mn mg/L	Mo mg/L	NH ₄ mg/L	NO ₃ mg/L	Na mg/L	ORP mV	pH s.u.	PO ₄ mg/L	Pb-210 pCi/L	Po-210 pCi/L	Ra-226 pCi/L	Ra-228 pCi/L	SO ₄ mg/L
Surface Water																	
SRK01	0346	02/26/2001	1.88	13.1	0.0046	0.0014	0.0076	0.461	30.2	226	8.13	---	---	---	<0.14	<0.88	111
		05/15/2001	2.01	19.9	0.0023	0.0039	0.009	0.0982	34.6	85	8.21	---	---	---	<0.13	<0.96	156
SRK01	0347	02/26/2001	1.86	13.5	0.0064	0.0016	0.0317	0.885	30.7	192	8.25	---	---	---	<0.13	<0.84	115
		05/15/2001	2.1	20.2	0.0048	0.0042	0.009	0.271	34.5	185	8.20	---	---	---	<0.13	<0.94	156
SRK01	0349	02/27/2001	1.92	14.8	0.0234	0.0028	0.0906	2.23	33.4	199	8.08	---	---	---	<0.14	<0.91	147
		05/15/2001	2.05	20.1	0.0043	0.0047	0.0179	~0.473	34.8	119	8.01	---	---	---	0.16	<0.96	155
SRK01	0692	09/27/2000	1.67	7.49	0.0026	0.00093	0.0205	0.252	13.9	171	8.40	<0.0291	<1.22	<0.07	<0.15	<0.76	28.8
		09/27/2000	1.68	7.45	<0.002	0.00083	0.0177	0.274	14	---	---	<0.0291	<1.38	<0.07	<0.17	<0.86	28.8
		12/19/2000	2.14	9.29	0.0073	0.00087	<0.0047	0.0632	25.1	3	8.18	0.0342	<1.32	<0.07	<0.13	<0.7	32.4
		02/26/2001	1.93	15.2	0.0055	0.0019	0.0076	0.594	34.6	157	8.42	---	---	---	<0.13	<0.83	132
		02/26/2001	1.91	15.1	0.0062	0.0016	0.013	0.825	34.7	---	---	---	---	---	0.16	<0.88	130
		05/15/2001	2.1	20.8	0.00053	0.0037	<0.0062	0.106	36.4	192	8.35	---	---	---	0.19	<0.94	161
		05/15/2001	2.12	21	0.00055	0.0041	<0.0062	0.13	36.1	---	---	---	---	---	<0.13	<0.92	161
SRK01	0693	09/21/2000	1.67	7.46	<0.002	0.00085	0.0161	0.0594	13.7	195	8.65	<0.0291	<1.27	<0.07	0.2	<0.81	23
		12/19/2000	2.04	9.27	0.0062	<0.0008	<0.0047	0.09	28.3	-76	8.03	<0.0291	<1.28	<0.06	<0.13	<0.69	35
		02/26/2001	1.86	13.1	0.0053	0.0015	0.005	0.59	29.9	237	8.17	---	---	---	<0.14	<0.91	111
		05/15/2001	2.06	20.4	0.0085	0.004	<0.0062	0.131	35.5	149	8.20	---	---	---	<0.13	<0.91	159
SRK01	0694	09/21/2000	1.74	7.56	<0.002	0.0012	0.0273	0.197	13.8	212	8.68	<0.0291	<1.27	<0.07	<0.15	<0.78	23
		12/14/2000	1.69	8.19	0.0061	0.0011	0.0151	0.231	~19.4	155	8.00	<0.0291	<1.37	<0.17	<0.16	<0.84	31.8
		12/14/2000	1.69	8.17	0.0063	0.00094	0.0189	0.242	~19.5	---	---	<0.0291	<1.31	<0.14	<0.16	<0.84	31.9
		02/26/2001	1.9	13.4	0.0099	0.0017	0.0344	0.837	30.3	183	8.34	---	---	---	<0.13	<0.84	113
		05/15/2001	2.16	20.7	0.0039	0.0041	0.0179	0.223	35.5	180	8.18	---	---	---	0.2	<0.94	158
SRK01	0696	09/27/2000	1.73	7.7	<0.002	0.00089	0.0097	0.141	14.5	144	8.42	<0.0291	<1.21	<0.07	<0.15	<0.78	23.4
		12/19/2000	2.02	9.22	0.007	0.00095	<0.0047	<0.0314	24.4	-30	8.11	<0.0291	<1.27	<0.06	<0.13	<0.7	33
		02/26/2001	1.91	14.3	0.0057	0.0014	0.0076	0.636	32.6	234	8.10	---	---	---	<0.13	<0.81	120
		05/15/2001	2.06	20.2	0.0011	0.004	<0.0062	0.127	34.4	172	8.28	---	---	---	0.15	<0.88	155

Site Code	Location Code	Date Sampled	K mg/L	Mg mg/L	Mn mg/L	Mo mg/L	NH ₄ mg/L	NO ₃ mg/L	Na mg/L	ORP mV	pH s.u.	PO ₄ mg/L	Pb-210 pCi/L	Po-210 pCi/L	Ra-226 pCi/L	Ra-228 pCi/L	SO ₄ mg/L
Ground Water																	
SRK01	0300	09/27/2000	14.7	517	3.53	0.0046	1	0.225	1560	-67	6.98	<0.122	<1.32	<0.07	<0.14	<0.77	4590
		12/19/2000	11.9	441	3.1	0.0037	0.455	<0.0314	1340	-60	6.91	0.0545	<1.3	<0.05	<0.12	<0.63	3850
		02/28/2001	10.1	395	2.3	0.004	0.444	0.756	1130	-80	6.98	---	---	---	<0.13	<1.01	3700
		05/14/2001	10.9	375	2.81	<0.0048	0.38	~0.0722	1290	75	6.90	---	---	---	0.15	<0.86	2100
		05/14/2001	10.7	367	2.77	<0.0049	0.377	0.0664	1280	---	---	---	---	---	0.16	<0.87	~2080
SRK01	0301	09/27/2000	5.02	72.8	1.12	0.0034	0.199	0.296	323	-75	7.22	<0.0291	<1.24	<0.09	<0.15	<0.77	770
		09/27/2000	5.2	71	1.1	0.0033	0.257	0.133	336	---	---	<0.0291	<1.28	<0.11	<0.14	<0.75	776
		12/19/2000	4.39	60.7	0.99	0.0026	0.206	0.0553	288	-62	7.10	<0.0545	<1.31	<0.07	<0.13	<0.64	738
		02/28/2001	3.37	73.6	0.215	0.0026	0.0907	0.603	253	-82	7.37	---	---	---	0.19	<1.03	726
		05/14/2001	4.06	103	0.0395	<0.0026	<0.0062	0.152	336	156	7.21	---	---	---	<0.11	<0.88	798
SRK01	0302	09/27/2000	10.9	54.2	0.505	0.005	0.0233	0.206	347	-22	7.20	<0.0291	<1.3	<0.08	<0.15	<0.82	644
		12/15/2000	10.7	58.3	0.436	0.0047	<0.0047	0.0393	377	7	6.99	<0.0545	<1.23	<0.06	<0.13	<0.66	714
		02/28/2001	8.48	55.7	0.307	0.0044	<0.0047	0.463	319	-25	7.05	---	---	---	0.14	<1.01	652
		05/14/2001	7.28	49.7	0.395	0.0071	<0.0062	0.104	276	46	7.05	---	---	---	<0.11	<0.86	401
SRK01	0303	09/26/2000	12.2	43.7	0.326	0.0112	0.235	0.228	474	-104	7.20	<0.0291	<1.49	<0.05	<0.16	<0.76	661
		12/19/2000	12.7	41.9	0.349	0.01	0.199	0.593	592	-88	7.19	<0.0291	<1.23	<0.07	<0.13	<0.63	746
		02/28/2001	9.17	33.9	0.226	0.0095	0.168	0.869	412	-114	7.29	---	---	---	0.14	<0.94	633
		05/15/2001	8.25	32.2	0.193	0.0096	0.133	0.528	339	-82	7.36	---	---	---	0.16	<0.8	371
SRK01	0304	09/26/2000	2.56	29.2	0.134	0.008	0.0233	0.172	91.6	-57	7.24	<0.0291	<1.14	<0.07	<0.15	<0.72	225
		12/15/2000	2	28.7	0.0721	0.007	0.0082	<0.0314	81.5	-62	7.25	<0.0291	<1.24	<0.06	<0.12	<0.62	239
		02/28/2001	1.73	28.5	0.0428	0.0062	<0.0047	0.509	81.5	-21	7.48	---	---	---	<0.13	<0.93	243
		05/15/2001	1.6	29.1	0.021	0.0059	<0.0062	0.132	75	67	7.32	---	---	---	<0.12	<0.84	228
SRK01	0305	09/26/2000	29.3	105	0.198	0.0138	<0.0047	0.76	576	16	7.21	<0.0291	<1.29	<0.09	<0.16	<0.72	1130
		12/15/2000	27.1	99	0.153	0.0126	<0.0047	0.639	548	-40	7.14	<0.0291	<1.3	<0.07	<0.12	<0.62	1090
		02/28/2001	23.3	91.1	0.0787	0.0105	<0.0047	1.09	494	-46	7.36	---	---	---	<0.14	<1.03	1070
		05/14/2001	24.4	94.8	0.0352	0.011	<0.0062	0.464	486	105	7.21	---	---	---	0.14	<0.85	849
SRK01	0306	09/26/2000	28	161	0.505	0.0106	0.288	0.0701	1430	-32	7.20	<0.0291	<1.37	<0.06	0.16	0.77	2590
		09/26/2000	28.9	165	0.524	0.01	0.282	0.0693	1410	---	---	<0.0291	<1.29	<0.08	<0.17	1.24	2610
SRK01	0307	09/26/2000	30	134	0.406	0.0084	0.33	0.0671	1320	-66	7.03	<0.0291	<1.26	<0.07	0.19	1.11	2220

Site Code	Location Code	Date Sampled	K mg/L	Mg mg/L	Mn mg/L	Mo mg/L	NH ₄ mg/L	NO ₃ mg/L	Na mg/L	ORP mV	pH s.u.	PO ₄ mg/L	Pb-210 pCi/L	Po-210 pCi/L	Ra-226 pCi/L	Ra-228 pCi/L	SO ₄ mg/L
		12/15/2000	30.2	145	0.392	0.0077	0.218	<0.0314	1330	-38	7.11	<0.0545	<1.29	<0.07	<0.15	1.27	2340
		03/01/2001	27.3	142	0.36	0.0075	0.262	0.375	1200	-136	7.12	---	---	---	0.27	<0.96	2400
		05/14/2001	27.1	140	0.386	0.0078	0.233	0.0516	1190	104	7.24	---	---	---	0.19	<0.78	1800
SRK01	0308	09/26/2000	8.49	102	0.739	0.0095	0.132	0.418	607	-58	7.16	<0.0291	<1.25	<0.06	<0.15	<0.72	1310
SRK01	0309	09/26/2000	25.4	84.2	0.384	0.0546	0.126	0.144	1530	-118	7.51	<0.0291	<1.44	<0.06	0.16	<0.72	1490
		12/15/2000	32.9	85.4	0.314	0.0519	0.0799	<0.0314	1290	-113	7.48	<0.0342	<1.26	<0.08	<0.13	<0.63	1490
		03/01/2001	34.9	88.8	0.312	0.0433	0.0797	0.566	1040	-180	7.57	---	---	---	<0.14	<1.02	1210
		05/14/2001	35.7	93	0.321	0.0316	0.0444	0.0495	1140	136	7.45	---	---	---	0.18	<0.82	1310
SRK01	0310	09/27/2000	2.57	15.7	0.262	0.0173	0.0823	0.132	42.7	-5	7.61	<0.0291	<1.16	<0.09	<0.15	<0.75	130
		12/14/2000	2.51	16.3	0.237	0.0151	0.0629	0.0356	~40.7	-104	7.44	<0.0291	<1.22	<0.26	<0.14	<0.75	139
		02/28/2001	2.26	15.1	0.215	0.0155	0.0548	0.584	39.6	-104	7.84	---	---	---	0.15	<1.08	127
		05/16/2001	2.17	16.4	0.234	0.0143	0.0469	0.107	41.4	-101	7.41	---	---	---	<0.12	<0.88	137
SRK01	0311	09/27/2000	3.7	28.5	0.0147	0.0145	<0.0047	0.246	55.5	54	7.11	<0.0291	<1.18	<0.06	<0.15	<0.78	188
		12/14/2000	3.45	26.6	0.0606	0.0185	<0.0047	0.099	~47.8	-29	7.06	<0.0291	<1.22	<0.29	<0.14	<0.76	191
		02/28/2001	2.99	23.7	0.01	0.0118	<0.0047	0.623	42	1	7.34	---	---	---	<0.15	<1.07	187
		05/16/2001	3.08	27	0.0177	0.0094	<0.0062	0.165	48.2	106	7.11	---	---	---	<0.13	<0.92	221
SRK01	0312	09/27/2000	16	29.2	0.52	0.0325	0.0265	0.348	273	-63	7.55	<0.0291	<1.21	<0.09	<0.15	<0.75	458
		12/15/2000	13.1	25.5	0.394	0.0255	0.0309	0.0914	192	3	7.36	0.0342	<1.22	<0.08	<0.13	<0.63	354
		02/28/2001	10.8	22.6	0.32	0.022	0.0189	0.501	147	-49	7.88	---	---	---	<0.13	<0.93	314
		05/16/2001	10.2	21.9	0.282	0.0196	0.0088	0.0771	141	-41	7.59	---	---	---	<0.12	<0.9	251
SRK01	0313	09/19/2000	8.39	66.8	0.4	0.0602	6.58	0.0633	178	-5	7.21	<0.0291	<1.21	<0.07	<0.15	<0.72	503
		12/19/2000	8.42	66.4	0.104	0.048	6.06	0.175	174	-32	7.12	0.0342	<1.28	<0.08	<0.12	<0.63	495
		02/27/2001	7.78	63.8	0.162	0.0482	5.71	2.38	168	-88	7.28	---	---	---	0.18	<0.81	501
		05/16/2001	7.24	61.9	0.131	0.0453	6.02	0.0769	178	-44	7.05	---	---	---	0.17	<0.93	358
SRK01	0314	09/19/2000	9.41	51.7	0.405	0.304	34.2	63.5	109	143	6.87	<0.0291	<1.27	<0.29	<0.14	<0.69	524
SRK01	0315	09/20/2000	8.87	56.6	0.257	0.216	12.5	82.1	111	188	6.84	<0.0291	<1.33	<0.09	<0.14	<0.71	499
		12/13/2000	7.43	53.6	0.18	0.196	11.9	86.5	102	173	6.72	<0.0291	<1.35	<0.26	<0.15	<0.73	457
SRK01	0316	09/20/2000	11.2	39.5	0.515	0.445	42.7	72.4	99.5	190	7.06	<0.0291	<1.32	<0.08	<0.13	<0.68	481

Site Code	Location Code	Date Sampled	K mg/L	Mg mg/L	Mn mg/L	Mo mg/L	NH ₄ mg/L	NO ₃ mg/L	Na mg/L	ORP mV	pH s.u.	PO ₄ mg/L	Pb-210 pCi/L	Po-210 pCi/L	Ra-226 pCi/L	Ra-228 pCi/L	SO ₄ mg/L
SRK01	0317	09/28/2000	17.2	53.7	0.333	0.247	118	7.44	86.7	-86	7.43	<0.0291	<1.26	<0.18	<0.17	1.42	705
		12/14/2000	18.5	67.3	0.28	0.316	150	5.26	105	77	7.45	<0.0291	<1.34	<0.24	<0.19	2.1	837
		03/01/2001	11.1	42.9	0.21	0.242	73.2	18.9	76.7	82	7.25	---	---	---	0.31	1.22	500
		05/17/2001	16.8	67.6	0.224	0.279	141	6.35	109	178	7.42	---	---	---	0.27	2.14	757
SRK01	0318	09/19/2000	9.6	260	12.8	1.83	48	3510	234	174	6.38	0.0319	<1.34	<0.09	<0.14	<0.72	924
		12/13/2000	7.43	172	8.3	1.23	30.7	1080	219	210	6.60	<0.0291	<1.37	<0.29	<0.16	<0.76	781
		02/27/2001	5.37	195	9.19	1.29	22.4	2650	210	155	6.76	---	---	---	<0.14	<0.9	860
		05/17/2001	4.65	266	9.73	1.32	5.19	4090	242	247	6.38	---	---	---	<0.13	<0.89	940
SRK01	0319	09/28/2000	30.1	236	0.293	0.0448	87.6	0.0958	2010	-166	6.92	0.499	<1.21	<0.08	1.91	2.61	73.4
		12/19/2000	27.1	303	0.427	0.0277	118	<0.0314	1510	-112	6.89	0.36	<1.39	<0.1	3.22	3.99	<0.589
		03/02/2001	29.8	349	0.321	0.0388	102	0.438	2210	-184	7.11	---	---	---	2.91	4.04	3.1
		05/18/2001	21.7	167	0.259	0.0276	162	0.0811	1290	-156	7.01	---	---	---	1.94	1.7	4.42
SRK01	0320	09/20/2000	13.6	40.3	0.581	0.0062	23.7	0.0648	47.4	-54	7.09	<0.0291	<1.25	<0.08	0.15	<0.7	139
		09/29/2000	---	---	---	---	---	---	---	-54	7.09	---	---	---	---	---	---
		12/14/2000	11.8	41.9	0.599	0.0073	20.7	0.458	~49.8	24	7.12	<0.0752	<1.28	<0.24	0.24	<0.74	143
		12/14/2000	11.5	40.9	0.587	0.006	20.9	0.284	~47.4	---	---	<0.0335	<1.31	<0.18	<0.15	<0.75	150
		03/02/2001	10.1	38.4	0.519	0.0055	20.5	0.614	43	-73	7.08	---	---	---	0.2	<1	133
		05/17/2001	11.6	38.1	0.571	0.0117	22.9	0.108	50	-35	7.01	---	---	---	<0.13	<0.93	124
SRK01	0321	09/19/2000	6.21	22.5	0.305	0.0207	0.901	0.0864	32.3	15	7.49	<0.0291	<1.36	<0.08	<0.14	<0.71	138
SRK01	0322	09/28/2000	5.96	21.9	0.438	0.0205	0.867	<0.0314	32.1	-59	7.38	<0.0291	<1.13	<0.07	<0.15	<0.75	132
SRK01	0323	09/28/2000	2.57	17	0.286	0.0211	0.269	0.601	30.3	161	7.23	<0.0291	<1.13	<0.07	<0.14	<0.76	121
		09/28/2000	2.64	9.9	0.153	0.021	0.261	0.504	17.8	---	---	<0.0291	<1.11	<0.08	<0.15	<0.79	120
SRK01	0324	09/19/2000	14.3	87.7	0.592	0.0312	17.8	137	37	186	7.41	<0.0291	<1.26	<0.08	0.32	<0.69	266
		12/14/2000	11.8	75.4	0.316	0.0331	8.04	104	~30.6	96	7.45	<0.0543	<1.26	<0.32	0.22	<0.79	191
		02/27/2001	10.3	65.7	0.226	0.0322	6.01	111	31.5	211	7.40	---	---	---	0.29	<0.91	202
SRK01	0325	09/20/2000	3.34	27.7	0.0803	0.0042	0.01	0.982	2.82	183	8.18	<0.0291	<1.42	<0.09	0.3	<0.71	7.95
		12/18/2000	7.05	25.3	0.0377	0.0184	0.01	1.34	6.56	57	7.77	<0.0291	<1.27	<0.1	0.3	<0.65	7.77
		03/05/2001	2.98	25.4	0.0215	0.0031	0.0118	3.11	2.59	26	8.16	---	---	---	0.37	<0.93	8.15

