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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+00.18	VPP	351	17	0.17	0.26	0.39	0.06	2	Rk	Rk	I	12	2	0	0	NA	S	1mm	No comments
55+00.22	VPP	009	00	0.00	0.71	0.70	0.05	2	Rk	Rk	I	12	2	0	0	NA	S	2mm	UT is 0.02m below tapeline
55+00.57	F	227	87	0.49	0.00	0.45	0.15	2	Rk	Rk	I	11	2	0	0	NA	S	0.5mm	LT is at tapeline
55+00.63	VPP	026	13	0.72	0.00	0.70	0.07	2	Rk	Rk	I	12	2	0	0	NA	S	2mm	LT is 0.04m above tapeline
55+00.86	F	146	81	0.03	3.16	2.00	2.83	2	Rk	Rk	P	12	5	0	0	NA	M	<1mm	No comments
55+00.96	VPP	018	04	0.00	0.37	0.36	0.04	2	Rk	Rk	I	12	2	0	0	NA	S	2mm	UT is 0.01m below tapeline
55+01.24	VPP	015	04	0.00	0.43	0.41	0.04	2	Rk	Yvpp	I	12	2	0	0	NA	S	1mm	UT is 0.06m below tapeline
55+01.52	F	214	83	0.85	2.37	2.13	2.19	2	Tf	Tf	P	12	5	0	0	NA	C,M	4mm	No comments
55+01.52	VPP	191	02	0.00	0.65	0.65	0.06	2	Tf	Rk	I	12	2	0	0	NA	S	0.5mm	UT is 0.06m below tapeline
55+01.91	F	143	84	0.51	2.89	2.57	2.16	2	Rk	Tf	P	12	5	0	0	NA	M	<1mm	No comments
55+02.21	F	178	86	0.71	0.00	0.61	0.38	2	Yvpp	Rk	P	13	4	0	0	NA	C	<1mm	LT is 0.19m above tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
Compiled by: Sheldon K Johnson

NUCLEAR SUPPORT DOCUMENT
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+02.56	F	176	87	0.82	0.00	0.56	0.54	1	Air	Rk	P	13	3	0	0	NA	C	<1mm	LT is 0.14m above tapeline
55+02.67	F	144	75	0.39	0.12	0.44	0.23	2	Tvpp	Tvpp	P	13	2	0	0	NA	V	<1mm	No comments
55+03.55	VPP	338	04	0.00	1.06	0.09	1.05	1	Rk	Air	I	13	2	0	0	NA	V	1mm	UT is at tapeline
55+03.81	F	171	90	1.36	0.09	0.48	1.24	1	Air	Rk	P	13	2	0	0	NA	C	<1mm	No comments
55+03.94	F	191	89	0.05	2.23	1.24	2.06	2	Yf	VPP	P	13	2	0	0	NA	C	<1mm	No comments
55+04.07	F	146	87	0.04	0.53	0.50	0.30	2	Yf	Yf	P	12	3	0	0	NA	M	<1mm	No comments
55+04.30	F	235	87	1.10	0.30	1.40	0.20	2	Rk	Yf	I	13	3	0	0	NA	S	<1mm	No comments
55+04.41	F	246	85	4.90	2.65	6.30	2.20	1	Tf	In	P	13	4	0	0	NA	S,M	1mm,<1mm	No comments
55+04.45	F	246	85	0.70	2.65	3.15	2.20	1	Rk	In	P	12	4	0	0	NA	M	<1mm	No comments
55+04.64	F	070	82	0.00	0.75	0.65	0.27	2	Tvpp	Tvpp	I	13	3	0	0	NA	V	1mm	UT is at tapeline, 2 to 3mm gray alteration margin

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+04.64	VPP	270	00	0.50	0.00	0.50	0.01	2	Tf	Rk	I	13	2	0	0	NA	V	1mm	LT and UT are 0.26m above tapeline, 2 to 3mm gray alteration margin