Site Code	Location Code	Date Sampled	K mg/L	Mg mg/L	Mn mg/L	Mo mg/L	NH ₄ mg/L	NO ₃ mg/L	Na mg/L	ORP mV	pH s.u.	PO ₄ mg/L	Pb-210 pCi/L	Po-210 pCi/L	Ra-226 pCi/L	Ra-228 pCi/L	SO ₄ mg/L
SRK01	0326	05/15/2001	4.83	26.7	0.0381	0.0078	<0.0062	1.11	3.9	91	7.92	---	---	---	0.31	<0.91	8.85
		09/29/2000	17.7	45.4	0.221	0.0242	0.0293	0.0639	56.4	-415	7.81	<0.0291	<1.07	<0.05	0.23	<0.79	65.4
		12/19/2000	12.2	45.1	0.167	0.023	0.0252	0.488	48.4	117	6.48	<0.0291	<1.43	<0.07	0.26	<0.66	38.4
		03/05/2001	10.6	44.5	0.0995	0.0092	<0.0047	1.32	25.8	-52	7.47	---	---	---	0.39	<0.97	23
		05/16/2001	10.8	48.8	0.116	0.01	<0.0062	0.427	27.1	76	7.70	---	---	---	0.35	<0.87	23.1
SRK01	0327	09/26/2000	31	229	0.644	0.0132	0.163	0.123	1760	-37	7.17	<0.0291	<1.22	<0.08	<0.15	<0.72	3270
SRK01	0328	09/27/2000	3.61	68.9	0.19	0.0128	0.0125	0.489	119	67	7.21	<0.0291	<1.14	<0.05	<0.15	<0.76	286
		12/14/2000	3.21	66.7	0.126	0.0093	<0.0047	0.463	~122	-26	7.17	<0.0291	<1.22	<0.06	<0.13	<0.72	308
		02/28/2001	2.79	64.3	0.0313	0.01	<0.0047	1.4	111	62	7.44	---	---	---	0.18	<1.04	322
SRK01	0329	09/27/2000	8.97	56.7	1.44	0.0249	0.0265	0.448	141	76	7.67	0.059	<1.26	<0.1	<0.17	<0.84	418
		12/14/2000	7.51	53.8	1.29	0.0439	0.0208	0.0821	~143	4	7.55	<0.0291	<1.24	<0.23	<0.15	<0.81	400
		02/28/2001	6.57	55.3	0.843	0.0198	<0.0047	0.806	140	136	7.77	---	---	---	<0.13	<0.83	421
		05/16/2001	6.79	56.1	0.781	0.026	<0.0062	0.174	152	101	7.50	---	---	---	<0.12	<0.89	344
SRK01	0330	09/27/2000	4.75	50.8	0.27	0.0081	0.0293	0.0945	123	151	7.33	<0.0291	<1.2	<0.1	<0.16	<0.79	351
		12/14/2000	4.26	50.8	0.225	0.0087	0.0095	0.0787	~123	63	7.29	<0.0291	<1.22	<0.15	0.18	<0.74	934
		02/27/2001	3.76	46.3	0.0886	0.0078	0.0189	0.626	112	70	7.40	---	---	---	0.18	<0.93	336
		05/16/2001	3.68	48.7	0.0394	0.0095	<0.0062	0.0986	123	155	7.33	---	---	---	0.19	<0.87	201
SRK01	0331	09/28/2000	9.34	73.1	0.0645	0.0076	<0.0047	1.81	207	68	7.34	<0.0291	<1.16	<0.09	<0.15	<0.79	554
		12/14/2000	9.15	71.5	0.0037	0.0071	<0.0047	1.69	~205	-8	7.20	<0.0291	<1.3	<0.09	<0.15	<0.84	519
		02/27/2001	7.73	60.4	<0.003	0.0075	0.01	2.45	175	-31	7.19	---	---	---	<0.14	<0.89	500
		05/15/2001	7.49	64.7	0.0016	0.0075	<0.0062	1.38	188	115	7.33	---	---	---	<0.12	<0.88	~242
SRK01	0332	12/19/2000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
		03/02/2001	---	---	---	---	---	---	---	-127	6.58	---	---	---	---	---	---
		05/18/2001	---	---	---	---	---	---	---	-98	6.53	---	---	---	---	---	---
SRK01	0333	12/19/2000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
		03/02/2001	---	---	---	---	---	---	---	-114	6.63	---	---	---	---	---	---
		05/17/2001	---	---	---	---	---	---	---	-129	6.68	---	---	---	---	---	---
SRK01	0334	12/19/2000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Site Code	Location Code	Date Sampled	K mg/L	Mg mg/L	Mn mg/L	Mo mg/L	NH ₄ mg/L	NO ₃ mg/L	Na mg/L	ORP mV	pH s.u.	PO ₄ mg/L	Pb-210 pCi/L	Po-210 pCi/L	Ra-226 pCi/L	Ra-228 pCi/L	SO ₄ mg/L
SRK01	0335	03/01/2001	---	---	---	---	---	---	---	-130	6.97	---	---	---	---	---	---
		05/17/2001	---	---	---	---	---	---	---	-98	6.92	---	---	---	---	---	---
		12/19/2000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
		03/01/2001	---	---	---	---	---	---	---	104	6.99	---	---	---	---	---	---
		05/17/2001	---	---	---	---	---	---	---	178	6.76	---	---	---	---	---	---
		12/19/2000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
SRK01	0336	03/01/2001	---	---	---	---	---	---	---	104	6.99	---	---	---	---	---	---
		05/17/2001	---	---	---	---	---	---	---	178	6.76	---	---	---	---	---	---
		12/19/2000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
SRK01	0337	03/01/2001	---	---	---	---	---	---	---	-89	6.87	---	---	---	---	---	---
		05/17/2001	---	---	---	---	---	---	---	-48	6.90	---	---	---	---	---	---
		12/19/2000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
SRK01	0338	03/01/2001	---	---	---	---	---	---	---	-157	6.95	---	---	---	---	---	---
		05/17/2001	---	---	---	---	---	---	---	-124	7.01	---	---	---	---	---	---
		12/19/2000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
SRK01	0508	03/01/2001	---	---	---	---	---	---	---	-163	7.09	---	---	---	---	---	---
		05/17/2001	---	---	---	---	---	---	---	-125	7.02	---	---	---	---	---	---
		12/19/2000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
SRK01	0509	09/20/2000	12.9	212	6.57	1.38	94.9	1790	204	108	6.70	<0.0291	<1.38	<0.08	0.51	<0.7	1110
		12/14/2000	12.3	213	6.63	1.23	104	1780	~208	137	6.63	<0.0291	<1.38	<0.43	0.36	<0.78	1120
		02/27/2001	10.9	207	6.27	1.26	98.3	1790	197	229	6.58	---	---	---	0.51	<0.9	1130
		05/17/2001	11.9	201	6.29	1.27	98.2	1640	224	225	6.65	---	---	---	0.75	<0.9	1140
SRK01	0510	09/28/2000	10.7	55.8	0.186	0.214	48.2	32.8	107	243	6.89	<0.0291	<1.16	<0.1	<0.17	1.07	520
		12/14/2000	10.2	52.6	0.202	0.24	50.9	40	106	178	6.98	<0.0291	<1.35	<0.34	<0.17	1.19	492
		02/27/2001	8.67	49.7	0.147	0.187	45.7	43.7	94.4	137	7.08	---	---	---	0.17	<0.86	500
		05/17/2001	11.5	45.1	0.232	0.309	84.9	23.6	89.7	201	7.30	---	---	---	<0.17	1.79	375
SRK01	0556	09/20/2000	12.2	219	6.86	0.984	52.5	1690	174	227	6.52	<0.0291	<1.38	<0.1	1.15	<0.9	1120
		12/14/2000	10.6	206	6.59	0.964	46.7	1960	~173	184	6.50	<0.0752	<1.37	<0.16	1.48	<0.86	1120
		02/27/2001	9.4	200	6.21	0.948	47.8	1570	168	135	6.68	---	---	---	0.56	<0.83	1160
		02/27/2001	9.47	201	6.22	0.934	47.5	1580	169	---	---	---	---	---	0.59	<0.94	1140
		05/17/2001	10.6	202	6.73	0.991	50.3	1440	192	203	6.50	---	---	---	0.58	<0.92	896
		05/17/2001	10.5	199	6.69	1.05	51.4	1450	190	---	---	---	---	---	0.73	<0.94	884
SRK01	0556	09/29/2000	11.2	52.6	0.0036	0.0052	0.113	1.72	22.9	63	7.84	<0.0291	<1.09	<0.05	<0.16	<0.78	101

Site Code	Location Code	Date Sampled	K mg/L	Mg mg/L	Mn mg/L	Mo mg/L	NH ₄ mg/L	NO ₃ mg/L	Na mg/L	ORP mV	pH s.u.	PO ₄ mg/L	Pb-210 pCi/L	Po-210 pCi/L	Ra-226 pCi/L	Ra-228 pCi/L	SO ₄ mg/L
SRK01	0668	09/29/2000	8.26	41.6	0.0136	0.0024	0.0206	0.296	9.17	95	7.79	<0.0291	<1.14	<0.05	0.37	<0.75	13.4
SRK01	0669	09/20/2000	12.3	32	0.045	0.0027	0.1	0.0672	13.8	121	7.48	0.0319	<1.2	<0.08	0.46	<0.95	21
SRK01	0670	09/20/2000	12.3	35.2	0.0464	0.0033	0.117	<0.0314	12.3	182	7.58	<0.0291	<1.25	<0.05	0.47	<0.72	15.3
SRK01	0672	09/28/2000	9.16	43.1	<0.0022	0.00078	<0.0047	2.43	19.7	177	8.01	0.0321	<1.08	<0.08	0.81	0.86	9.59
SRK01	0684	09/28/2000	9.66	25.2	0.163	0.0048	1.01	0.347	32.3	66	7.49	<0.0291	<1.09	<0.06	<0.15	<0.78	161
		12/13/2000	8.99	24.1	0.123	0.0057	0.794	0.264	31	135	7.25	<0.159	<1.27	<0.32	<0.14	<0.72	147
		12/13/2000	8.89	23.9	0.12	0.006	0.737	0.287	31.9	---	---	---	<1.32	<0.25	<0.15	<0.74	147
		02/26/2001	7.14	21.7	0.0996	0.0082	0.42	5.7	28.2	-85	7.64	---	---	---	<0.12	<0.8	132
		02/26/2001	7.17	21.8	0.0999	0.0076	0.395	1.48	28.2	---	---	---	---	---	<0.13	<0.85	131
		05/16/2001	7.48	20.3	0.136	0.0044	0.92	0.714	31.3	159	7.34	---	---	---	<0.12	<0.89	118
SRK01	0685	09/19/2000	10.1	60.5	0.547	0.0054	2.01	0.457	104	111	6.97	0.0924	<1.25	<0.06	<0.16	<0.99	389
		12/13/2000	9.66	56.6	0.487	0.0051	1.87	0.063	90.4	99	6.94	<0.0291	<1.22	<0.22	<0.15	<0.75	354
		02/27/2001	9.15	55.8	0.513	0.0095	2.04	0.783	88.5	82	6.89	---	---	---	0.14	<0.85	370
		05/16/2001	8.75	54	0.537	0.0051	1.87	0.0423	92.3	169	6.98	---	---	---	0.18	<0.88	297
SRK01	0687	09/29/2000	23.3	18.5	0.0233	0.0035	0.306	0.252	119	-69	7.56	<0.0291	<1.03	<0.06	0.34	0.95	54.3
SRK01	0688	09/21/2000	5.7	39.4	<0.002	0.0016	0.0077	1.51	29.6	226	7.38	<0.0291	<1.28	<0.06	<0.14	<0.74	35.5
SRK01	0690	09/29/2000	8.05	40.3	<0.002	0.0008	<0.0047	2.55	15.9	154	7.85	<0.0291	<1.07	<0.06	0.59	0.89	8.8
SRK01	0807	09/21/2000	3.49	19.4	<0.002	0.00094	0.0498	0.994	7.08	212	8.97	<0.0291	<1.24	<0.07	0.71	<0.82	5.56

Site Code	Location Code	Date Sampled	Se mg/L	Sr mg/L	TDS mg/L	TMP C	TURBIDITY NTU	Th-230 pCi/L	Toluene µg/L	Total Xylenes µg/L	U mg/L	U-234 pCi/L	U-238 pCi/L	V mg/L
Surface Water														
SRK01	0346	02/26/2001	0.00048	0.571	320	3.4	59.6	---	---	---	0.0012	<0.4	~0.52	<0.0015
		05/15/2001	0.0015	0.61	405	18.2	---	---	---	---	0.0014	---	---	0.00067
SRK01	0347	02/26/2001	0.0008	0.594	343	3.5	60	---	---	---	0.0014	0.49	0.57	<0.0015
		05/15/2001	0.0016	0.611	395	19.1	1000	---	---	---	0.0016	---	---	0.0015
SRK01	0349	02/27/2001	0.001	0.637	360	3.5	109	---	---	---	0.0017	0.69	0.71	<0.0015
		05/15/2001	0.0017	0.611	420	18.7	1000	---	---	---	0.0016	---	---	0.00075
SRK01	0692	09/27/2000	0.00016	0.482	208	13	10.7	<1.7	---	---	0.00043	---	---	<0.0013
		09/27/2000	0.00015	0.484	197	---	---	<1.7	---	---	0.00045	---	---	<0.0013
		12/19/2000	0.00033	0.593	250	0.2	---	<0.56	---	---	0.00075	---	---	<0.0015
		02/26/2001	0.00053	0.635	350	3	61.9	---	---	---	0.0015	0.77	0.65	<0.0015
		02/26/2001	0.00052	0.635	357	---	---	---	---	---	0.0015	0.6	~0.65	<0.0015
		05/15/2001	0.0015	0.628	437	15.5	1000	---	---	---	0.0016	---	---	0.0006
		05/15/2001	0.0016	0.626	432	---	---	---	---	---	0.0016	---	---	0.00074
SRK01	0693	09/21/2000	0.00012	0.459	175	19	20.1	<1.7	---	---	0.00037	---	---	<0.0013
		12/19/2000	0.00031	0.599	263	0.8	---	<0.56	---	---	0.00081	---	---	<0.0015
		02/26/2001	0.00042	0.596	330	3.6	255	---	---	---	0.0013	0.52	~0.57	<0.0015
		05/15/2001	0.0015	0.618	425	18.1	1000	---	---	---	0.0015	---	---	0.00082
SRK01	0694	09/21/2000	0.00022	0.464	178	17.7	17.5	<1.7	---	---	0.00038	---	---	<0.0013
		12/14/2000	0.00029	0.503	225	2.3	---	<0.56	---	---	0.00062	---	---	<0.0015
		12/14/2000	0.0003	0.504	222	---	---	<0.56	---	---	0.00063	---	---	<0.0015
		02/26/2001	0.00058	0.599	335	3.4	64.6	---	---	---	0.0013	0.58	~0.58	<0.0015
		05/15/2001	0.0014	0.621	422	18.6	1000	---	---	---	0.0015	---	---	0.0013
SRK01	0696	09/27/2000	0.00018	0.479	175	16	8.37	<1.7	---	---	0.00037	---	---	<0.0013
		12/19/2000	0.00029	0.589	277	0.8	---	<0.56	---	---	0.00075	---	---	<0.0015
		02/26/2001	0.0005	0.632	362	2.7	82.8	---	---	---	0.0013	0.99	0.54	<0.0015
		05/15/2001	0.0015	0.61	405	17.2	1000	---	---	---	0.0016	---	---	0.00071

Site Code	Location Code	Date Sampled	Se mg/L	Sr mg/L	TDS mg/L	TMP C	TURBIDITY NTU	Th-230 pCi/L	Toluene µg/L	Total Xylenes µg/L	U mg/L	U-234 pCi/L	U-238 pCi/L	V mg/L
Ground Water														
SRK01	0300	09/27/2000	0.00013	8.84	9790	14	9.62	<1.7	---	---	0.0099	---	---	<0.0013
		12/19/2000	0.00015	7.03	7610	12.9	57.6	<0.56	---	---	0.0105	---	---	<0.0015
		02/28/2001	<0.0001	7.5	7700	10.7	1.77	---	---	---	0.0139	7.5	~5.6	<0.0015
		05/14/2001	<0.0003	7.59	7500	13.4	2.44	---	---	---	0.0179	---	---	<0.0004
		05/14/2001	<0.0003	7.47	7620	---	---	---	---	---	0.0182	---	---	<0.0004
SRK01	0301	09/27/2000	0.00023	1.53	1850	15.2	212	<1.7	---	---	0.0023	---	---	<0.0013
		09/27/2000	0.00025	1.55	1840	---	---	<1.7	---	---	0.0021	---	---	<0.0013
		12/19/2000	0.00029	1.27	1670	11.7	6.51	<0.56	---	---	0.0019	---	---	<0.0015
		02/28/2001	0.0012	1.28	1700	8.9	6.72	---	---	---	0.0032	0.88	~1.3	<0.0015
		05/14/2001	0.0033	1.88	2110	13	2.32	---	---	---	0.0042	---	---	<0.0004
SRK01	0302	09/27/2000	0.0065	1.92	1700	18.3	7.99	<1.7	---	---	0.226	---	---	<0.0013
		12/15/2000	0.0073	1.85	1740	12.9	29	<0.56	---	---	0.256	---	---	<0.0015
		02/28/2001	0.0035	1.82	1580	9.4	3.63	---	---	---	0.248	91	~88.2	<0.0015
		05/14/2001	<0.0003	1.81	1630	13.3	6.26	---	---	---	0.245	---	---	<0.0004
SRK01	0303	09/26/2000	0.00033	1.81	1920	19.1	5.92	<1.7	---	---	1.02	---	---	<0.0013
		12/19/2000	0.00049	1.63	1940	12.2	7.3	<0.56	---	---	1.27	---	---	<0.0015
		02/28/2001	0.00071	1.4	1750	8.6	7.21	---	---	---	1.13	385	~393	<0.0015
		05/15/2001	0.00075	1.39	1460	13.5	5.01	---	---	---	0.944	---	---	<0.0004
SRK01	0304	09/26/2000	0.0061	1.12	700	16.7	18.8	<1.7	---	---	0.183	---	---	<0.0013
		12/15/2000	0.0047	0.988	712	12.8	165	<0.56	---	---	0.209	---	---	<0.0015
		02/28/2001	0.0048	1.06	695	10	128	---	---	---	0.218	78.4	~77.8	<0.0015
		05/15/2001	0.009	1.12	670	12.9	8.67	---	---	---	0.238	---	---	<0.0004
SRK01	0305	09/26/2000	0.0302	2.97	2720	17.1	4.53	<1.7	---	---	1.12	---	---	<0.0013
		12/15/2000	0.0283	2.59	2520	13.3	8.32	<0.56	---	---	1.13	---	---	<0.0015
		02/28/2001	0.0367	2.52	2450	10.3	8.59	---	---	---	1.31	445	~459	<0.0015
		05/14/2001	0.0363	2.77	2490	13.9	8.3	---	---	---	1.31	---	---	<0.0004
SRK01	0306	09/26/2000	0.00017	5.5	5660	18.3	4.08	<1.7	---	---	0.374	---	---	<0.0013
		09/26/2000	0.00011	5.53	5660	---	---	<1.7	---	---	0.372	---	---	<0.0013
SRK01	0307	09/26/2000	0.00025	5.46	5150	15.9	85.7	<1.7	---	---	0.417	---	---	<0.0013

Site Code	Location Code	Date Sampled	Se mg/L	Sr mg/L	TDS mg/L	TMP C	TURBIDITY NTU	Th-230 pCi/L	Toluene µg/L	Total Xylenes µg/L	U mg/L	U-234 pCi/L	U-238 pCi/L	V mg/L
		12/15/2000	<0.0001	4.77	5160	13.2	9.9	<0.56	---	---	0.501	---	---	<0.0015
		03/01/2001	<0.0001	4.65	5160	10.6	8.19	---	---	---	0.527	234	~192	<0.0015
		05/14/2001	<0.0003	4.85	5060	13.8	4.26	---	---	---	0.544	---	---	<0.0004
SRK01	0308	09/26/2000	0.00012	2.92	2990	17.3	9.19	<1.7	---	---	0.491	---	---	<0.0013
SRK01	0309	09/26/2000	0.00066	2.78	4800	13.5	5.86	<1.7	---	---	0.169	---	---	<0.0013
		12/15/2000	0.0011	4.09	4480	12.1	33.9	<0.56	---	---	0.135	---	---	<0.0015
		03/01/2001	0.00085	5.5	3840	10.5	6.46	---	---	---	0.131	71.4	~51.7	<0.0015
		05/14/2001	0.0017	5.72	4210	12	7.85	---	---	---	0.17	---	---	<0.0004
SRK01	0310	09/27/2000	<0.0001	0.729	405	13.4	7.82	<1.7	---	---	0.0139	---	---	<0.0013
		12/14/2000	<0.0001	0.703	403	12.5	201	<0.56	---	---	0.0168	---	---	<0.0015
		02/28/2001	<0.0001	0.68	382	10.5	8.8	---	---	---	0.0151	4.9	~5.7	<0.0015
		05/16/2001	<0.0003	0.766	440	12.5	7.32	---	---	---	0.0143	---	---	<0.0004
SRK01	0311	09/27/2000	0.00087	1.31	625	16	9.58	<1.7	---	---	0.0377	---	---	<0.0013
		12/14/2000	0.00078	1.17	577	13.8	1000	<0.56	---	---	0.0382	---	---	<0.0015
		02/28/2001	0.00071	1.14	555	11.2	2.78	---	---	---	0.0406	14.8	~15.8	<0.0015
		05/16/2001	0.0007	1.35	650	12.9	4.97	---	---	---	0.0498	---	---	<0.0004
SRK01	0312	09/27/2000	0.0072	1.38	1140	17.7	8.43	<1.7	---	---	0.033	---	---	<0.0013
		12/15/2000	0.0039	1.17	840	15	267	<0.56	---	---	0.0308	---	---	<0.0015
		02/28/2001	0.0014	1.18	745	12.3	4.65	---	---	---	0.0211	10.6	~8.2	<0.0015
		05/16/2001	0.00084	1.13	685	14.5	4.09	---	---	---	0.0188	---	---	0.00046
SRK01	0313	09/19/2000	0.0013	1.47	1160	14.4	27.1	<1.7	---	---	0.028	---	---	<0.0013
		12/19/2000	0.0037	1.32	1160	13.4	7.39	<0.56	---	---	0.0283	---	---	<0.0015
		02/27/2001	0.001	1.37	1160	11.3	7.97	---	---	---	0.031	15.7	11.6	<0.0015
		05/16/2001	0.00067	1.42	1140	13.6	7.7	---	---	---	0.0297	---	---	<0.0004
SRK01	0314	09/19/2000	0.0235	1.63	1220	17.5	11.1	<1.8	---	---	0.0334	---	---	<0.0013
SRK01	0315	09/20/2000	0.017	1.84	1280	17	9.02	<1.7	---	---	0.0301	---	---	<0.0013
		12/13/2000	0.0141	1.73	1260	12.7	---	<0.56	---	---	0.0336	---	---	<0.0015
SRK01	0316	09/20/2000	0.025	1.4	1060	16.7	1000	<1.7	---	---	0.0246	---	---	<0.0013

Site Code	Location Code	Date Sampled	Se mg/L	Sr mg/L	TDS mg/L	TMP C	TURBIDITY NTU	Th-230 pCi/L	Toluene µg/L	Total Xylenes µg/L	U mg/L	U-234 pCi/L	U-238 pCi/L	V mg/L
SRK01	0317	09/28/2000	0.0038	1.48	1140	16.4	8.24	<1.7	---	---	0.0119	---	---	<0.0013
		12/14/2000	0.003	1.49	1220	13.5	3.57	<0.56	---	---	0.0197	---	---	<0.0015
		03/01/2001	0.0066	1.13	873	11.7	43.8	---	---	---	0.0169	10	~6.2	<0.0015
		05/17/2001	0.0028	1.59	1320	12.6	9.7	---	---	---	0.0222	---	---	<0.0004
SRK01	0318	09/19/2000	2.52	8.28	6260	19.1	18.2	<1.7	---	---	0.0493	---	---	0.528
		12/13/2000	1.54	5.25	2810	12.9	---	<0.56	---	---	0.0482	---	---	0.382
		02/27/2001	1.99	6.18	5000	9.4	9.1	---	---	---	0.0459	18.7	18.3	0.382
		05/17/2001	2.57	9.75	7280	12.9	9.56	---	---	---	0.0554	---	---	0.526
SRK01	0319	09/28/2000	0.001	9.88	6150	18.7	22.9	<1.7	11300	5230	0.00033	---	---	0.0035
		12/19/2000	0.00076	8.66	9040	12	9.8	<0.56	5060	4430	0.00089	---	---	0.0025
		03/02/2001	0.00079	11.8	8800	8.7	7.99	---	11000	5010	0.0016	0.53	~0.61	0.0027
		05/18/2001	0.00036	6.13	6570	12.6	8.51	---	13700	7110	0.0025	---	---	0.0044
SRK01	0320	09/20/2000	0.0003	1.02	577	19.4	8.91	<1.7	---	---	0.0191	---	---	<0.0013
		09/29/2000	---	---	---	19.4	8.91	---	<5	<15	---	---	---	---
		12/14/2000	0.00013	0.955	662	9.8	4.07	<0.56	---	---	0.0219	---	---	<0.0015
		12/14/2000	0.0001	0.931	605	---	---	<0.56	---	---	0.0219	---	---	<0.0015
		03/02/2001	<0.0001	0.894	570	7.1	1.5	---	<5	<15	0.0222	13.4	~8.9	<0.0015
		05/17/2001	<0.0003	0.967	602	13.9	3.19	---	<5	<15	0.0217	---	---	<0.0004
SRK01	0321	09/19/2000	<0.0001	0.781	438	14	0.91	<1.7	---	---	0.0055	---	---	<0.0013
SRK01	0322	09/28/2000	0.00011	0.758	450	13.6	1.5	<1.7	---	---	0.0051	---	---	<0.0013
SRK01	0323	09/28/2000	<0.0001	0.805	430	14	2.89	<1.7	---	---	0.0035	---	---	<0.0013
		09/28/2000	<0.0001	0.809	427	---	---	<1.7	---	---	0.0036	---	---	<0.0013
SRK01	0324	09/19/2000	0.0384	1.29	793	15	181	2.1	---	---	0.0211	---	---	0.0015
		12/14/2000	0.0191	1	627	13.9	90.4	<0.56	---	---	0.0173	---	---	0.002
		02/27/2001	0.0236	0.943	677	12.6	599	---	---	---	0.0158	13	6.3	0.0015
SRK01	0325	09/20/2000	0.0038	0.284	170	15.4	474	<1.7	---	---	0.00025	---	---	<0.0013
		12/18/2000	0.0027	0.368	215	14	1000	<0.56	---	---	0.00037	---	---	<0.0015
		03/05/2001	0.0038	0.251	215	13.8	1000	---	---	---	<0.00058	<0.4	0.23	<0.0015

Site Code	Location Code	Date Sampled	Se mg/L	Sr mg/L	TDS mg/L	TMP C	TURBIDITY NTU	Th-230 pCi/L	Toluene µg/L	Total Xylenes µg/L	U mg/L	U-234 pCi/L	U-238 pCi/L	V mg/L
		05/15/2001	0.0039	0.427	190	---	47.3	---	---	---	0.00045	---	---	<0.0004
SRK01	0326	09/29/2000	0.0013	0.836	507	14.9	1000	<1.7	19.3	18.2	0.006	---	---	<0.0013
		12/19/2000	0.00079	0.739	380	10.7	1000	<0.56	<5	<15	0.01	---	---	<0.0015
		03/05/2001	0.00016	0.761	345	12.2	689	---	<5	<15	0.0065	4.2	2.5	<0.0015
		05/16/2001	0.00035	0.937	370	15.6	1000	---	<5	<15	0.0054	---	---	<0.0004
SRK01	0327	09/26/2000	0.00053	4.98	6990	16.3	603	<1.7	---	---	0.694	---	---	<0.0013
SRK01	0328	09/27/2000	0.0037	1.57	900	14.7	7.03	<1.7	---	---	0.0119	---	---	<0.0013
		12/14/2000	0.0045	1.44	900	13	9.76	<0.56	---	---	0.0116	---	---	<0.0015
		02/28/2001	0.0046	1.47	895	10.8	1.19	---	---	---	0.0121	6.6	~4.6	<0.0015
SRK01	0329	09/27/2000	0.0015	1.24	1040	15.6	1000	<1.7	---	---	0.0178	---	---	<0.0013
		12/14/2000	0.0003	1.07	920	12.6	32.8	<0.56	---	---	0.0189	---	---	<0.0015
		02/28/2001	0.00019	1.18	943	10.1	45.2	---	---	---	0.0169	7.4	~6.8	<0.0015
		05/16/2001	0.00035	1.19	1010	12.7	51.5	---	---	---	0.0114	---	---	<0.0004
SRK01	0330	09/27/2000	0.0027	1.22	935	14.1	13.7	<1.7	---	---	0.0201	---	---	<0.0013
		12/14/2000	0.00077	1.08	832	12.4	79.5	<0.56	---	---	0.017	---	---	<0.0015
		02/27/2001	0.0013	1.05	812	10.6	3.32	---	---	---	0.0192	8.6	7.3	<0.0015
		05/16/2001	0.0025	1.13	860	13.3	9.91	---	---	---	0.0229	---	---	<0.0004
SRK01	0331	09/28/2000	0.008	1.54	1330	13.8	199	<1.7	---	---	0.0316	---	---	<0.0013
		12/14/2000	0.0068	1.36	1220	13	8.47	<0.56	---	---	0.0304	---	---	<0.0015
		02/27/2001	0.0077	1.29	1140	11.9	2.26	---	---	---	0.0288	13.9	11.2	<0.0015
		05/15/2001	0.0084	1.4	1190	13.4	1.85	---	---	---	0.029	---	---	0.00047
SRK01	0332	12/19/2000	---	---	---	---	---	---	10400	4520	---	---	---	---
		03/02/2001	---	---	---	7.8	333	---	13600	4210	---	---	---	---
		05/18/2001	---	---	---	11.6	185	---	15200	7480	---	---	---	---
SRK01	0333	12/19/2000	---	---	---	---	---	---	4920	4520	---	---	---	---
		03/02/2001	---	---	---	9.3	542	---	4600	3240	---	---	---	---
		05/17/2001	---	---	---	12	101	---	5670	5040	---	---	---	---
SRK01	0334	12/19/2000	---	---	---	---	---	---	<5	<15	---	---	---	---

Site Code	Location Code	Date Sampled	Se mg/L	Sr mg/L	TDS mg/L	TMP C	TURBIDITY NTU	Th-230 pCi/L	Toluene µg/L	Total Xylenes µg/L	U mg/L	U-234 pCi/L	U-238 pCi/L	V mg/L
		03/01/2001	---	---	---	8.8	204	---	<5	<15	---	---	---	---
		05/17/2001	---	---	---	12.7	58.7	---	<5	<15	---	---	---	---
SRK01	0335	12/19/2000	---	---	---	---	---	---	<5	<15	---	---	---	---
		03/01/2001	---	---	---	7.3	167	---	<5	<15	---	---	---	---
		05/17/2001	---	---	---	12.4	71.2	---	<5	<15	---	---	---	---
SRK01	0336	12/19/2000	---	---	---	---	---	---	<5	<15	---	---	---	---
		03/01/2001	---	---	---	8.3	45.2	---	<5	<15	---	---	---	---
		05/17/2001	---	---	---	11.5	24.2	---	<5	<15	---	---	---	---
SRK01	0337	12/19/2000	---	---	---	---	---	---	<5	79.8	---	---	---	---
		03/01/2001	---	---	---	10.2	67.6	---	<5	<15	---	---	---	---
		05/17/2001	---	---	---	12	123	---	<5	<15	---	---	---	---
SRK01	0338	12/19/2000	---	---	---	---	---	---	<1000	6540	---	---	---	---
		03/01/2001	---	---	---	6.7	1000	---	<500	3390	---	---	---	---
		05/17/2001	---	---	---	14.7	1000	---	41.7	3630	---	---	---	---
SRK01	0508	09/20/2000	1.73	4.78	4230	19	9.28	<1.7	---	---	0.0698	---	---	0.556
		12/14/2000	1.46	4.44	3980	12.4	2.62	<0.56	---	---	0.0771	---	---	0.468
		02/27/2001	1.61	4.41	4090	9	7.68	---	---	---	0.0827	28.5	34.3	0.395
		05/17/2001	1.5	4.46	~4290	13.8	0.87	---	---	---	0.0807	---	---	0.446
SRK01	0509	09/28/2000	0.0118	1.61	1180	16	11.5	<1.7	---	---	0.0234	---	---	<0.0013
		12/14/2000	0.0106	1.43	1090	13.6	1.82	<0.56	---	---	0.0235	---	---	<0.0015
		02/27/2001	0.0121	1.44	1080	10.8	11.7	---	---	---	0.0239	11.5	9.2	<0.0015
		05/17/2001	0.0079	1.24	970	12.2	0.92	---	---	---	0.0198	---	---	0.00056
SRK01	0510	09/20/2000	0.386	4.8	4070	20.1	7.03	<1.7	---	---	0.0937	---	---	<0.0013
		12/14/2000	0.442	4.33	3840	10	137	<0.56	---	---	0.0988	---	---	<0.0015
		02/27/2001	0.558	4.24	3970	7	3.83	---	---	---	0.1	35.4	40	<0.0015
		02/27/2001	0.534	4.24	3950	---	---	---	---	---	0.0997	36.2	41.1	<0.0015
		05/17/2001	0.451	4.49	4100	14.8	1.49	---	---	---	0.0974	---	---	0.0032
		05/17/2001	0.461	4.45	4140	---	---	---	---	---	0.0952	---	---	0.0023
SRK01	0556	09/29/2000	0.016	1.22	418	16	16.9	<1.7	---	---	0.0041	---	---	<0.0013

Site Code	Location Code	Date Sampled	Se mg/L	Sr mg/L	TDS mg/L	TMP C	TURBIDITY NTU	Th-230 pCi/L	Toluene µg/L	Total Xylenes µg/L	U mg/L	U-234 pCi/L	U-238 pCi/L	V mg/L
SRK01	0668	09/29/2000	0.0022	0.868	303	19.8	9.11	<1.7	---	---	0.0023	---	---	<0.0013
SRK01	0669	09/20/2000	<0.0001	1.53	307	18.9	27	<1.7	---	---	0.00026	---	---	<0.0013
SRK01	0670	09/20/2000	<0.0001	1.58	---	18.3	6.61	<1.7	---	---	0.00055	---	---	<0.0013
SRK01	0672	09/28/2000	0.0017	0.699	333	16.3	0.7	<1.9	---	---	0.0029	---	---	0.0021
SRK01	0684	09/28/2000	0.00015	0.75	477	14	1.05	<1.7	---	---	0.0077	---	---	<0.0013
		12/13/2000	0.00035	0.715	440	13.1	---	<0.56	---	---	0.008	---	---	<0.0015
		12/13/2000	0.00026	0.696	458	---	---	<0.56	---	---	0.008	---	---	<0.0015
		02/26/2001	0.00015	0.65	440	11.9	2.53	---	---	---	0.0073	4.1	2.9	<0.0015
		02/26/2001	0.00013	0.651	408	---	---	---	---	---	0.0076	4.1	3	<0.0015
		05/16/2001	0.0009	0.641	402	14.3	2.57	---	---	---	0.0079	---	---	<0.0004
SRK01	0685	09/19/2000	<0.0001	1.59	1020	12.6	1.25	<1.7	---	---	0.0175	---	---	<0.0013
		12/13/2000	0.00014	1.44	977	11.3	---	<0.56	---	---	0.0165	---	---	<0.0015
		02/27/2001	<0.0001	1.44	975	10.1	1.13	---	---	---	0.0166	10.8	6.3	<0.0015
		05/16/2001	<0.0003	1.46	943	13.6	1.09	---	---	---	0.0151	---	---	<0.0004
SRK01	0687	09/29/2000	<0.0001	1.06	538	15.6	0.8	<1.7	---	---	0.0014	---	---	<0.0013
SRK01	0688	09/21/2000	0.0026	0.713	390	13.7	1.48	<1.7	---	---	0.0081	---	---	<0.0013
SRK01	0690	09/29/2000	0.0014	0.605	275	16.6	0.63	<1.7	---	---	0.0032	---	---	<0.0013
SRK01	0807	09/21/2000	0.00045	0.227	152	19.9	5.59	<1.7	---	---	0.0035	---	---	0.0023

Appendix E

Ground Water Analytical Results

provided on CD-ROM

Appendix F

Surface Water Analytical Results

provided on CD-ROM

Appendix G

Slick Rock Aquifer Test Data Analysis

Technical Task Cover Sheet

Discipline: Hydrogeology

Project:

UMTRA Ground Water

Site:

Slick Rock, Colorado

Subject:

Slick Rock Aquifer Test Data Analyses

Sources of Data:

Driscoll, F.G., 1986. Ground Water and Wells, 2nd Edition, Johnson Division, St. Paul, Minnesota.

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Waterloo Hydrogeologic, Inc., and Röhrich, T. no date. Users Manual for AquiferTest.

Task Order No. MAC01-05

File Index No. GWSKR 13.2

Proj. No. UGW-511-0021-09-000

Calc. No. U0139100

Supersedes Calc. No. NA

Calculated by	Date	Checked by	Date	Approved by	Date	DOE Concurrence (if required)	Date

mactec-ers

U.S. Department of Energy Grand Junction Office

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Attachment

Attachment 1 Aquifer Test Data and Plots

1.0 Introduction

Aquifer tests were completed at the Slick Rock Uranium Mill Tailings Remedial Action (UMTRA) Project site to collect the hydrogeologic data necessary to characterize the alluvial and Entrada Sandstone aquifers. These data were collected to further define the hydraulic parameters of the alluvial aquifer, which will be used in ground water flow and transport modeling. Analyses of these data provide a range of the transmissivity, hydraulic conductivity, and specific yield for the aquifers.

The alluvial aquifer consists of unconsolidated clayey sands, sandy gravels, and cobbles, and ranges in thickness from 10 to 21 feet (ft). Saturated thickness at the North Continent (NC) site ranges from 4 to 10 ft, while in the vicinity of the Union Carbide (UC) site the saturated thickness ranges from 6 to 12 ft. The Entrada Sandstone aquifer underlies the UC Site with a thickness that ranges from 40 to 60 ft.

Initial aquifer tests were conducted during September 2000 using newly installed well clusters 0306 (NC site) and 0321 (just north of the UC site). Figures 1 and 2 show the locations of these well clusters for the NC site and UC site, respectively. Additional tests were completed in February and March 2001 after analyses of the initial tests indicated further testing was necessary to characterize the aquifer. These subsequent tests used previously installed wells 0509 (within the 0314 cluster) and 0684 (within the 0321 cluster) as pumping wells.

2.0 Test Procedures

Aquifer tests were conducted to determine the transmissivity, hydraulic conductivity, and specific yield of the alluvial and Entrada Sandstone aquifers. These tests were completed at two of the new pumping wells using the sustainable pumping rate previously determined by the step test data. Water levels were monitored in the pumping wells and nearby observation wells prior to and during the aquifer test period, using both transducers connected to dataloggers and manually (using an electrical sounder). All water generated from each aquifer test was discharged a minimum of 100 ft from the pumping well or observation wells.

Table 1 lists each test location and the well construction details associated with the pumping wells and nearby observation wells.

Table 1. Slick Rock Well Construction Information

Cluster	Well No.	Dia. (in.)	Aquifer	Installation Date	Screen Interval (ft BGS)	Static Elevation of Ground Water (ft MSL) ^a	Pumping or Observation Well
0306	0306	6	Alluv	August 2000	4.8–14.8	5,436.12	Pumping
	0307	2	Alluv	August 2000	4.4–14.4	5,436.16	Observation
	0308	2	Alluv	August 2000	4.5–14.5	5,436.09	Observation
	0327	2	Alluv	August 2000	6.6–16.6	5,436.03	Observation
0314	0314	6	Alluv	August 2000	6.1–16.1	5,424.4	Observation
	0315	2	Alluv	September 2000	6.0–16.0	5,424.26	Observation
	0316	2	Alluv	August 2000	4.7–14.7	5,424.3	Observation
	0317	2	Entr	August 2000	19.5–39.5	5,424.34	Both
	0509	4	Alluv	August 1982	9.7–19.7	5,424.17	Both
0321	0321	6	Alluv	August 2000	14.4–19.4	5,416.51	Both
	0322	2	Alluv	August 2000	9.1–19.1	5,416.35	Observation
	0323	2	Alluv	August 2000	9.1–19.1	5,416.41	Observation
	0684	2	Alluv	June 1986	11.0–21.0	5,416.43	Both

^awater levels measured October 2000

Dia. = well diameter

Aquifer = aquifer well completed in

Alluv = alluvial aquifer

Entr = Entrada Sandstone aquifer

MSL = mean sea level

BGS = below ground surface

in. = inches

ft = feet

Drawdown and residual drawdown data collected during the aquifer tests were analyzed using the software package Aquifer Win32 (Environmental Simulations, Inc., Version 2.17). This software package allows the user to analyze the data with a number of different analytical methods. Because the alluvial aquifer is unconfined, the drawdown data collected from observation wells during the pumping phase of the tests were analyzed using the Theis Method modified for an unconfined aquifer and the Neuman Method for Unconfined Aquifers. Specific yield estimates were calculated using the Neuman Method. The data collected from the observation wells and pumping wells during the recovery phase of the aquifer tests were analyzed using the Theis Recovery Method.

In addition to analyzing the aquifer test data using these analytical solutions to determine the aquifer parameters, inverse ground water modeling was also used to estimate the hydraulic conductivity. This modeling effort used the pumping rate, saturated thickness, drawdown measured in the pumping well and observations wells, and the test length (pumping phase) to find the hydraulic conductivity which best fit these model inputs.



Figure 1. Well Cluster Locations at the North Continent Site

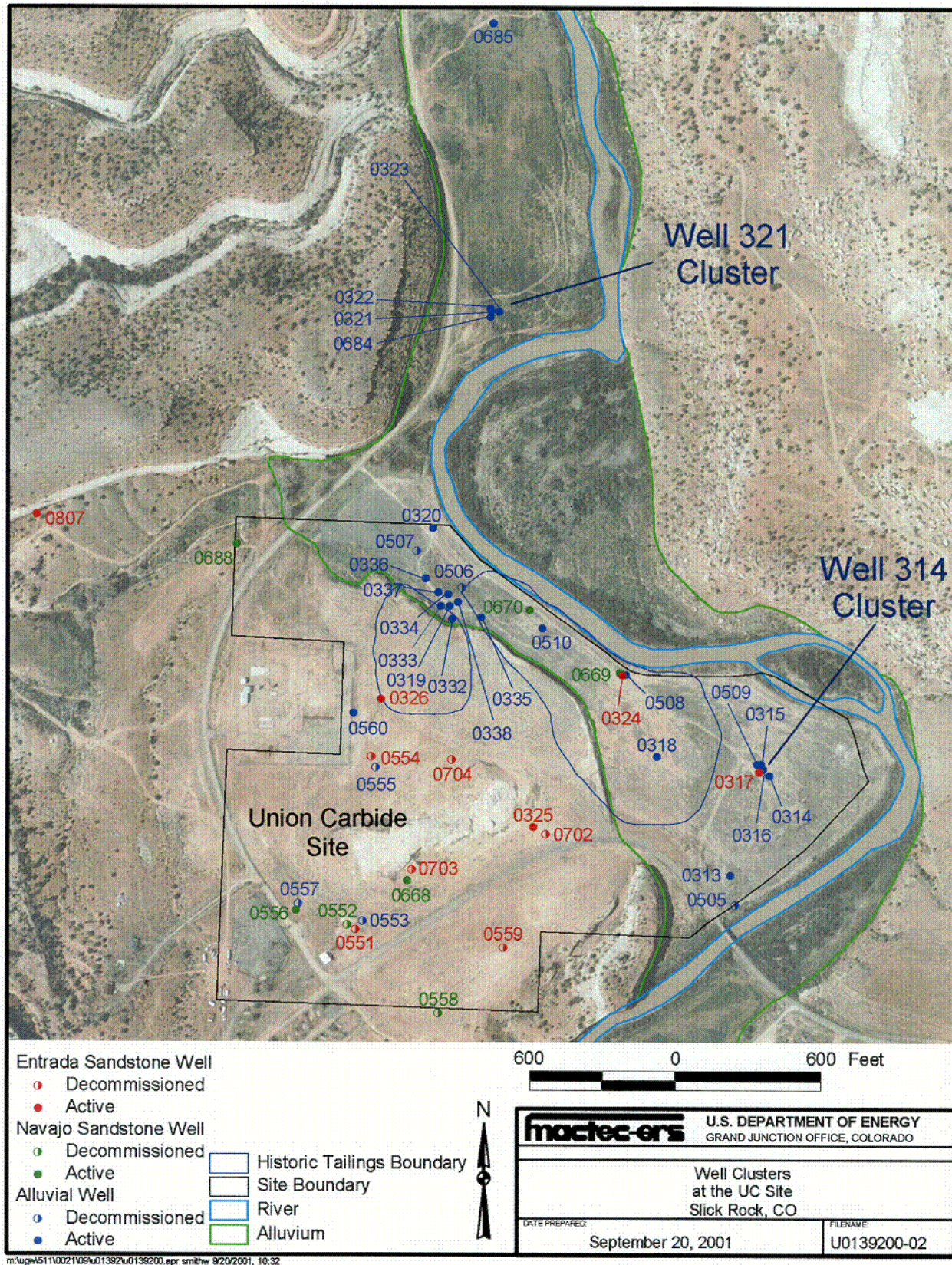


Figure 2. Well Cluster Locations at the Union Carbide Site

3.0 Results

This section presents the results obtained from the analysis of data collected during the aquifer tests.