55+04.70	F	132	85	0.70	0.79	1.35	0.53	2	Rk	Tvpp	P	12	5	0	0	NA	M	<1mm	No comments
55+04.71	VPP	080	03	0.00	0.65	0.65	0.02	2	Tf	Rk	I	13	2	0	0	NA	V	<1mm	UT is 0.05m below tapeline, 2 to 3mm gray alteration margin
55+05.17	F	164	89	0.00	0.84	0.40	0.70	2	Rk	Rk	P	12	3	0	0	NA	NA	NA	UT is 0.14m below tapeline
55+05.23	F	168	90	0.00	0.41	0.24	0.28	2	Rk	Rk	P	12	2	0	0	NA	NA	NA	UT is 0.05m below tapeline
55+05.45	F	168	87	0.00	0.60	0.25	0.60	2	Rk	Rk	P	12	2	0	0	NA	NA	NA	UT is 0.21m below tapeline
55+06.12	F	220	83	1.92	0.28	2.05	0.32	2	Rk	Rk	P	12	5	0	0	NA	M	<1mm	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+06.15	F	234	88	0.00	1.16	0.92	0.60	2	Rk	Yf	P	12	4	0	0	NA	M	<1mm	UT is at tapeline
55+06.16	F	133	67	0.34	0.00	0.32	0.10	2	Rk	Yf	P	13	3	0	0	NA	S	3mm	LT is 0.10m above tapeline
55+06.34	F	225	80	4.30	2.85	6.20	2.10	0	St	In	P	13	5	0	0	NA	Q,M	6mm,<1mm	No comments
55+06.95	SH	125	84	0.75	2.82	2.90	2.30	1	Yf	In	P	21	5	0	0	UNK	Br	10mm	offset unknown
55+07.34	F	019	84	0.84	0.44	1.10	0.50	2	Yf	Ysh	P	11	3	0	0	NA	NA	NA	No comments
55+07.38	F	102	89	0.25	0.81	1.00	0.20	2	Yf	Yf	I	11	3	0	0	NA	S	1mm	No comments
55+07.88	F	000	72	0.44	0.80	0.34	0.60	2	Yf	Tf	I	11	3	0	0	NA	C	<1mm	No comments
55+08.40	F	136	79	2.10	1.32	2.45	2.60	1	Yf	Tvpp	P	11	4	0	0	NA	M,S	trace, 1mm	No comments
55+08.68	F	147	82	1.96	2.10	2.94	1.90	2	Yf	Tvpp	P	11	4	0	0	NA	M,Br	trace, 1mm	No comments
55+09.07	VPP	352	27	0.00	1.90	0.04	1.90	2	Rk	Rk	I	11	3	0	0	NA	V	3mm	UT is 0.1m below tapeline
55+09.08	F	242	89	0.13	2.42	2.50	2.20	1	Yf	In	P	11	4	0	0	NA	M	<1mm	No comments
55+09.12	F	125	88	3.90	0.00	3.00	1.80	2	Ysh	Yf	I	11	4	0	0	NA	M	trace	LT is 0.10m above tapeline

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Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+09.17	F	140	80	0.08	2.21	2.00	1.90	2	Yf	Tf	P	11	4	0	0	NA	M,S	trace	No comments
55+09.23	F	144	84	0.13	1.75	1.34	1.60	2	Yf	Tsh	I	11	3	0	0	NA	NA	NA	No comments
55+09.86	F	263	88	0.24	1.00	1.21	0.47	2	Tvpp	Rk	I	11	3	0	0	NA	V	1mm	No comments
55+10.22	VPP	350	11	1.68	0.00	0.01	1.68	2	Rk	Tf	I	11	2	0	0	NA	C,V	0-1mm, 12mm	LT is 0.26m above tapeline
55+10.57	F	129	80	0.42	2.20	2.16	1.66	2	Rk	Tvpp	P	11	5	0	0	NA	M	<1mm	No comments
55+10.75	SH	256	86	7.00	2.50	6.50	9.50	1	Tf	In	P	31	5	0	0	0.01	Br	15-25mm	offset up to the north
55+10.78	F	146	80	0.41	0.00	0.32	0.21	2	Rk	Tsh	P	11	3	0	0	NA	S,M	trace	LT is 0.15m above tapeline
55+10.81	VPP	334	24	0.72	0.00	0.12	0.72	2	Tsh	Rk	I	11	2	0	8	NA	V,C	0-5mm	LT is 0.11m above tapeline
55+11.33	F	332	84	0.80	0.65	1.19	0.90	2	Tsh	Yf	P	11	2	0	0	NA	NA	NA	No comments
55+11.61	F	134	89	1.64	0.22	1.80	0.15	2	Tf	Tvpp	P	11	3	0	0	NA	C,V	1mm,3mm	No comments
55+11.77	F	041	87	0.49	0.00	0.48	0.18	2	Tvpp	Rk	P	11	2	0	0	NA	C,S	trace	LT is 0.05m above tapeline
55+12.00	VPP	348	13	0.00	1.90	0.03	1.90	2	Rk	Tsh	I	11	2	0	0	NA	V	3mm	UT is 0.21m below tapeline

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Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+12.12	F	118	88	1.80	0.44	2.00	0.21	2	Tvpp	L	I	11	3	0	0	NA	M	trace	No comments
55+12.65	F	243	88	0.36	0.83	1.10	0.40	2	Tf	Rk	P	11	4	0	0	NA	M	<1mm	No comments
55+13.00	F	142	81	5.00	3.00	6.00	3.10	1	Rk	In	P	11	4	0	0	NA	M,C	trace, 2mm	No comments
55+13.28	F	242	83	1.33	0.32	1.60	0.35	2	Yf	Yf	I	11	4	0	0	NA	M,C	trace	No comments
55+13.32	F	295	84	1.40	0.37	1.74	0.24	2	Rk	Yf	I	11	2	0	0	NA	S	1mm	No comments
55+13.57	F	258	88	1.87	0.86	1.80	0.45	2	Yf	Yf	I	11	4	0	50	NA	C	0-5mm	MnO coating
55+13.78	F	246	83	0.82	0.26	1.04	0.25	2	Rk	Rk	P	11	5	0	0	NA	NA	NA	MnO coating
55+13.78	F	239	87	0.00	0.84	0.80	0.35	2	Rk	Tf	P	11	5	0	0	NA	S,M	<1mm	UT is at tapeline
55+14.05	F	234	89	0.58	0.90	1.20	0.70	1	Air	Tf	I	11	3	0	0	NA	C,M	3mm, <1mm	No comments
55+14.30	F	138	88	0.54	0.75	1.20	0.50	2	Yf	Yf	P	11	4	0	5	NA	Br	30mm	No comments
55+14.40	SH	323	89	1.40	1.60	2.75	1.40	2	Yf	Yf	P	11	4	0	10	UNK	Br	5mm	unknown offset
55+15.04	F	222	87	0.00	0.31	0.31	0.13	2	Yf	Tf	I	12	2	0	0	NA	S	0.5mm	UT is 0.16m below tapeline
55+15.40	F	132	80	2.73	0.87	3.10	0.75	2	Ysh	Tsh	P	11	3	0	0	NA	C	0-10mm	MnO coating

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Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+16.07	F	194	83	0.32	0.00	0.32	0.08	2	Rk	Rk	I	11	2	0	0	NA	S	0.5mm	LT is 0.02m above tapeline
55+16.46	F	216	78	2.06	4.09	5.17	2.59	1	Rk	In	I	12	4	0	0	NA	C,M	5mm	No comments
55+16.50	F	129	82	2.53	2.73	4.76	1.75	1	Yf	In	I	12	3	0	0	NA	M,S	1mm	No comments