3.1 Aquifer Tests

During September 2000 aquifer tests, it was noted that the newly installed pumping wells (0306, 0314, and 0321) had notably lower sustainable pumping rates compared to the previously installed wells located within the same cluster. For example, Well 0314 could sustain only ~2 gallons per minute (gpm) while well 0509 was able to sustain over 10 gpm. The same trend was noted at the 0321 cluster, where well 0321 could sustain only ~4 gpm and nearby well 0684 was able to sustain over 7 gpm. At the NC site, there was no previously installed well present to compare the sustainable pumping rate of only 1 gpm in well 0306.

After analyses of the data collected from the tests completed from the newly installed pumping wells, it was determined that there was a need for additional testing. These additional tests were completed using wells 0509 and 0684 as pumping wells during February and March 2001.

As a result, of all the tests completed during the investigation, six tests provided data which were used to calculate the hydraulic parameters. The 0306 test was included with this group because it was the only test completed at the NC site. Other tests that were included for determination of the hydraulic parameters include tests using well 0321 as the pumping well (two tests), well 0509, and well 0684. An aquifer test pumping from well 0317 was included which provided information regarding the Entrada Sandstone. The results from each test will be discussed separately.

3.1.1 Well 0306 Aquifer Test

An aquifer test was started on September 26, 2000, pumping 1 gpm from well 0306. Drawdown data were collected from the pumping well and observation wells 0307, 0308, and 0327. A recovery test was started on September 26, 2000, after only 3 hours and 20 minutes of a pumping phase was completed. Continued pumping at this rate would have lowered the water level in the well below the pump intake. Figure 3 is a cross-section showing well completions at this location. All observation wells are screened within the same interval as the pumping well.

Table 2. Total Drawdown for the Well 0306 Aquifer Test

Well	r (ft)	Screen Interval (ft bgs)	Drawdown (ft)
Pmp 0306	NA	4.8–14.8	6.3
Obs 0307	14.5	4.4–14.4	0.35
Obs 0308	42.9	4.5–14.5	0.02
Obs 0327	25.8	6.6–16.6	0.08

r = Distance to Pumping Well

ft bgs = ft below ground surface

Pmp = Pumping Well

Obs = Observation Well

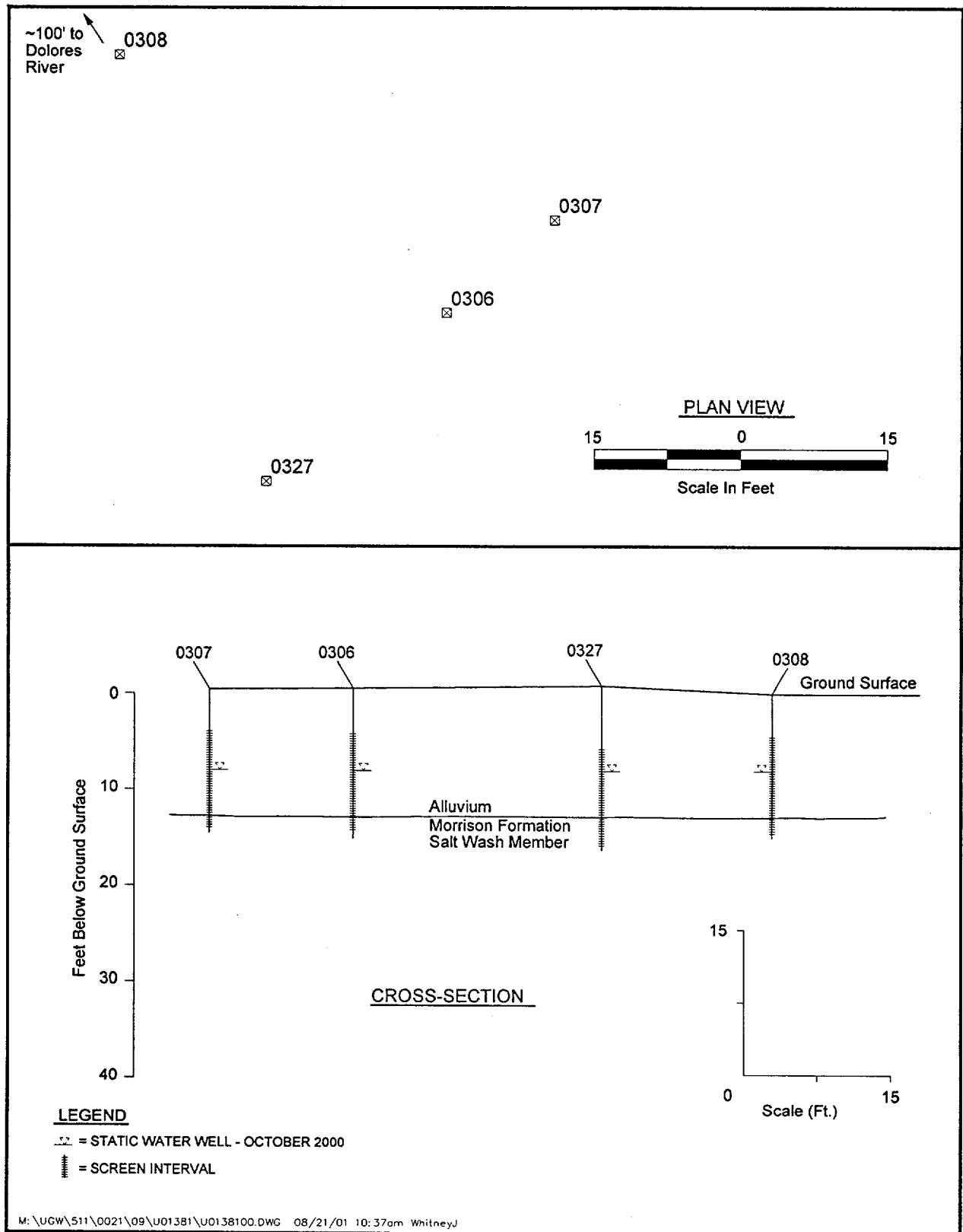


Figure 3. Well 0306 Cross Section

As shown in Table 2, the drawdown measured during the test from observation wells 0308 and 0327 was too small to determine if the difference was the result of pumping from well 0306, or a fluctuation in the background water levels. The data collected from the pumping well during the recovery test did not provide a good fit for the type curves. As a result, only the data collected from observation well 0307 was analyzed along with the recovery data to calculate the transmissivity of the alluvial aquifer at this location (Table 3).

Table 3. Well 0306 Aquifer Test Transmissivity Results (ft²/day)

Test No	Data Source	Test Phase	Analytical Method			
			Theis T(ft ² /d)	Neuman T(ft ² /d)	Theis Rec T(ft ² /d)	Neuman Sy
306AQT2	Obs 307	P	170	80	NA	0.3
	Obs 307	R	NA	NA	89	NA

OBS = Observation Well
 P = Pumping Phase
 R = Recovery Phase
 NA = Not applicable
 Theis = Theis Method for Unconfined Aquifers
 Neuman = Neuman Method for an Unconfined Aquifer
 Theis Rec = Theis Recovery Method
 T = Transmissivity (ft²/day)
 Sy = Specific yield

Applying a saturated thickness of 6.1 ft, the hydraulic conductivity ranges from 13 to 28 ft/day based on these transmissivity estimates. Plots used for the analyses are contained within Attachment 1. As the plots in Attachment 1 show for the Theis Unconfined Analysis, the drawdown data collected from observation well 0307 falls slightly below the Theis curve shortly after the beginning of the test. Such a response from the drawdown data suggests that the aquifer is either: (a) being influenced by a nearby recharge source; or (b) the pumping rate/well design is not sufficient to appropriately stress the aquifer, resulting in a steady-state condition.

3.1.2 Well 0321 Aquifer Tests

An aquifer test was started on September 13, 2000, pumping 2 gpm from well 0321. Drawdown data were collected from the pumping well and observation wells 0322, 0323, and 0684. Figure 4 is a cross-section of this well cluster. After 25 hours and 35 minutes of pumping at this rate, it was obvious that the aquifer was not effectively being stressed (only 0.9 ft of drawdown was measured in the pumping well). The pump was shut off, and recovery data were collected.

A subsequent test was conducted starting on September 14, 2000. This test lasted 17 hours with a pumping rate of 3.9 gpm. Table 4 lists the drawdown measured in the pumping well and each observation well for the two tests completed at this location.

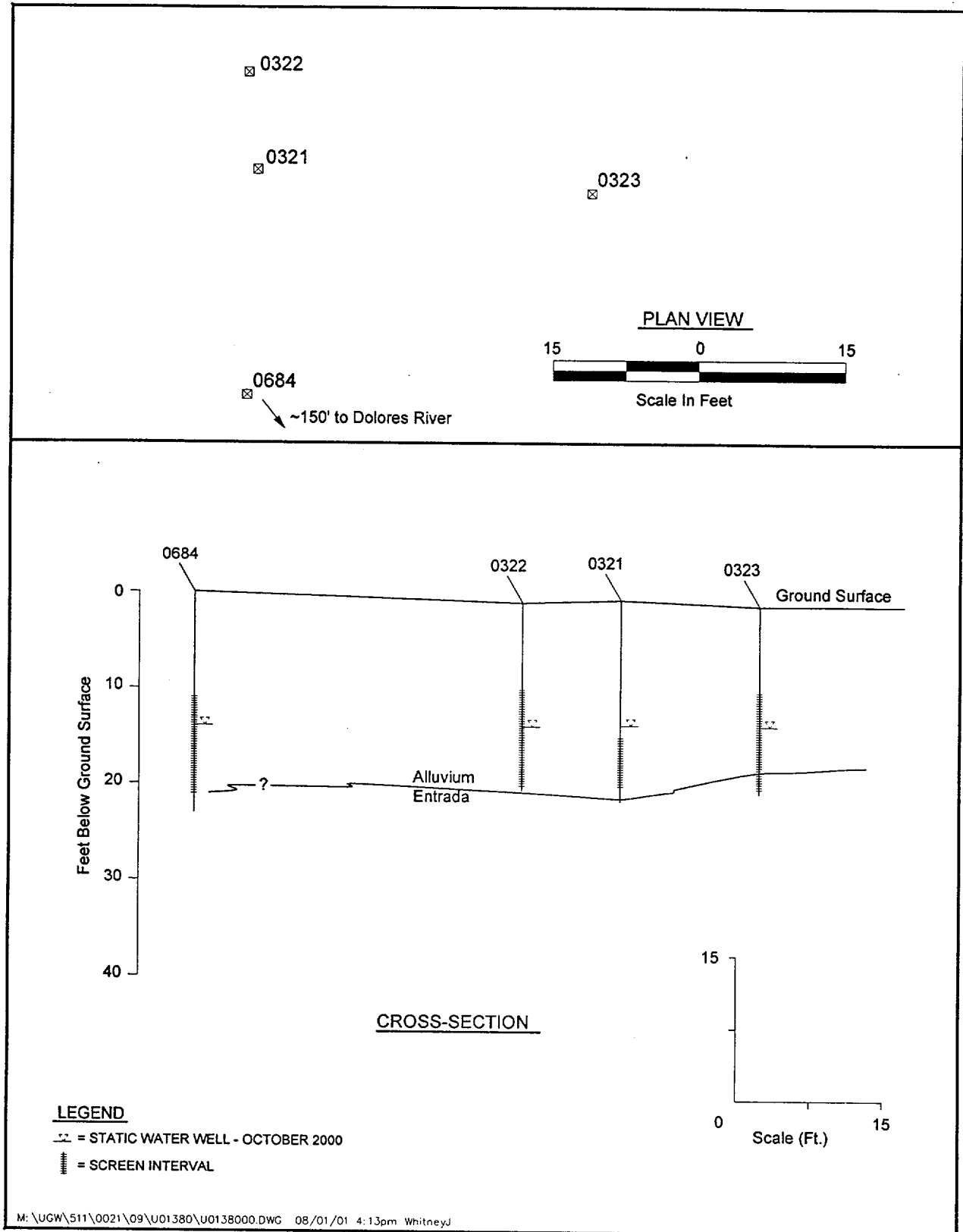


Figure 4. Well 0321 Cross Section

Table 4. Total Drawdown for the Well 0321 Aquifer Tests

Well	r (ft)	Test No.	321AQT1	321AQT2
		Q (gpm)	2	3.9
		Screen Interval (ft bgs)	Drawdown (ft)	Drawdown (ft)
PMP 0321	NA	14.4–19.4	0.9	2.5
OBS 0322	10.4	9.1–19.1	0.35	0.3
OBS 0323	34.6	9.–19.1	0.06	0.07
OBS 0684	23.3	11.0–21.0	0.2	0.23

Q = Pumping Rate

r = Distance to Pumping Well

ft bgs = ft below ground surface

Pmp = Pumping Well

Obs = Observation Well

Essentially zero drawdown was measured in well 0323. In addition, analyses of the data collected from observation well 0322 in the first test did not fit the type curves in such a manner that representative values were calculated. The same was true of recovery data collected from the pumping well from both tests. As a result, the data from observation well 0684 (both tests) and well 0322 (the second test) were used to determine the transmissivity (Table 5).

Table 5. Well 0321 Aquifer Test Transmissivity Results (ft²/day)

Test No	Data Source	Test Phase	Analytical Method			
			Theis T(ft ² /d)	Neuman T(ft ² /d)	Theis Rec T(ft ² /d)	Neuman Sy
321AQT1	Obs 684	P	1,365	415	NA	0.2
	Obs 684	R	NA	NA	874	NA
321AQT2	Obs 322	P	717.1	718.2	NA	0.4
	Obs 322	R	NA	NA	1,527	NA
	Obs 684	P	1,804	1,057	NA	0.06
	Obs 684	R	NA	NA	1,254	NA

OBS = Observation Well

P = Pumping Phase

R = Recovery Phase

NA = Not applicable

Theis = Theis Method for Unconfined Aquifers

Neuman = Neuman Method for an Unconfined Aquifer

Theis Rec = Theis Recovery Method

T = Transmissivity (ft²/day)

Sy = Specific yield

The saturated thickness at the time these tests were completed was 6.4 ft, which results in a hydraulic conductivity that ranges from 65 to 282 ft/day based on the transmissivity values presented in Table 5. The plots used for the analyses are contained within Attachment 1.

3.1.3 Well 0684 Aquifer Test

An 18.5 hour aquifer test was completed using well 0684 as the pumping well starting on February 26, 2001. As opposed to well 0321 (which could sustain 3.9 gpm), well 0684 was able to sustain a pumping rate of 7.7 gpm and provide greater stress on the aquifer during the pumping phase. Drawdown data were collected from observation wells 0321, 0322, and 0323 (Table 6).

Table 6. Total Drawdown for the Well 0684 Aquifer Test

Well	r (ft)	Screen Interval (ft bgs)	Drawdown (ft)
PMP 0684	NA	11.0–21.0	3.0
OBS 0321	23.5	14.4–19.4	0.68
OBS 0322	34.0	9.1–19.1	0.65
OBS 0323	41.0	9.1–19.1	0.23

Q = Pumping Rate

r = Distance to Pumping Well

ft bgs = ft below ground surface

Pmp = Pumping Well

Obs = Observation Well

Despite the fact that measurable drawdown resulted from the pumping of well 0684 in the three observation wells, analyses of the data revealed only observation well 0321 produced data during the pumping phase which provided a good fit for the type curves. Recovery data collected from the observation wells and the pumping well also provided a good fit (Table 7).

Table 7. Well 0684 Aquifer Test Transmissivity Results (ft²/day)

Test No	Data Source	Test Phase	Analytical Method			
			Theis T(ft ² /d)	Neuman T(ft ² /d)	Theis Rec T(ft ² /d)	Neuman Sy
684AQT2	Obs 321	P	1,358	738	NA	0.03
	Obs 321	R	NA	NA	975	NA
	Obs 322	R	NA	NA	1,260	NA
	Obs 323	R	NA	NA	1,136	NA
	Pmp 684	R	NA	NA	567	NA

OBS = Observation Well

PMP = Pumping Well

P = Pumping Phase

R = Recovery Phase

NA = Not applicable

Theis = Theis Method for Unconfined Aquifers

Neuman = Neuman Method for an Unconfined Aquifer

Theis Rec = Theis Recovery Method

T = Transmissivity (ft²/day)

Sy = Specific yield

The saturated thickness at the time these tests were completed was 7 ft, which results in a hydraulic conductivity range of 81.1 to 194.1 ft/day based on the transmissivity values presented in Table 7. The plots used for the analyses are contained within Attachment 1.

3.1.4 Well 0509 Aquifer Tests

After a review of the data collected from the well 0314 cluster, it was decided to conduct a test using well 0509 as the pumping well instead of well 0314. An 18 hr aquifer test pumping 10.3 gpm from well 0509 was started on February 27, 2001. During the test drawdown data were collected from observation wells 0314, 0315, 0316, 0317, and the pumping well 0509 (Table 8). Figure 5 is a cross-section of the well cluster at this location.

Table 8. Total Drawdown for the Well 0509 Aquifer Test

Well	r (ft)	Screen Interval (ft bgs)	Drawdown (ft)
PMP 0509	NA	9.7 – 19.7	4.86
OBS 0314	30.9	6.1 – 16.1	0.37
OBS 0315	16.8	6.0 – 16.0	0.59
OBS 0316	68	4.7 – 14.7	0.26
OBS 0317	32.9	19.5 – 39.5	1.89

Q = Pumping Rate

r = Distance to Pumping Well

ft bgs = ft below ground surface

Pmp = Pumping Well

Obs = Observation Well

Drawdown data collected during the pumping phase from observation well 0315 provided representative estimates of the aquifer transmissivity (Table 9). The remaining observation well drawdown data did not provide a good fit for the type curves.

Table 9. Well 0509 Aquifer Test Transmissivity Results (ft²/day)

Test No	Data Source	Test Phase	Analytical Method			
			Theis T(ft ² /d)	Neuman T(ft ² /d)	Theis Rec T(ft ² /d)	Neuman Sy
509AQT4	Obs 0315	P	1,410	1,388	NA	0.05
	Obs 0315	R	NA	NA	2,316	NA
	Obs 0314	R	NA	NA	2,098	NA

OBS = Observation Well

P = Pumping Phase

R = Recovery Phase

NA = Not applicable

Theis = Theis Method for Unconfined Aquifers

Neuman = Neuman Method for an Unconfined Aquifer

Theis Rec = Theis Recovery Method

T = Transmissivity (ft²/day)

Sy = Specific yield

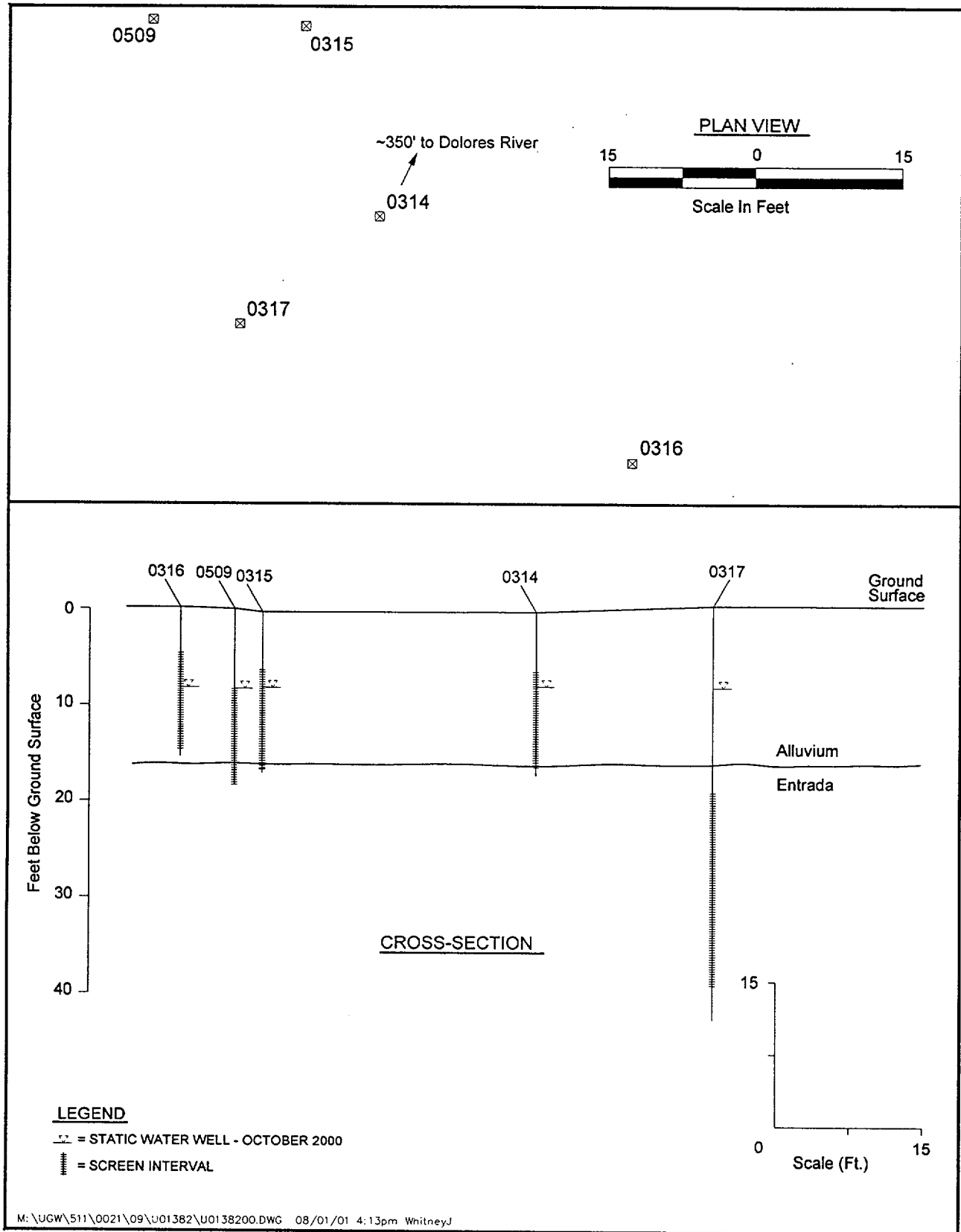


Figure 5. Well 0509 Cross Section

Based on a saturated thickness of 7.2 ft, the hydraulic conductivity ranges from 193 to 321 ft/day based on the transmissivity estimates presented in Table 9. These plots are also contained in Attachment 1.