55+16.98	F	116	84	1.66	2.50	3.94	1.19	1	Rk	In	P	12	2	0	0	NA	S	0.5mm	No comments
55+17.10	F	138	74	1.35	2.26	2.99	1.65	1	Rk	In	P	12	4	0	0	NA	M	1mm	No comments
55+17.49	F	226	84	1.68	0.00	1.56	0.15	2	Tvpp	Yf	I	12	2	0	0	NA	S	1mm	LT is 0.01m above tapeline
55+17.51	F	134	80	2.14	3.36	4.31	2.23	1	Tvpp	In	P	12	3	0	0	NA	M,Br	2mm	No comments
55+17.57	F	227	89	0.00	0.72	0.69	0.25	2	Yf	Yf	I	12	2	0	0	NA	S	1mm	UT is 0.15m below tapeline
55+17.59	F	097	90	0.00	0.39	0.36	0.15	2	Yf	Yf	I	11	3	0	0	NA	NA	NA	UT is 0.22m below tapeline
55+17.66	F	121	82	0.09	0.31	0.39	0.09	2	Yf	Yf	P	11	3	0	0	NA	NA	NA	No comments
55+17.72	FLT	158	78	1.83	1.55	3.04	2.02	2	Rk	Tf	I	12	3	0	0	0.12	M	2mm	strike slip offset
55+17.79	F	241	89	0.00	2.67	2.19	1.29	1	Tf	In	P	13	4	0	0	NA	M,Br	2mm	UT is 0.09m below tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Station	Typ	Attitude		Trace Length		Ht(m)	Wd(m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+18.21	F	139	88	0.67	0.57	1.17	0.42	2	Rk	Rk	P	11	3	0	0	NA	NA	NA	No comments
55+18.49	VPP	175	02	0.00	0.41	0.40	0.03	2	Rk	Rk	I	12	2	0	0	NA	NA	NA	UT is 0.14m below tapeline
55+19.36	SH	231	89	14.90	3.01	9.00	9.50	0	In	In	P	23	5	0	0	0.08	Ar,Br	20mm, 20mm	reverse offset, down to the south
55+19.42	VPP	351	04	1.01	0.00	0.94	0.09	2	Rk	Tf	I	12	2	0	0	NA	S	2mm	LT is 0.08m above tapeline
55+19.49	F	142	88	0.12	0.48	0.47	0.45	2	Tf	Rk	I	12	3	0	0	NA	M	1mm	No comments
55+19.82	F	168	79	0.24	0.06	0.25	0.07	2	Rk	Rk	I	12	3	0	0	NA	M	1mm	No comments
55+20.05	VPP	201	10	0.00	0.30	0.29	0.03	2	Rk	Rk	I	12	2	0	0	NA	S	1mm	UT is 0.19m below tapeline
55+20.19	F	194	10	0.22	0.25	0.45	0.05	2	Rk	Rk	I	12	2	0	0	NA	S	1mm	No comments
55+20.30	F	216	81	0.53	0.00	0.42	0.33	2	Tvpp	Rk	P	12	4	0	0	NA	M	1mm	LT is 0.09m above tapeline
55+20.31	VPP	003	02	0.00	0.40	0.37	0.05	2	Rk	Rk	I	12	2	0	0	NA	S	1.5mm	UT is 0.16m below tapeline
55+20.62	F	129	90	0.62	0.13	0.72	0.05	2	Rk	Rk	I	12	2	0	0	NA	S	0.5mm	No comments

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Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+21.06	F	119	88	1.14	2.19	3.20	1.32	2	Rk	Rk	P	13	4	0	1	NA	C,M	0-2mm, <1mm	No comments
55+21.45	F	338	84	1.49	0.15	1.42	0.38	2	Yf	Yf	I	12	3	0	0	NA	NA	NA	No comments
55+21.61	F	282	89	0.13	0.39	0.51	0.05	2	Yf	Tvpp	P	13	4	0	12	NA	V	3mm	No comments
55+21.71	SH	133	81	5.50	0.84	4.25	1.35	2	Yf	Tvpp	P	13	5	0	0	0.02	C,M	trace, <1mm	normal offset down to the south
55+21.84	F	215	77	1.11	0.58	1.11	0.45	2	Yf	Tf	P	13	4	0	0	NA	C,M	0.30mm, <1mm	MnO stain
55+21.91	F	229	84	0.00	1.19	0.85	0.81	2	Tf	Rk	P	13	4	0	0	NA	M	<1mm	UT is 0.05m below tapeline
55+22.09	F	107	75	0.11	0.66	0.74	0.36	2	Tf	Rk	P	13	4	0	0	NA	C	0-4mm	No comments
55+22.10	F	102	75	0.59	0.00	0.58	0.18	2	Rk	Tf	P	13	4	0	0	NA	NA	NA	LT is 0.12m above tapeline, no infilling
55+22.23	F	093	85	0.42	0.00	0.41	0.05	2	Rk	Tf	P	13	4	0	0	NA	V	1-3mm	LT is 0.17m above tapeline
55+22.30	VPP	350	16	0.33	1.63	0.01	1.94	2	Rk	Rk	I	11	1	0	0	NA	C,V	trace, 2-5mm	No comments

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Station	Typ	Attitude		Trace Length		Ht(m)	Wd(m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+22.75	F	204	58	0.00	0.37	0.03	0.34	2	Tf	Rk	P	13	4	0	0	NA	M	<1mm	UT is 0.10m below tapeline
55+23.09	SH	111	82	3.75	2.42	5.30	1.65	1	Yf	In	P	31	5	0	4	0.04	C,Bx,M	0-5mm, 0-3mm, <1mm	reverse offset, down to the north
55+24.20	F	143	82	0.83	0.00	0.63	0.51	2	Yf	Rk	P	13	3	0	0	NA	C	<1mm	LT is 0.04m above tapeline
55+24.63	F	138	83	1.10	2.00	3.00	1.60	2	Yf	Tvpp	P	11	5	0	0	NA	C,M	3mm, <1mm	No comments
55+24.78	FLT	089	85	2.50	0.44	2.90	0.10	2	Yf	Yf	I	21	3	0	10	0.24	Br, C	0-50mm	normal offset, south side down
55+24.87	F	097	64	1.90	0.50	1.93	0.70	2	Tvpp	Tvpp	I	11	3	0	10	NA	C	0-10mm	No comments
55+24.94	F	208	84	2.34	0.34	2.10	0.80	2	Tf	Tf	I	11	5	0	3	NA	C	5mm	No comments
55+25.20	F	240	88	0.28	0.70	0.95	0.10	2	Yf	Yf	I	11	2	0	0	NA	C	1mm	No comments
55+25.42	F	152	76	0.06	0.38	0.30	0.32	2	Yvpp	Tvpp	I	11	2	0	0	NA	V	1mm	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
Compiled by: Sheldon K Johnson

Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht(m)	Wd(m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+25.50	VPP	300	21	0.00	0.00	0.01	1.70	2	Tf	Tf	I	11	2	0	0	NA	V	2mm	vapor phase parting is at tapeline and subparallel to it
55+25.91	F	055	85	0.08	0.95	1.00	0.25	2	Tvpp	Rk	I	11	2	0	0	NA	S	1mm	No comments
55+25.94	F	240	86	0.47	0.00	0.47	0.04	2	Rk	Tvpp	I	11	2	0	0	NA	S	1mm	LT is 0.08m above tapeline
55+25.95	F	035	79	0.04	0.47	0.50	0.10	2	Tvpp	Tf	I	11	2	0	0	NA	NA	NA	No comments