3.1.5 Well 0317 Aquifer Test

As shown in Table 8, nearly 2 ft of drawdown was measured in well 0317, which is screened in the upper zone of the underlying Entrada Sandstone. This response to pumping suggests a hydraulic connection between the alluvium and the top of the Entrada Sandstone.

In order to further define the connection between the two units, well 0317 was pumped for 19.5 hours at a rate of 1.2 gpm. Despite a drawdown of 9.7 ft in the pumping well 0317, there was no drawdown measured in any of the observation wells, most notably well 0509. As Figure 5 shows, the bottom of well 0509 is set within the top of the Entrada Sandstone, and the top of the screen of well 0317 is within 2 ft of the bottom of the screen in well 0509. Such close proximity between the screen intervals may explain the drawdown response observed between the two wells.

As a result of pumping from well 0317, it was possible to estimate the transmissivity of the Entrada Sandstone based on the recovery data.

Table 10 provides the results from the aquifer test using Entrada Sandstone well 0317 as the pumping well. This transmissivity estimate converts to a hydraulic conductivity of 1.5 ft/day based on a saturated thickness of 50 ft.

Table 10. Well 0317 Aquifer Test Transmissivity Results (ft²/day)

Test No	Data Source	Test	Analytical Method			
			Theis T(ft ² /d)	Neuman T(ft ² /d)	Theis Rec T(ft ² /d)	Neuman Sy
317AQT3	Pmp 0317	R	NA	NA	73	NA

PMP = Pumping Well
 R = Recovery Phase
 NA = Not applicable
 Theis = Theis Method for Unconfined Aquifers
 Neuman = Neuman Method for an Unconfined Aquifer
 Theis Rec = Theis Recovery Method
 T = Transmissivity (ft²/day)
 Sy = Specific yield

The semi-log plots of the residual drawdown data collected from the pumping well during the recovery test exhibit an S-shaped curve (Attachment 1). This shaped recovery curve is also indicative of the aquifer not being adequately stressed, and reaching steady-state conditions.

3.2 Inverse Modeling

Inverse modeling was used as another source for estimating the hydraulic parameters of the alluvial aquifer at three different locations. GWVistas (Environmental Simulations, Inc.

Version 2.0), a Windows-driven graphical, pre- and post-processor for MODFLOW and MT3DMS was used to complete this inverse modeling effort.

Field data collected from aquifer tests completed on wells 0508, 0509, and 0684 as the pumping wells were used as inputs for this modeling effort. This data include drawdown measurements from the pumping wells and nearby observation wells, pumping rates, length of pumping, and the saturated thickness. Two-dimensional models were generated for each of the three locations using GWVistas, and a hydraulic conductivity that best fit the field conditions was estimated. Determination of the hydraulic conductivity using this alternative method provides additional information regarding the hydraulic parameters of the alluvial aquifer. Table 11 provides the location, associated saturated thickness, pumping rate, pumping duration, and estimated hydraulic conductivity.

Table 11. Inverse Modeling Input Values and Results

Location	Test Number	Saturated Thickness (ft)	Pumping Rate (gpm)	Pumping Duration (hrs)	K (ft/day)
0508	508AQT2	6.2	1.2	17	140
0509	509AQT4	7.2	10	18	57
0684	684AQT2	7.0	7.7	18	120

The resulting hydraulic conductivity estimates based on the inverse modeling fall within the range estimated by the aquifer test data.

3.3 Background Monitoring

Data loggers were installed in various locations to monitor the alluvial aquifer water table surface fluctuations over the time period when the aquifer tests were conducted. At the 0306 cluster it was not necessary to monitor background water levels because one of the wells within the cluster (well 0308) was located outside of the zone of influence during the pumping of well 0306, and no drawdown was measured.

One transducer was installed in well 0685 (Figure 2) in order to monitor the background water levels during the tests conducted at the 0321 cluster. A transducer installed in well 0313 served a similar function for the tests conducted at the 0314 cluster (Figure 2). These locations were chosen because of the proximity to the test locations (close enough to provide representative background data without being influenced by the aquifer test activities) and because these wells are screened over approximately the same interval as the observation and pumping wells.

During the time period when the tests were conducted there was minimal fluctuation in the alluvial aquifer water table surface (Table 12) compared to the drawdown observed in the observation wells. As a result, it was not necessary to adjust drawdown or residual drawdown data collected from any of the tests.

Table 12. Background Ground Water Fluctuations Measured During the Aquifer Testing

Test Number	Water Table Fluctuation (ft)
306AQT2	0.01
321AQT1	0.06
321AQT2	0.07
684AQT2	0.06
509AQT4	0.03
317AQT3	0.03
508AQT2	0.01

4.0 Conclusions

The following conclusions can be made based on the data collected from the hydrologic investigation at the Slick Rock site:

- The drilling technique used to install pumping wells (0306, 0314, and 0321) during the September 2000 field investigation appears to have adversely impacted the wells ability to transmit ground water. Pumping rates of these wells had lower sustainable pumping rates compared to the sustainable pumping rates of the previously installed wells (0509 and 0684).
- Drawdown data collected from wells completed in the alluvial aquifer during the pumping phase of the aquifer tests indicate the transmissivity ranges from 80 to 1,804 ft²/day. Applying associated saturated thicknesses, this transmissivity range converts to a hydraulic conductivity range of 13 to 282 ft/day.
- Residual drawdown data collected from wells completed in the alluvial aquifer during the recovery phase of the aquifer tests indicate the transmissivity of the alluvial aquifer ranges from 89 to 2,316 ft²/day. Applying associated saturated thicknesses, this transmissivity range converts to a hydraulic conductivity range of 15 to 322 ft/day.
- Inverse modeling estimates from three locations suggest the hydraulic conductivity ranges from 57 to 140 ft/day.
- Taking all the aquifer test results into account, the hydraulic conductivity of the alluvial aquifer in the vicinity of the NC and UC sites ranges from 13.1 to 321.6 ft/day, with a geometric mean of 121 ft/day. Table 13 presents the hydraulic conductivity results of all tests included in this document.
- Analyzing the data using the Neuman Method for Unconfined Aquifers, the specific yield ranges from 0.03 to 0.39.
- Based on the results from the test completed using well 0317 as the pumping well, the hydraulic conductivity of the Entrada Sandstone aquifer beneath the UC site is 1.5 ft/day.

Table 13. Slick Rock Aquifer Test Results
(all hydraulic conductivity values in ft/day)

September 2000 Test

0306 Cluster

Test No	AQ	Start Date	Q (gpm)	Test Duration	Data Source	Total S (ft)	R (ft)	b	K (ft/day)		
									Analytical Method		
									Pumping Phase	REC Phase	
									Theis	Neuman	Theis REC
306 AQT2	ALLUV	9/26/00	1	3 hr 20 min	OBS 0307	0.35	14.5	6.1	27.9	13.1	14.7

0321 Cluster

Test No	AQ	Start Date	Q (gpm)	Test Duration	Data Source	Total S (ft)	R (ft)	b	K (ft/day)		
									Analytical Method		
									Pumping Phase	REC Phase	
									Theis	Neuman	Theis REC
321 AQT1	ALLUV	9/13/00	2	25 hr 35 min	OBS 0684	0.2	23.3	6.4	213.3	64.8	136.6
321 AQT2	ALLUV	9/14/00	3.9	17 hr	OBS 0322	0.3	10.4		112.1	112.2	238.5
	ALLUV				OBS 0684	0.23	23.3		281.9	165.2	195.9

February\March 2001 Tests

0314 Cluster

Test No	AQ	Start Date	Q (gpm)	Test Duration	Data Source	Total S (ft)	R (ft)	b	K (ft/day)		
									Analytical Method		
									Pumping Phase	REC Phase	
									Theis	Neuman	Theis REC
509 AQT4	ALLUV	2/27/01	10.3	18 hr	OBS 0315	0.59	16.8	7.2	195	192.8	321.6
	ALLUV				OBS 0314	0.37	30.9		NA	NA	291.4
317 AQT3	ENT	2/28/01	1.2	19.5 hr	PMP 0317	9.67	NA	5	NA	NA	1.48

0321 Cluster

Test No	AQ	Start Date	Q (gpm)	Test Duration	Data Source	Total S (ft)	R (ft)	b	K (ft/day)		
									Analytical Method		
									Pumping Phase	REC Phase	
									Theis	Neuman	Theis REC
684 AQT2	ALLUV	2/26/01	7.7	18.5 hr	OBS 0321	0.68	23.5	7	194.1	105.4	139.3
	ALLUV				OBS 0322	0.65	34		NA	NA	180.1
	ALLUV				OBS 0323	0.23	41		NA	NA	162.3
	ALLUV				PMP 0684	3.00	NA		NA	NA	81.1