55+26.03	F	010	80	0.06	0.20	0.26	0.07	2	Tvpp	Tvpp	I	11	2	0	0	NA	NA	NA	No comments
55+26.15	F	285	90	0.08	1.54	1.40	0.60	2	Tvpp	Tvpp	I	11	3	0	0	NA	M	<1mm	MnO coating
55+26.19	F	280	86	1.15	1.22	2.13	0.56	2	Yf	Tvpp	I	11	3	0	0	NA	C,M	0-1mm, <1mm	MnO coating
55+26.43	F	342	84	0.30	0.00	0.28	0.10	2	Tvpp	Yf	I	11	2	0	0	NA	NA	NA	LT is at tapeline, no infilling
55+26.46	F	270	78	0.33	0.98	1.30	0.40	2	Tvpp	Yf	I	11	2	0	0	NA	M	<1mm	MnO coating

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+26.46	F	215	82	1.20	0.00	0.75	0.64	2	Rk	Tf	I	11	3	0	0	NA	NA	NA	LT is 0.08m above tapeline no infilling
55+26.47	F	342	84	0.32	0.05	0.30	0.20	2	Tvpp	Rk	I	11	2	0	0	NA	NA	NA	No comments
55+26.70	VPP	305	20	0.00	1.24	0.02	1.23	2	Rk	Rk	I	11	2	0	0	NA	V	3mm	UT is 0.20m below tapeline
55+26.74	F	240	85	0.23	0.00	0.23	0.07	2	Rk	Rk	I	11	4	0	0	NA	M	<1mm	<1mm MnO coating, LT is at tapeline
55+26.87	F	232	86	0.30	0.00	0.28	0.10	2	Rk	Rk	P	11	5	0	0	NA	M	<1mm	LT is 0.2m above tapeline
55+27.14	F	320	85	0.30	0.30	0.58	0.10	2	Tvpp	Yf	I	11	3	0	0	NA	NA	NA	No comments
55+27.20	F	085	86	1.28	2.50	3.20	1.60	1	Tvpp	In	P	11	3	0	10	NA	C	0-10mm	No comments
55+27.29	F	132	76	0.20	0.60	0.60	0.60	2	Tf	Yf	I	11	2	0	0	NA	V	0-1mm	No comments
55+27.76	F	275	88	0.23	0.55	0.73	0.18	2	Yf	Yf	I	11	2	0	0	NA	S	2mm	No comments
55+27.79	F	280	82	1.28	1.00	2.16	0.45	2	Tvpp	Yf	I	11	4	0	0	NA	S	2mm	No comments
55+27.80	VPP	305	28	0.34	0.00	0.04	0.34	2	Tsh	Tf	I	11	2	0	0	NA	V	2mm	LT is 0.08m above tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+27.95	F	240	90	0.94	0.60	1.43	0.62	2	Tvpp	Ysh	P	11	3	0	0	NA	NA	NA	No comments
55+28.11	SH	230	90	1.70	0.30	1.80	0.30	2	Yf	Ysh	P	21	4	0	0	0.06	Br	30mm	normal offset, south side down
55+28.17	F	240	86	0.41	0.27	0.63	0.25	2	Ysh	Ysh	P	11	3	0	0	NA	NA	NA	<1mm MnO coating
55+28.24	F	245	86	0.95	2.37	2.50	1.70	1	Ysh	In	I	11	2	0	0	NA	C,V	2mm, 4mm	No comments
55+28.28	F	025	88	0.60	0.20	0.40	0.60	2	Tf	Ysh	I	11	2	0	0	NA	V	<1mm	No comments
55+28.45	F	105	86	0.65	0.00	0.64	0.07	2	Tvpp	Tf	I	11	2	0	0	NA	V	1mm	LT is 0.17m above tapeline
55+28.63	F	220	88	0.00	0.46	0.30	0.25	2	Tf	Yvpp	I	11	3	0	0	NA	C	2mm	UT is 0.07m below tapeline
55+28.65	F	154	88	0.23	0.60	0.54	0.50	2	Tf	Tvpp	I	11	2	0	0	NA	C	<1mm	No comments