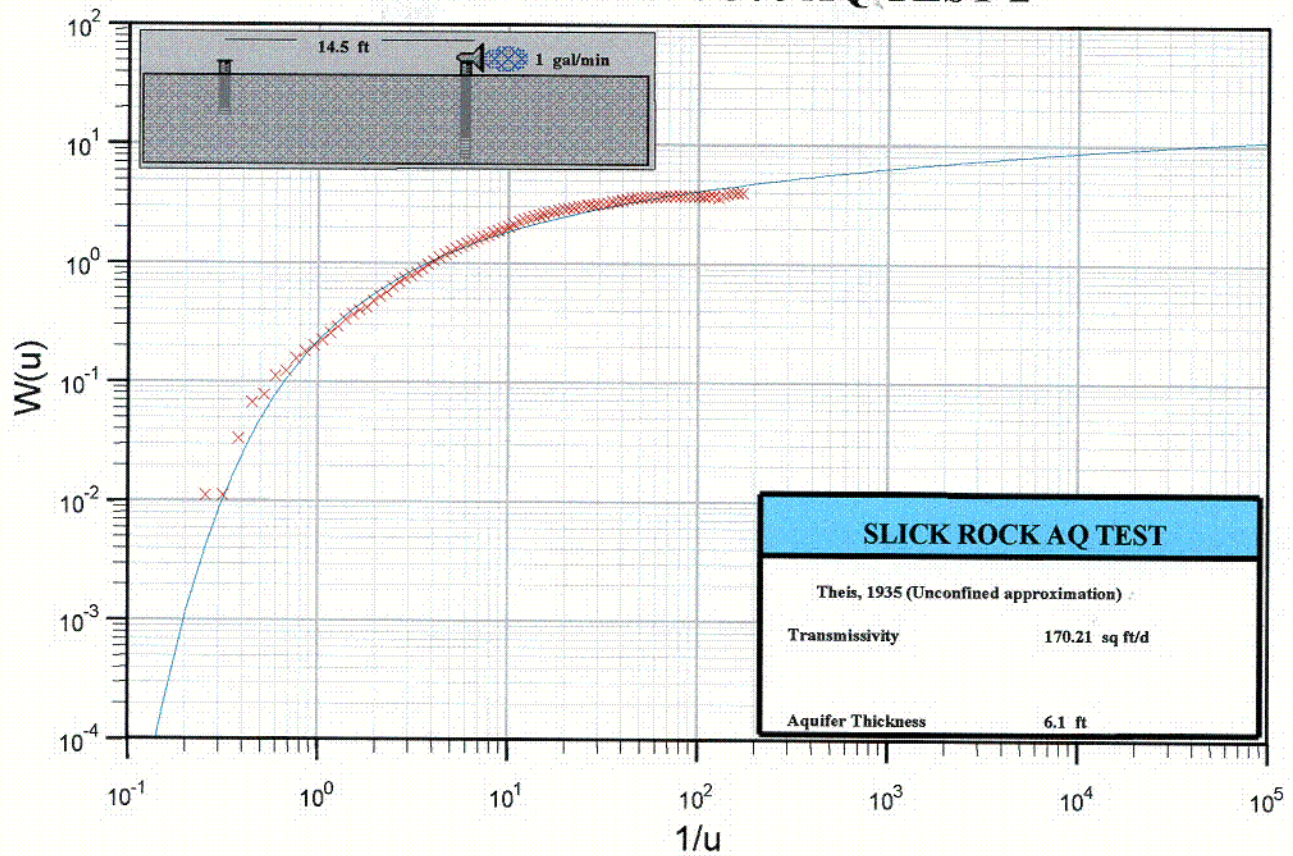
Inverse Modeling Results

Test No	K (ft/day)
509 AQT4	57
508 AQT2	140
684 AQT2	120

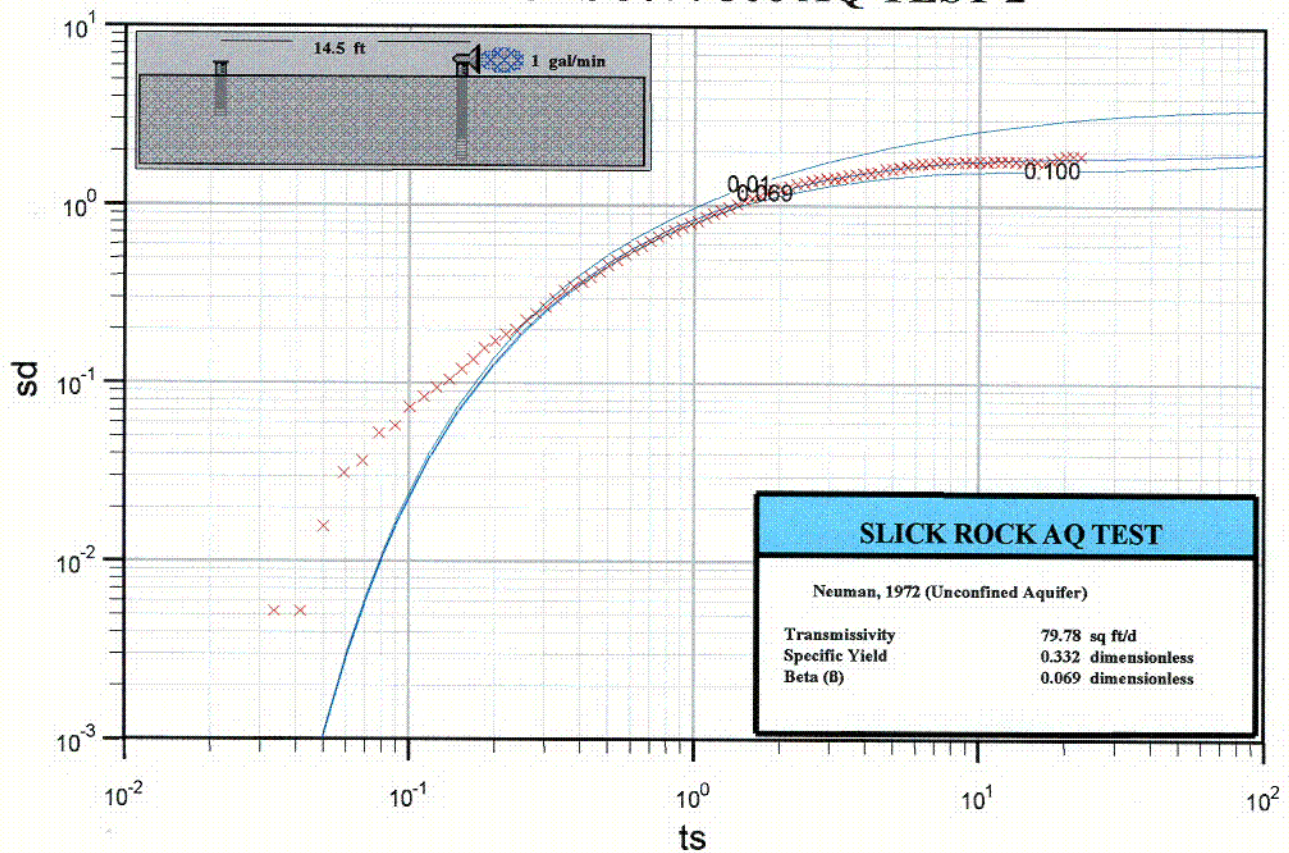
Attachment 1

Aquifer Test Data and Plots

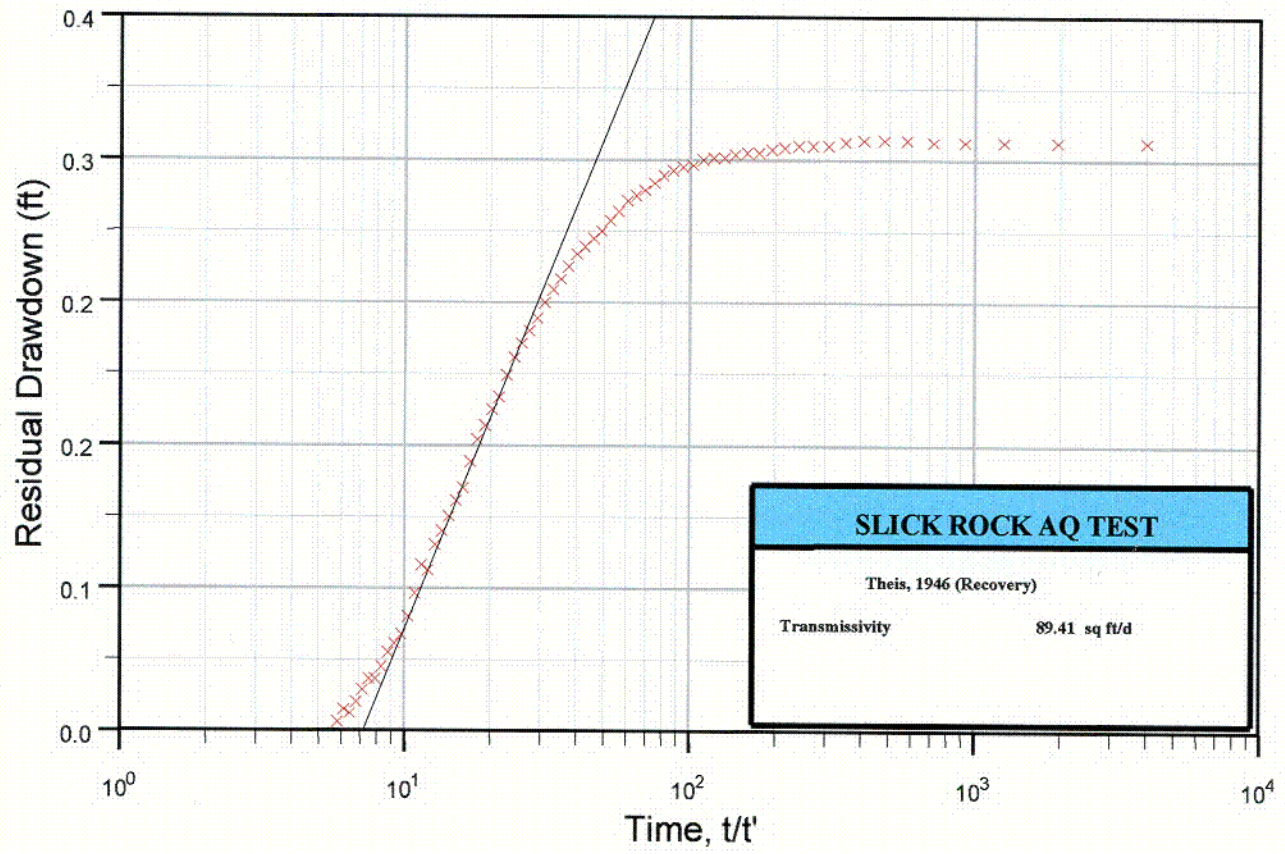
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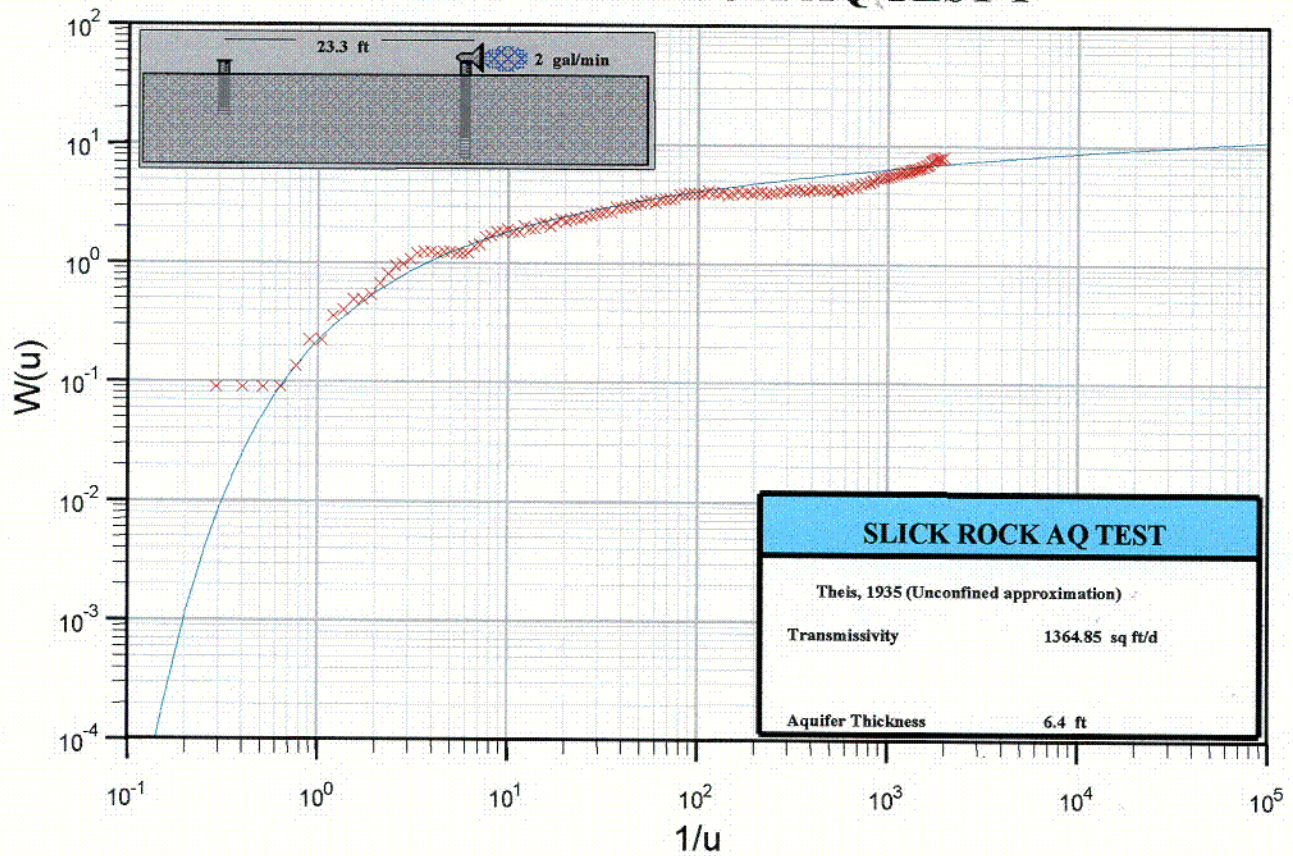
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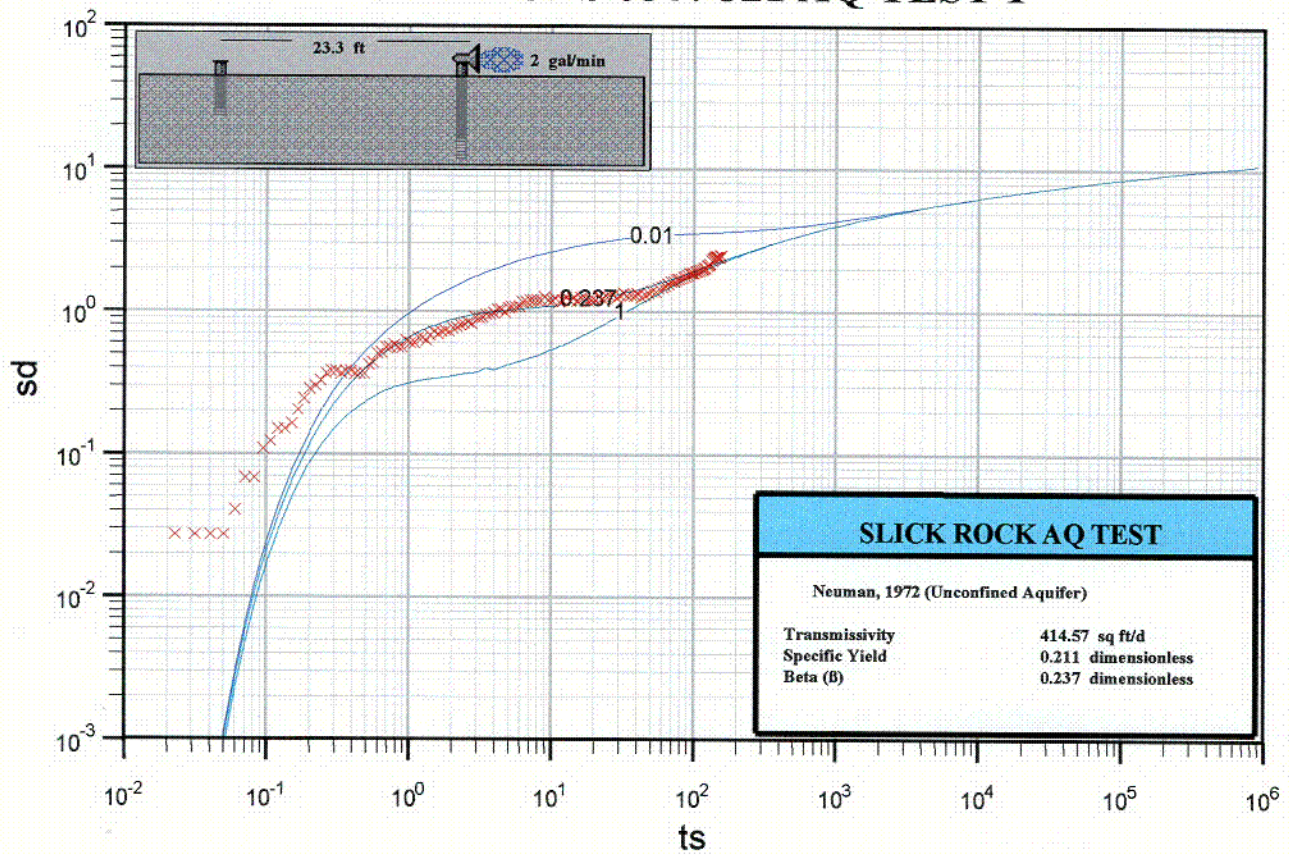
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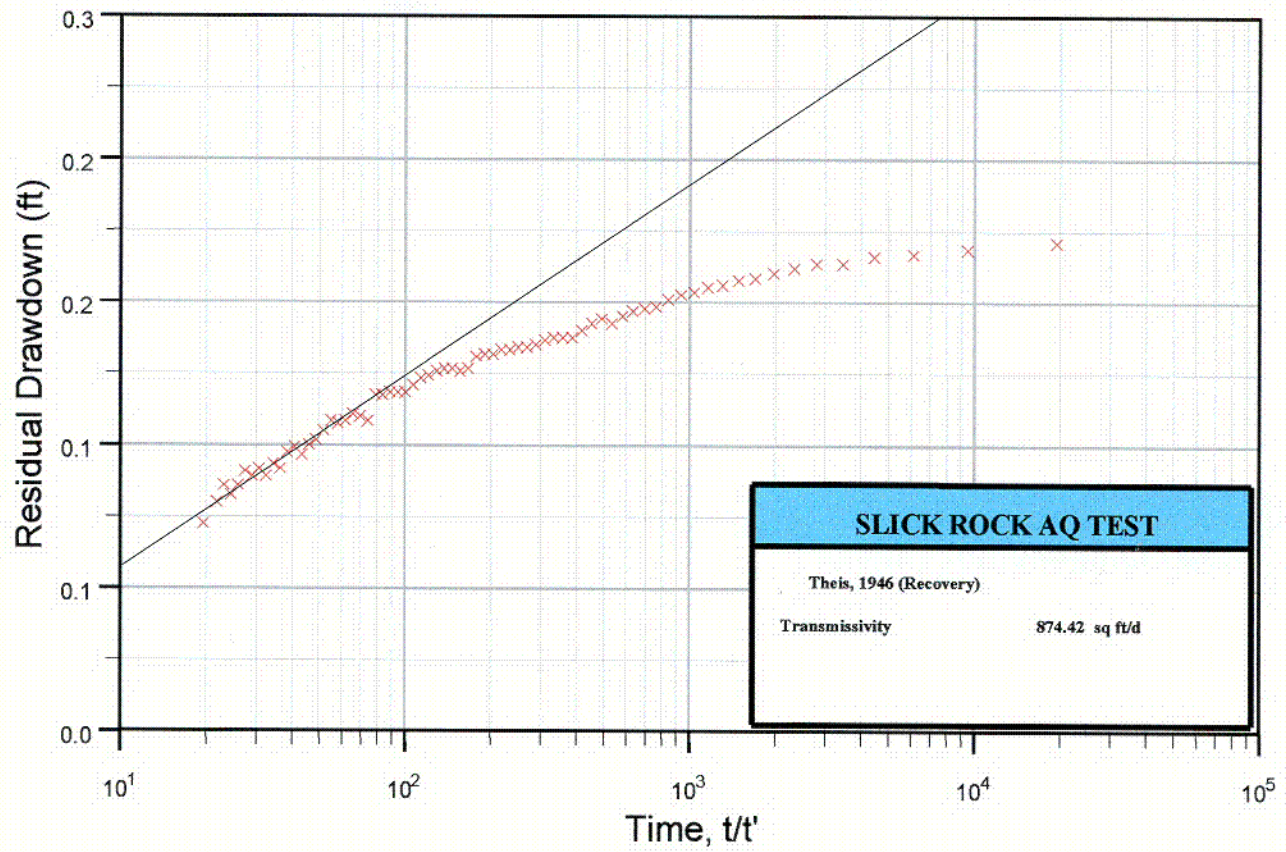
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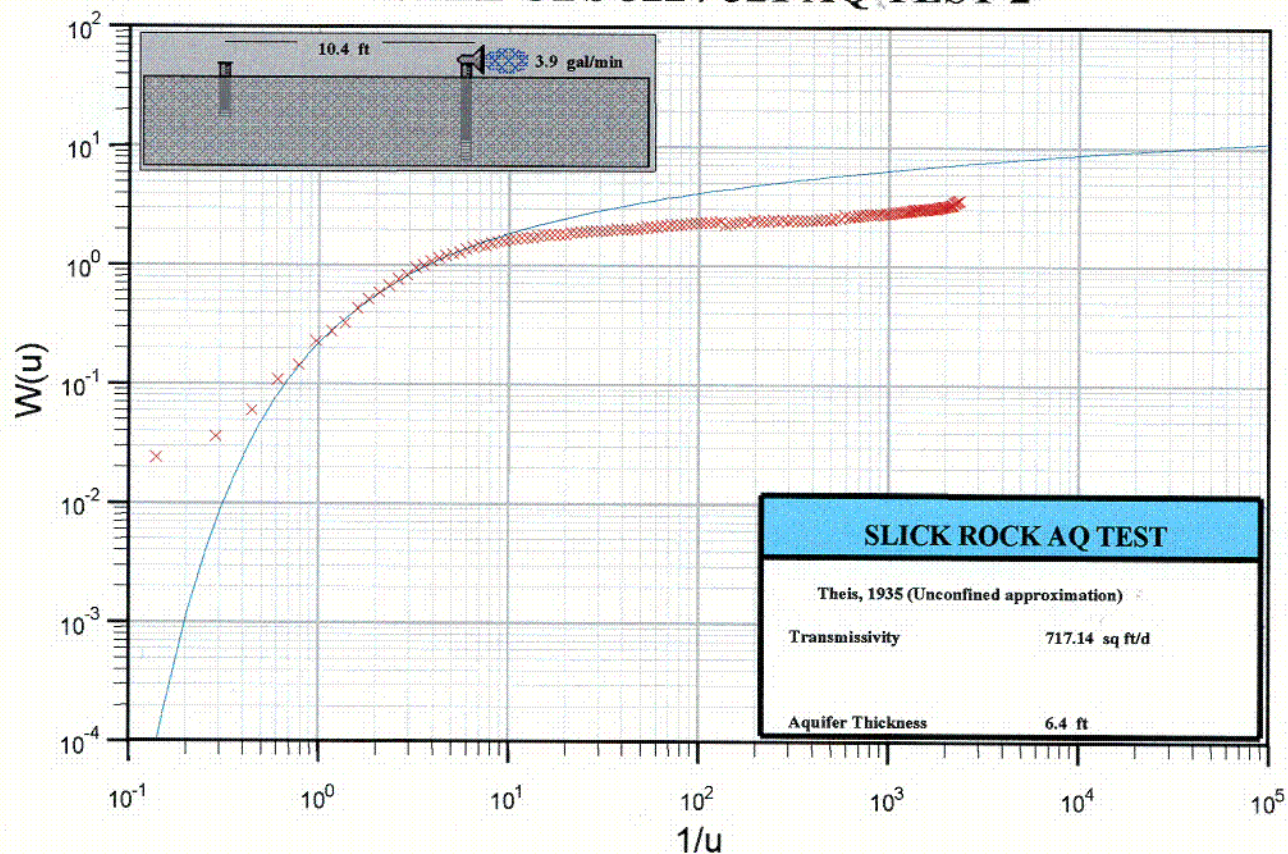
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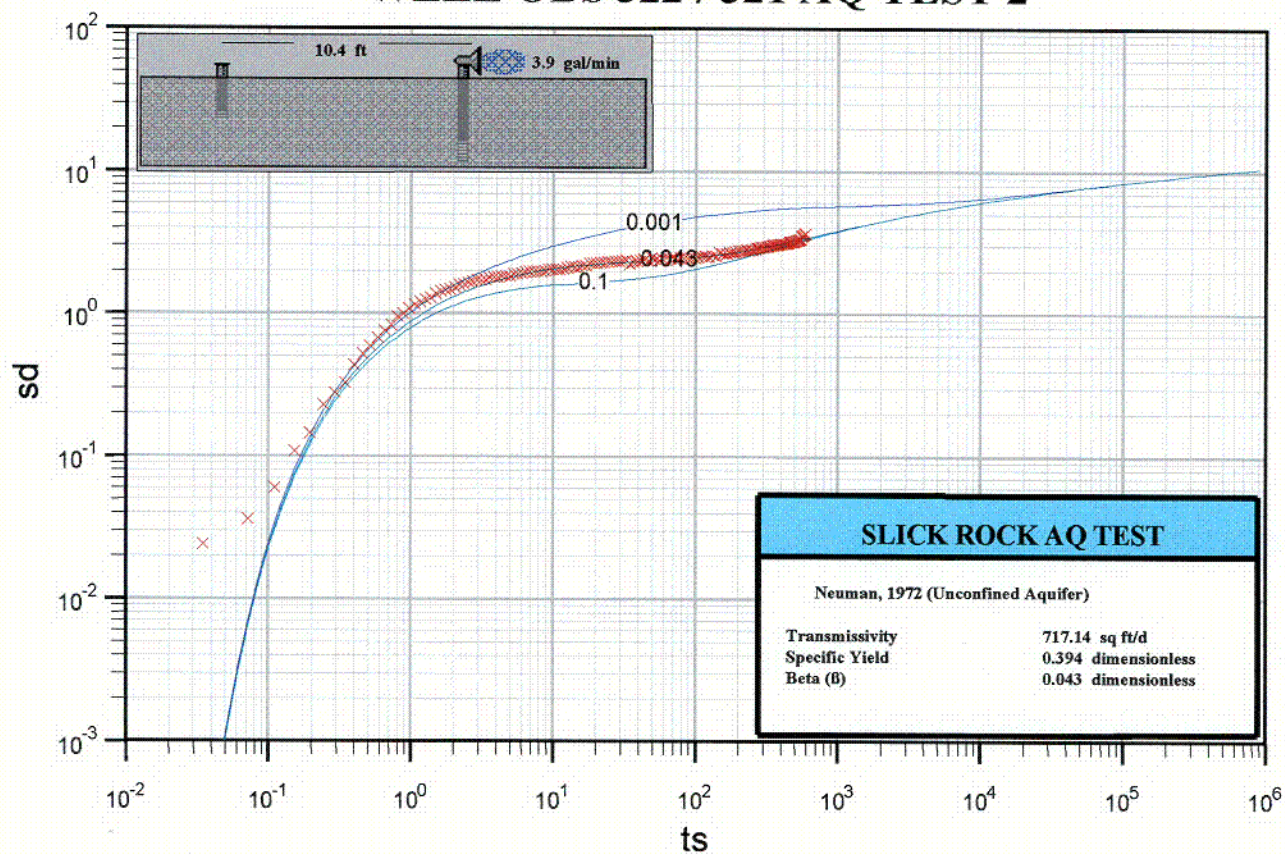
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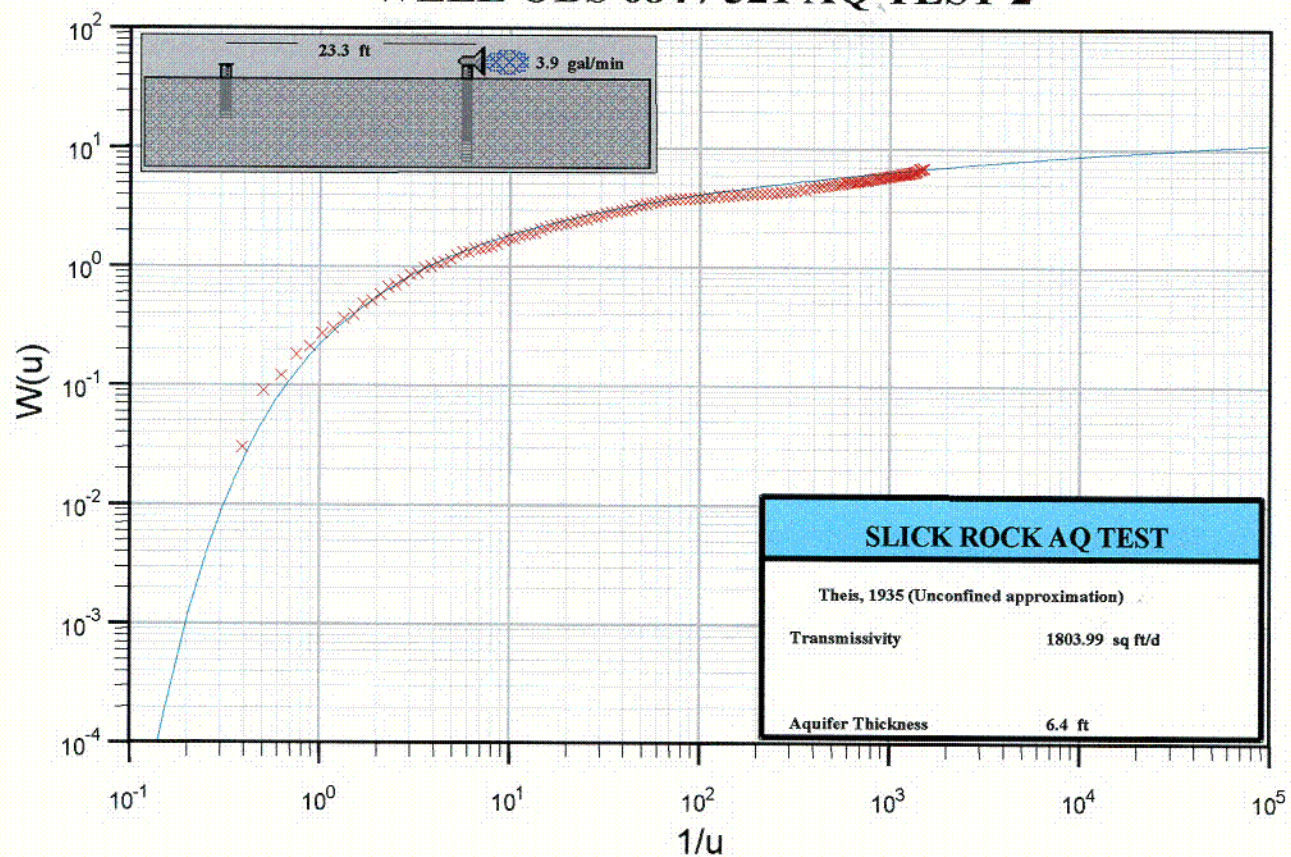
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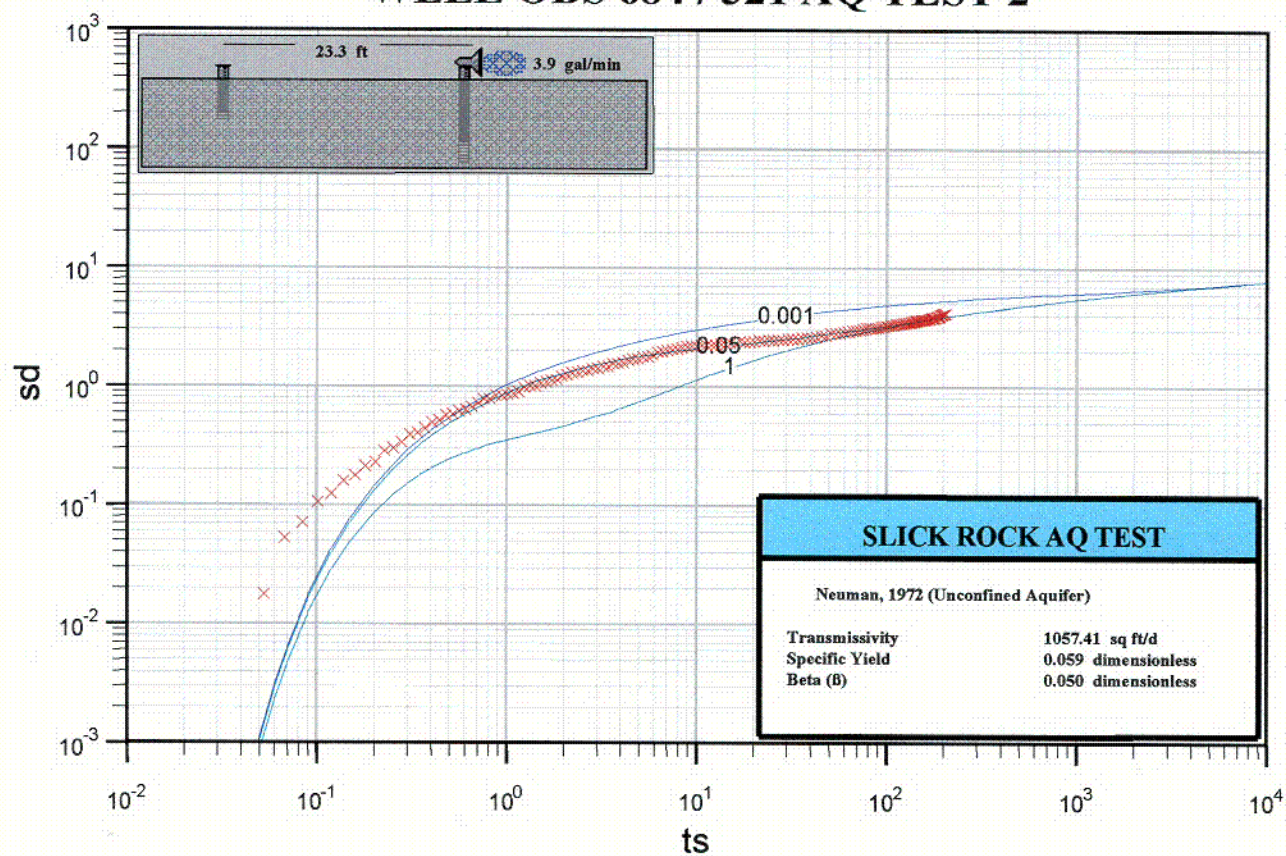
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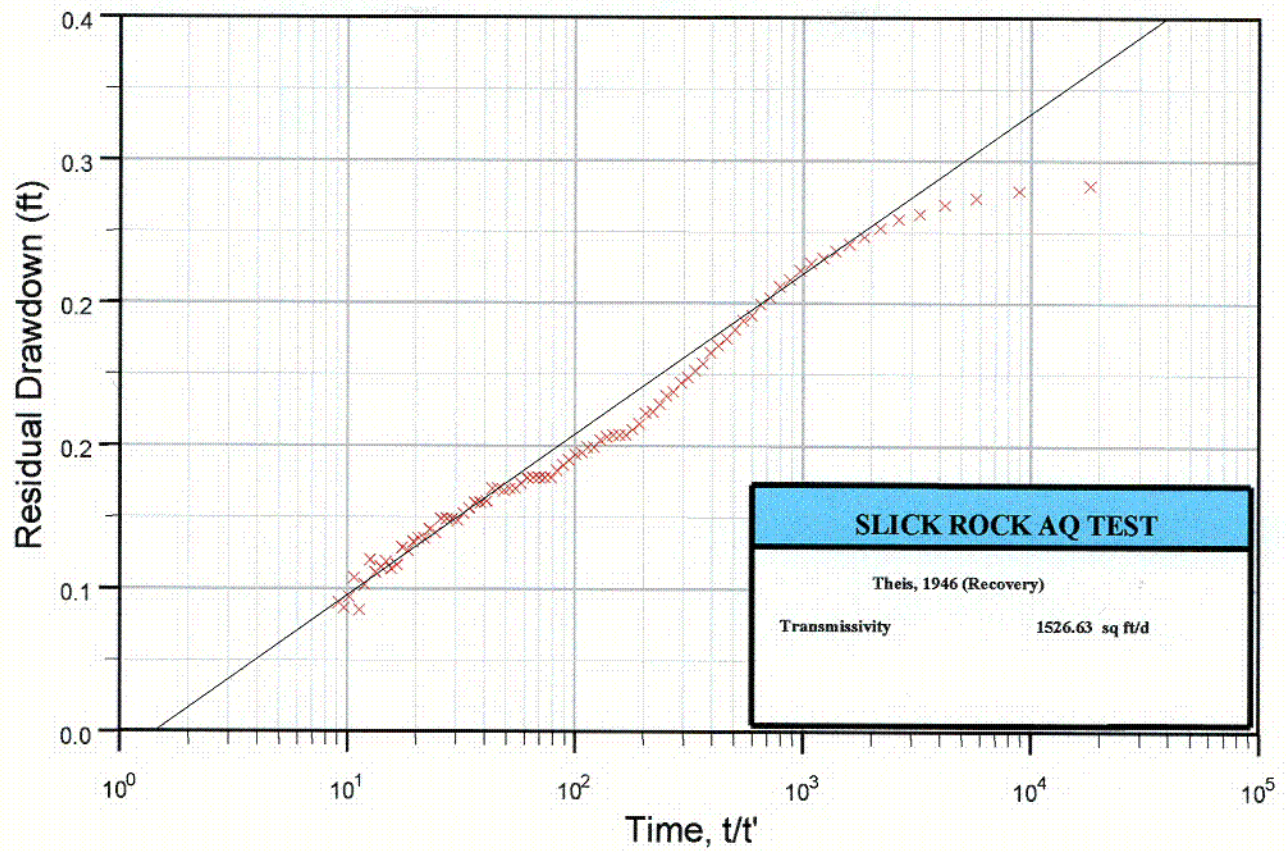
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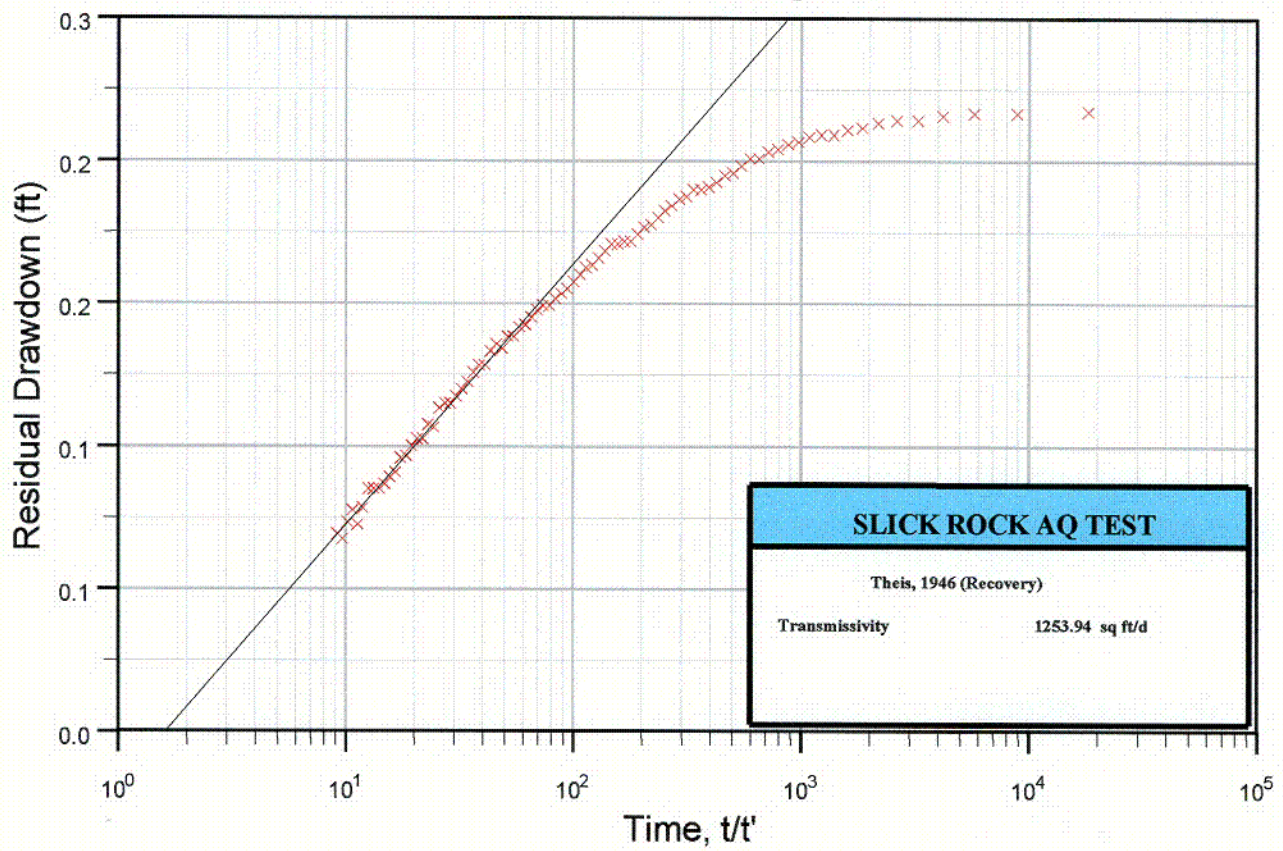
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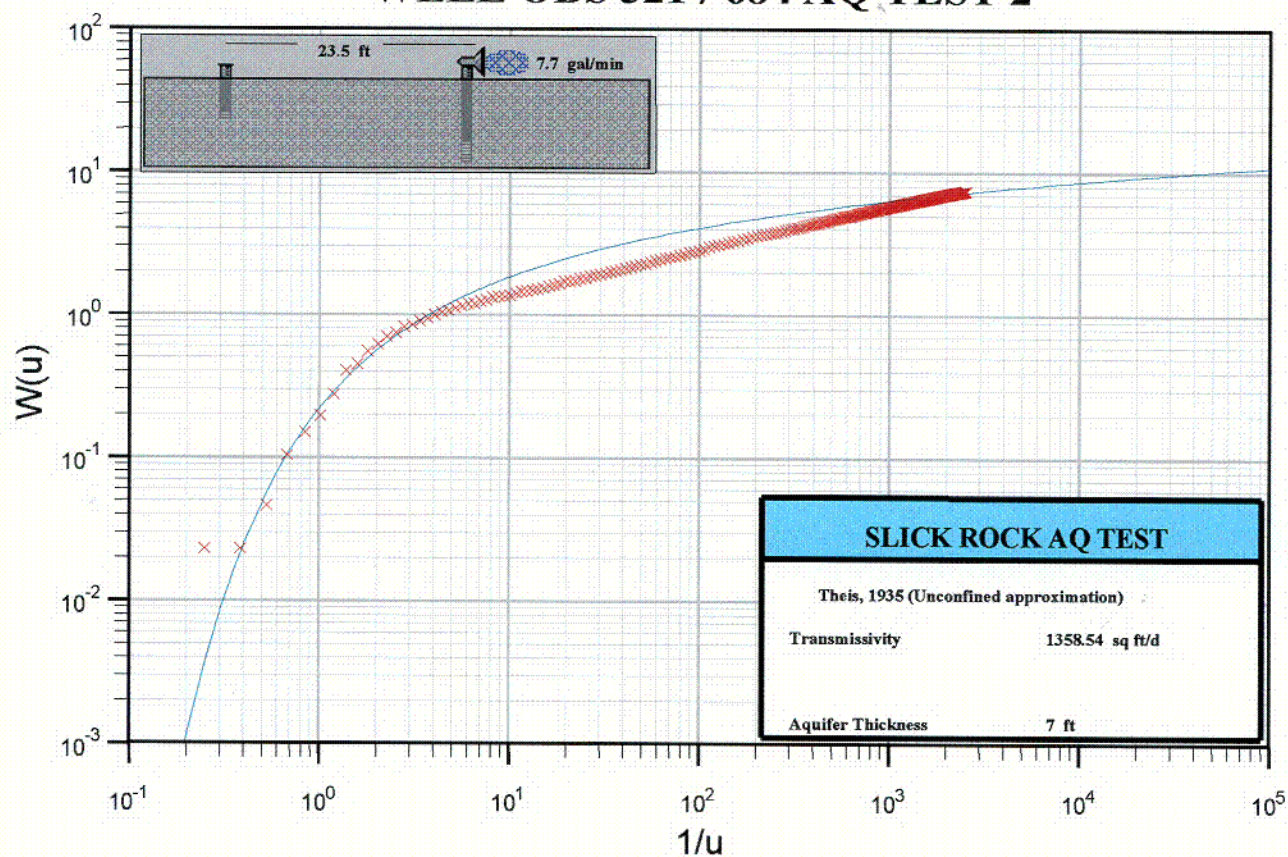
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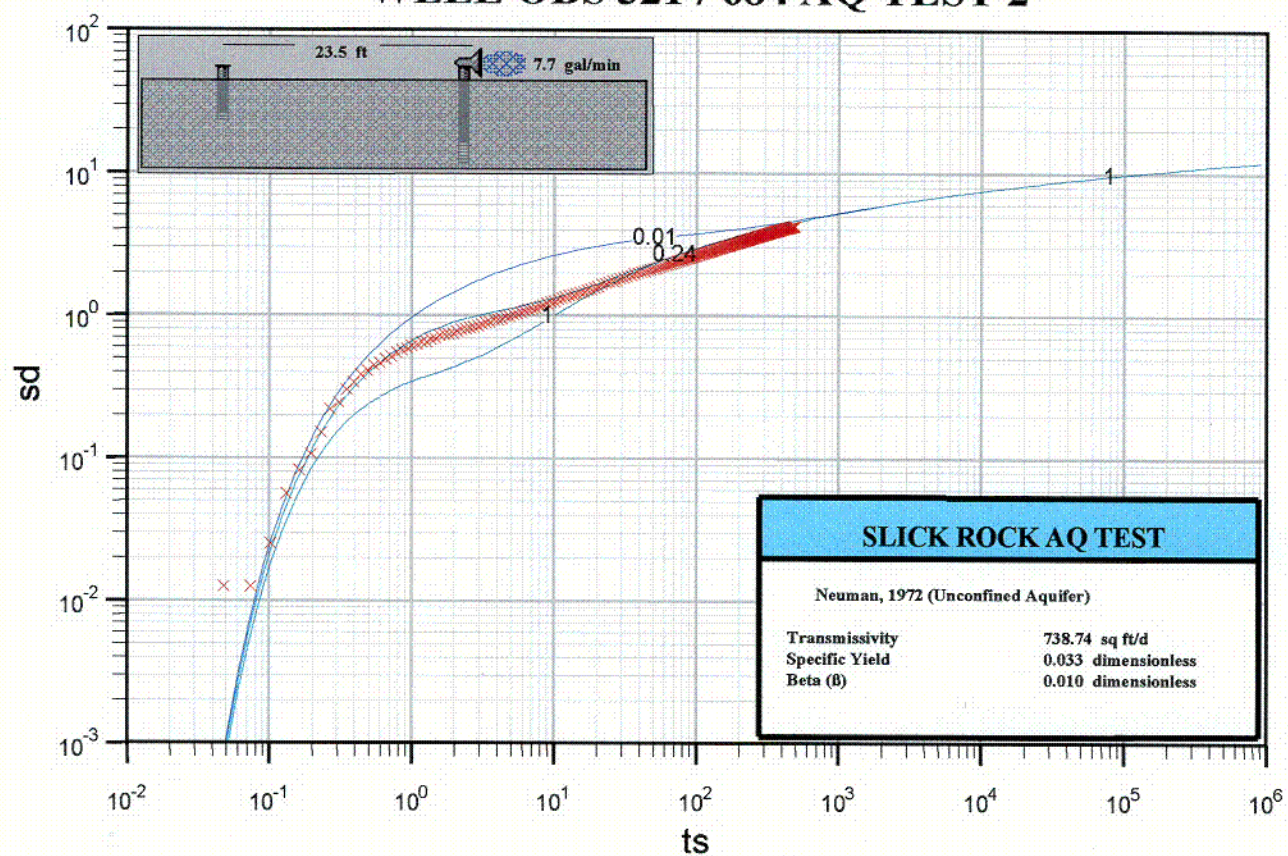
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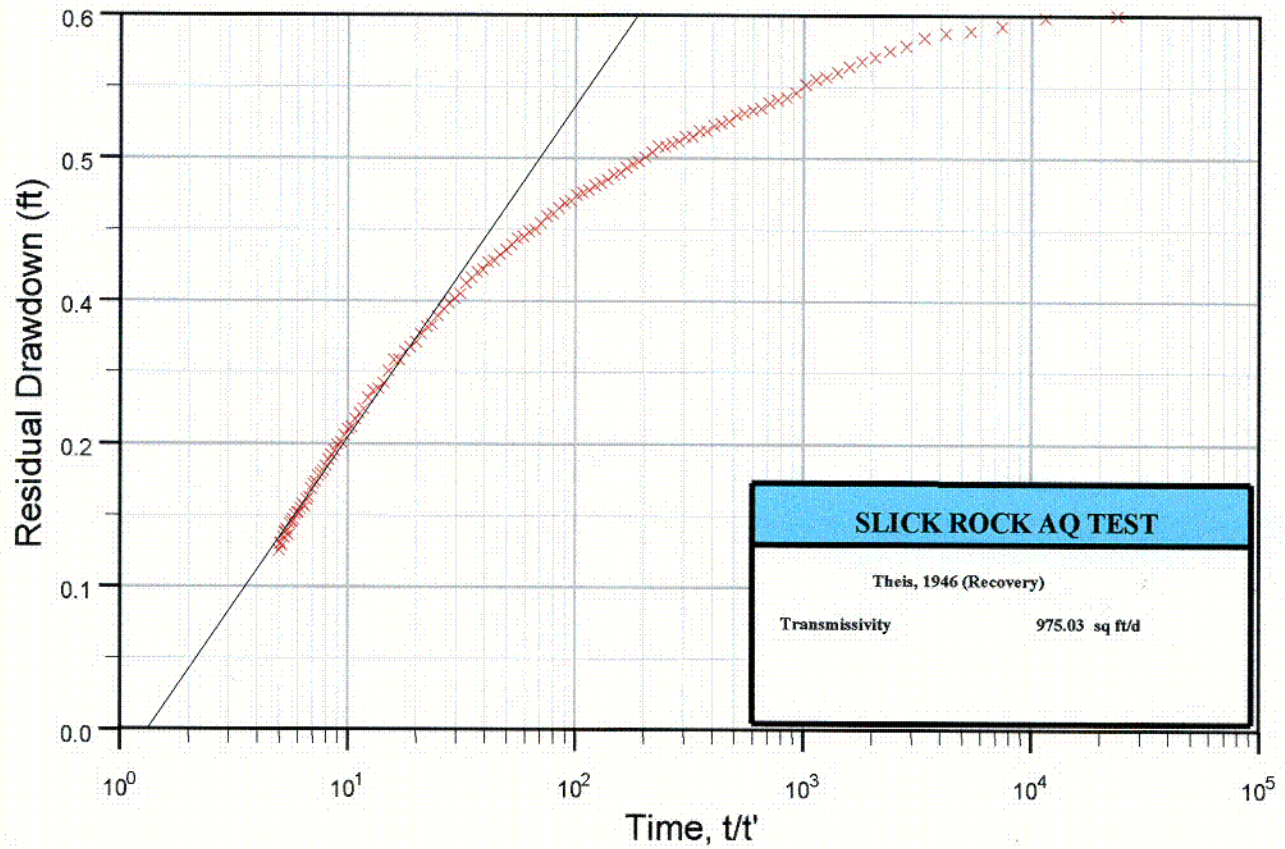
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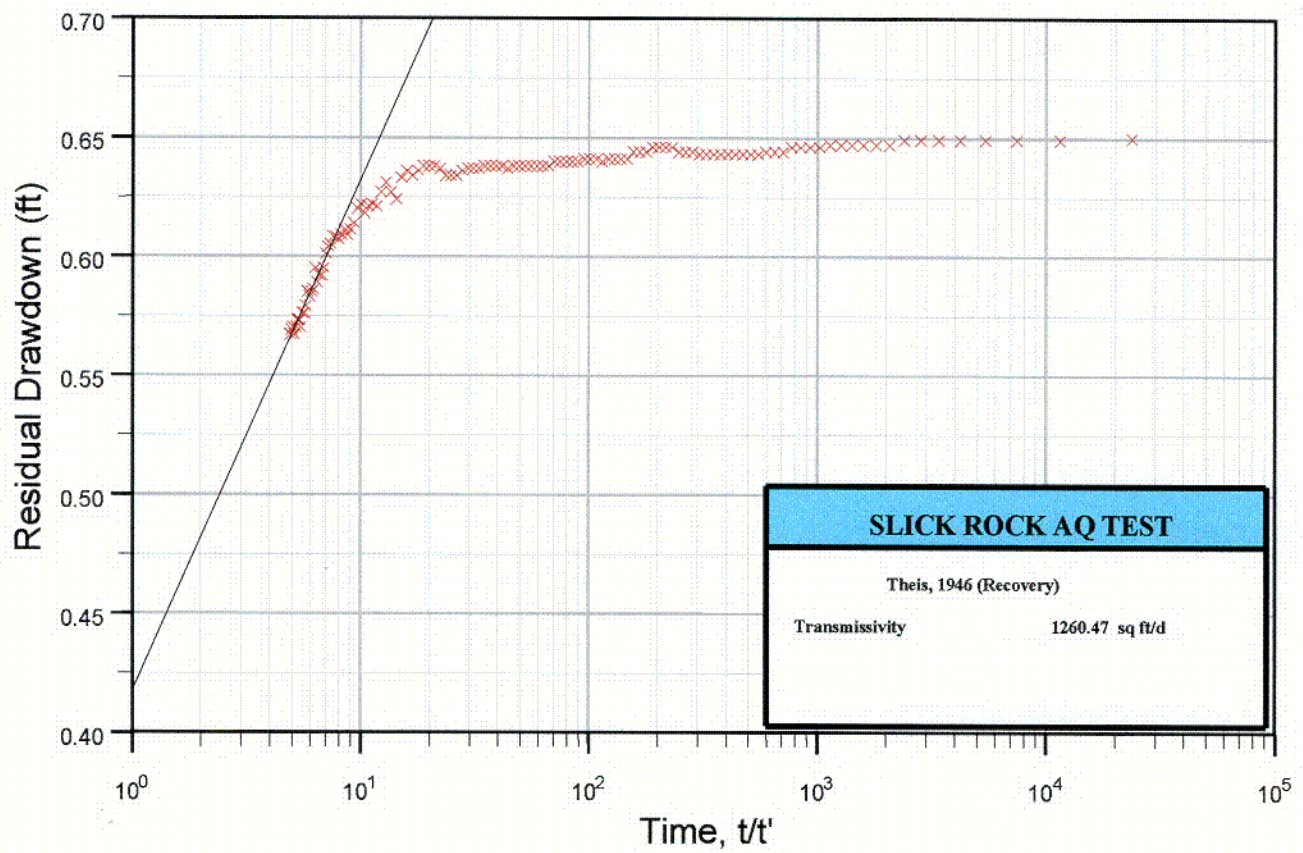
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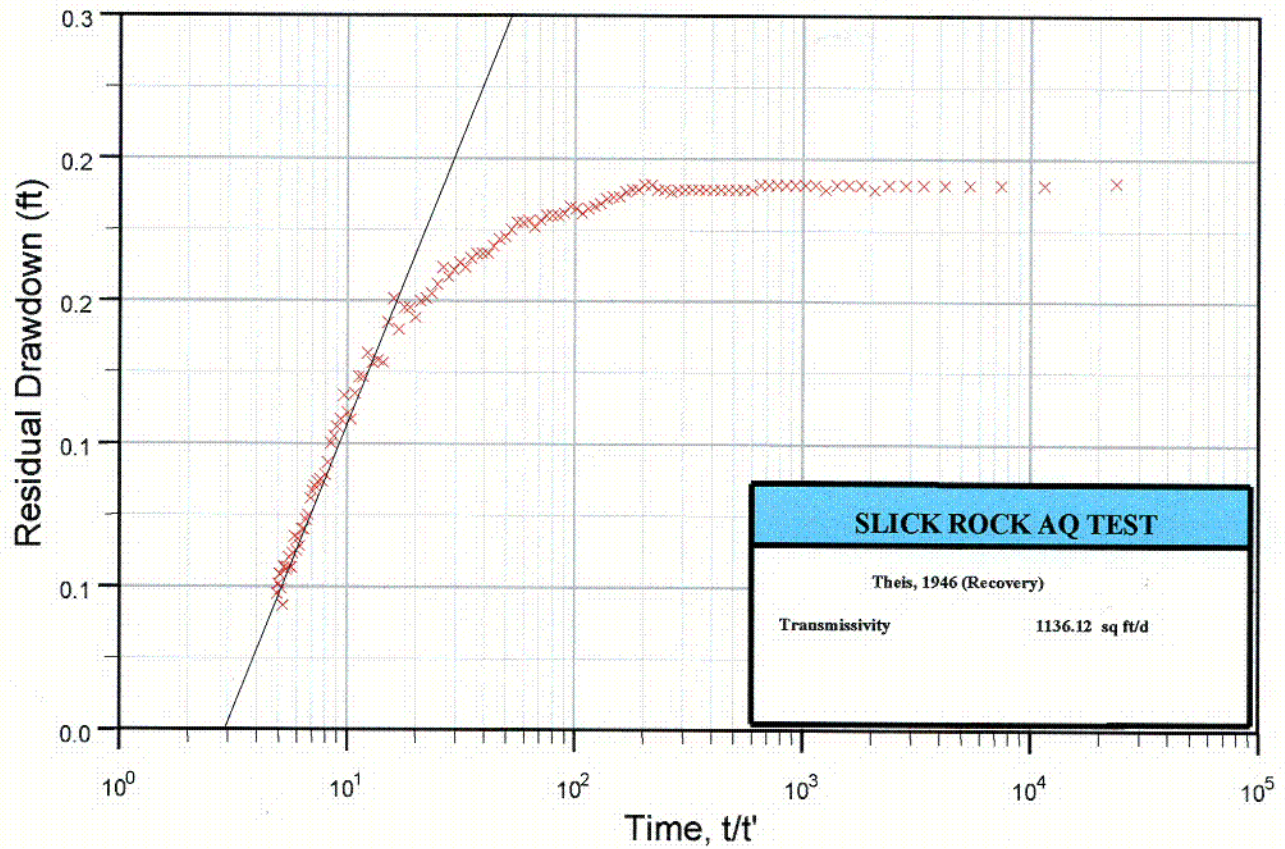
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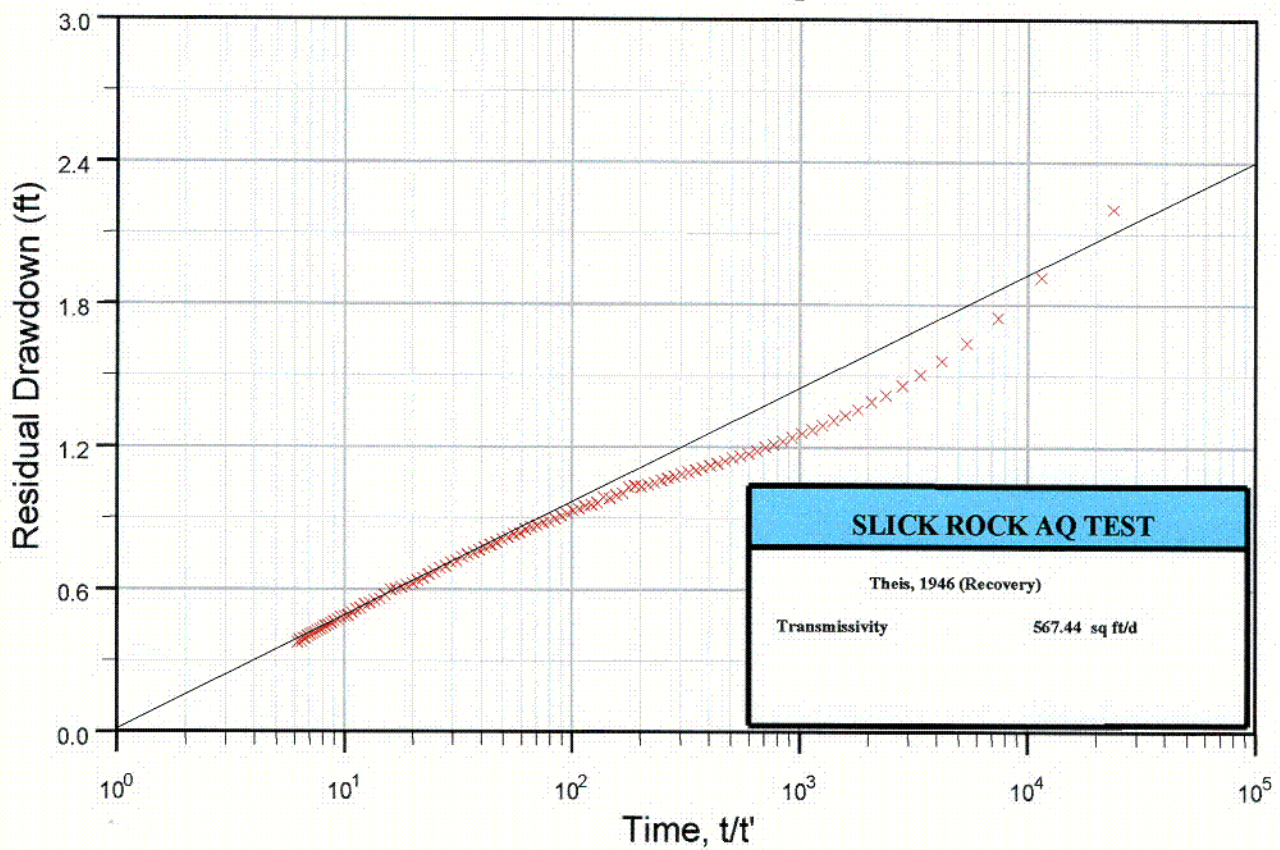
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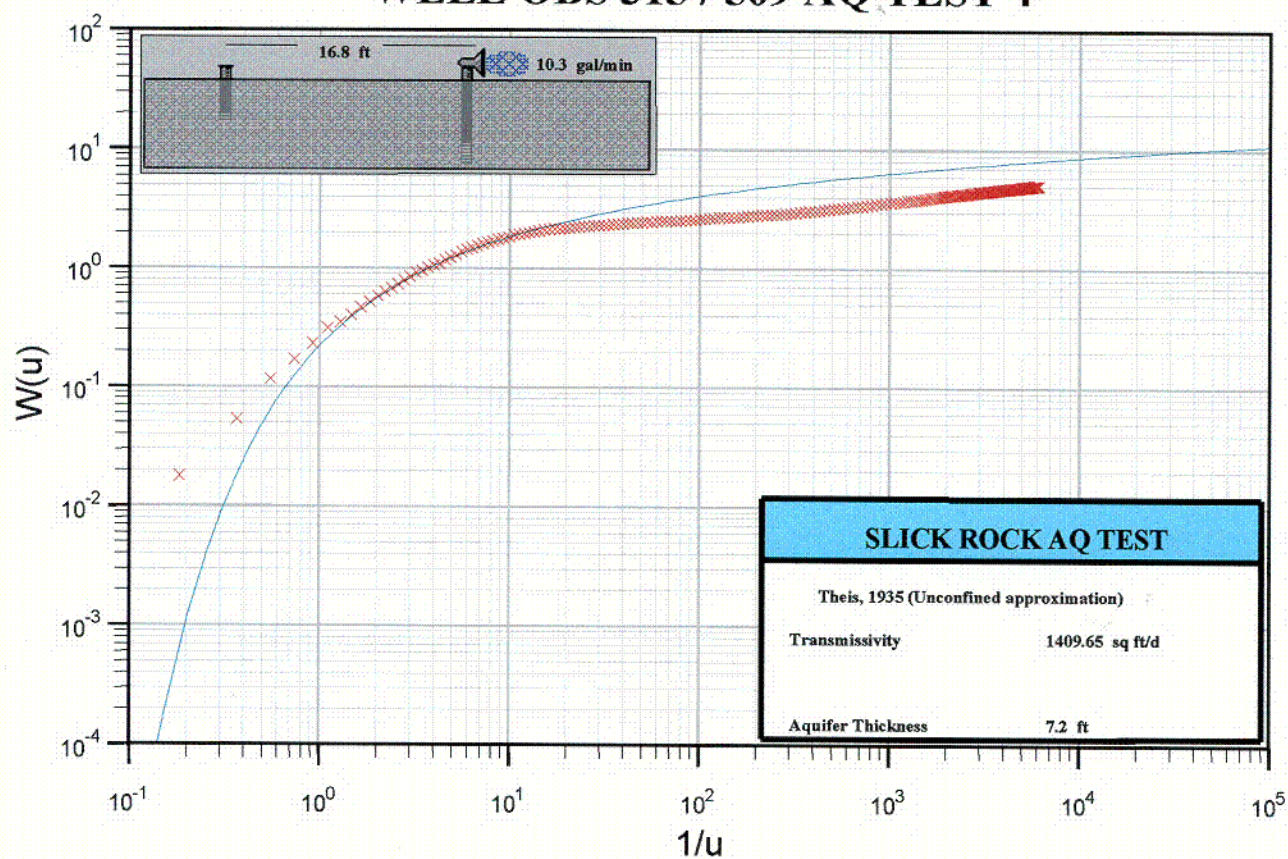
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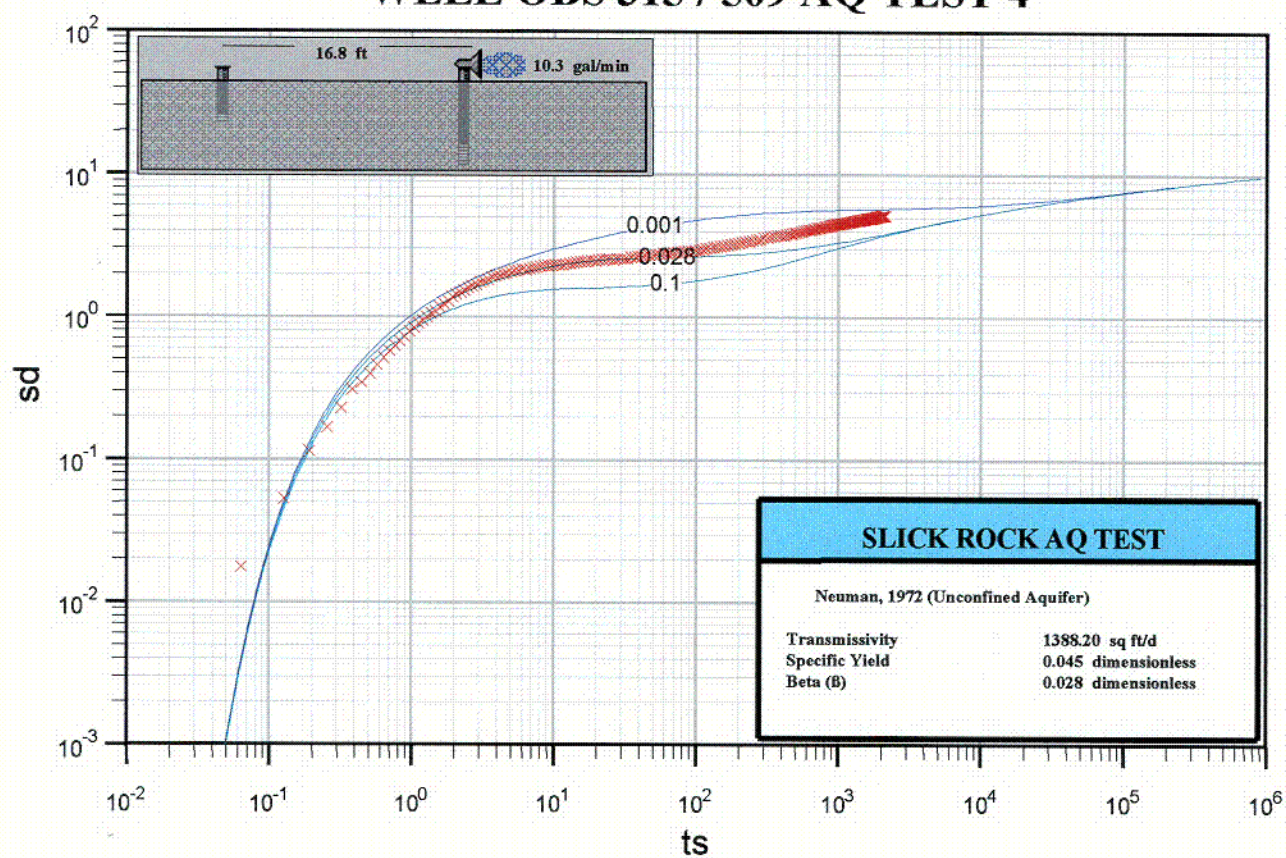
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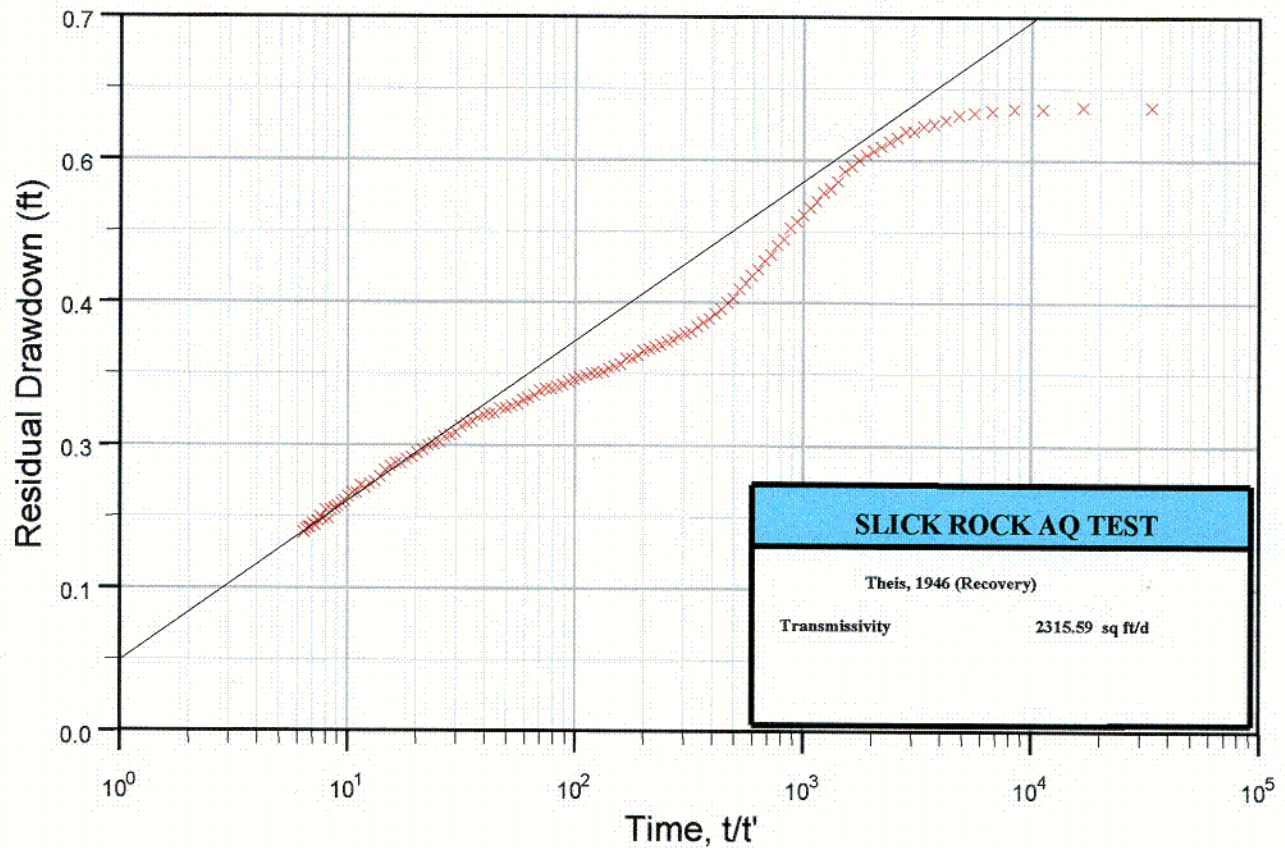
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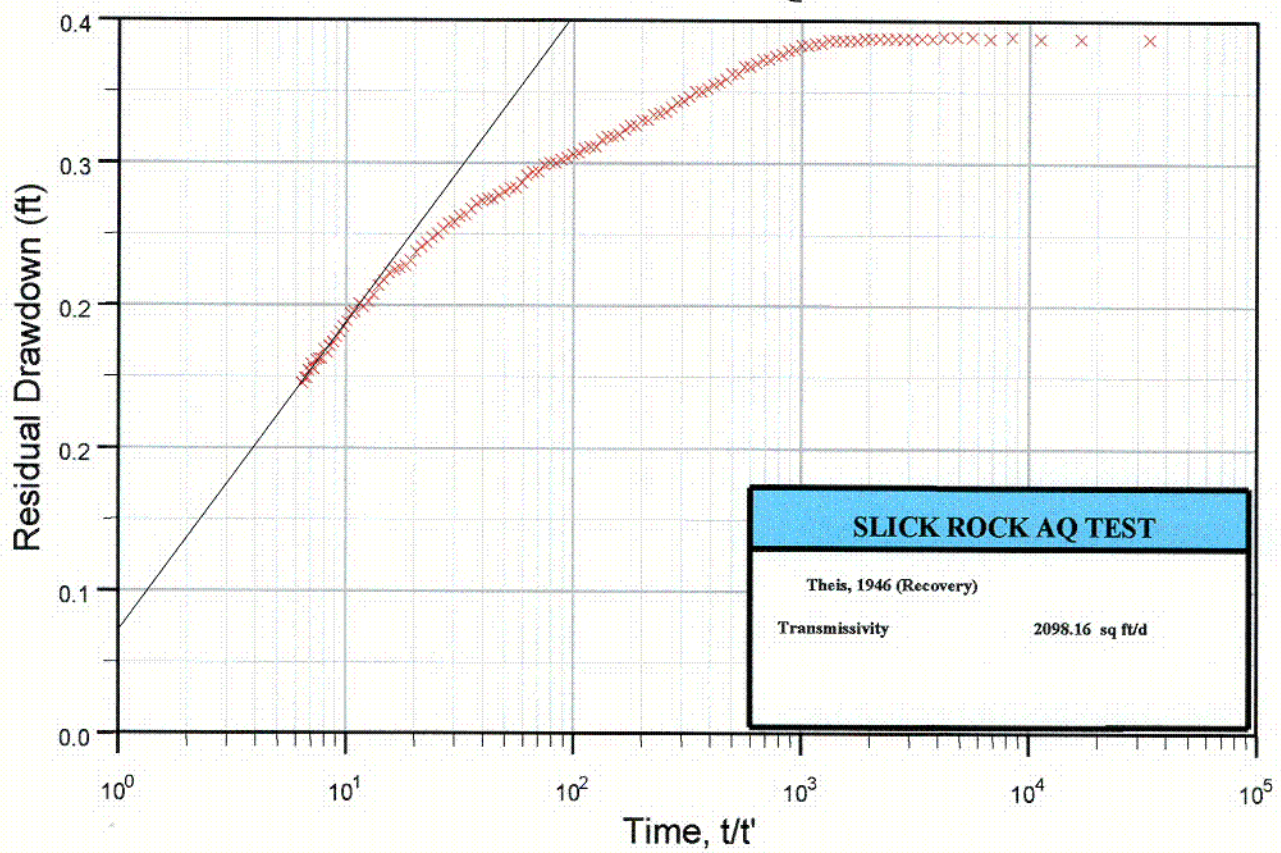
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WELL OBS 315 / 509 AQ TEST 4 REC



WELL OBS 314 / 509 AQ TEST 4 REC



WELL PMP 317 / 317 AQ TEST 1 REC