55+28.65	F	228	88	2.00	0.05	1.87	0.65	2	Tvpp	Tf	I	11	3	0	0	NA	C	2mm	No comments
55+29.18	F	294	86	1.12	0.39	1.45	0.40	2	Tvpp	Tvpp	P	13	3	0	0	NA	V	0.5mm	2mm alteration margin
55+29.70	F	150	87	4.40	1.67	4.60	2.10	2	Yf	Tf	P	14	5	0	0	NA	Br,C,M	10mm, 8mm, <1mm	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+29.72	F	152	85	0.46	0.89	1.16	0.80	2	Tvpp	Yf	P	13	5	0	0	NA	C	patchy	No comments
55+29.85	F	146	88	1.67	3.35	3.70	3.50	1	Rk	In	P	13	5	0	0	NA	M,V	patchy	No comments
55+30.25	F	320	88	0.98	0.13	1.10	0.30	2	Rk	Yf	P	13	4	0	0	NA	V	patchy	No comments
55+30.47	F	223	86	2.43	0.84	2.95	1.10	2	Tf	Tf	P	13	4	0	0	NA	C,M	3mm, patchy	No comments
55+31.51	F	098	84	0.74	0.42	1.15	0.25	2	Yf	Tf	P	13	4	0	0	NA	C	2mm	No comments
55+31.72	F	224	88	1.87	0.00	1.82	0.40	2	Rk	Rk	P	13	5	0	0	NA	C,M	10mm, patchy	LT is 0.21m above tapeline
55+31.73	F	220	84	2.06	3.25	3.70	3.20	2	Tvpp	Yf	P	13	4	0	0	NA	Br,C	10mm,8mm	calcite infilling begins at top of broken rock and sand infilling
55+31.91	F	222	82	0.42	0.00	0.38	0.20	2	Rk	Yf	P	12	5	0	0	NA	M	spotty	LT is 0.04m above tapeline
55+32.04	F	327	75	0.00	0.38	0.32	0.13	2	Yf	Tvpp	P	12	4	0	0	NA	M	spotty	UT is 0.02m below tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht(m)	Wd(m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+32.15	VPP	360	17	2.85	0.00	0.00	2.85	2	Tf	Rk	I	13	3	0	0	NA	C	0-2mm	LT is 0.01m above tapeline strike and dip are approx., light brown halo around calcite, 2 to 4mm thick on either side of white calcite
55+32.52	F	090	90	0.30	0.38	0.66	0.10	2	Tf	Yf	P	13	3	0	0	NA	C	0-4mm	No comments
55+33.11	F	268	84	0.65	0.00	0.64	0.06	2	Rk	Rk	P	12	4	0	0	NA	M	<1mm	LT is 0.06m above tapeline
55+33.20	F	130	31	1.11	0.00	0.00	0.96	2	Tf	Tf	P	13	3	0	0	NA	C	0-2mm	LT is 0.07m above tapeline
55+33.24	F	287	88	1.21	1.14	1.85	0.75	2	Yf	Tvpp	P	12	4	0	0	NA	C,M	<1mm	No comments
55+34.03	F	220	76	0.51	0.26	0.53	0.56	2	Tf	Tf	P	12	4	0	0	NA	M	<1mm	No comments
55+34.05	F	038	87	0.00	1.02	0.72	0.16	2	Tvpp	Rk	P	12	4	0	0	NA	M	<1mm	UT is 0.2m below tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+34.15	F	162	81	1.05	0.30	0.30	0.85	2	Tvpp	Yf	P	13	4	0	0	NA	C,M	<1mm	fracture crosses tape at 55+35.17
55+34.68	F	115	90	0.96	0.00	0.96	0.03	2	Tvpp	VPP	P	12	4	0	0	NA	C,M	<1mm	LT is 0.03m above tapeline
55+35.00	F	075	73	0.17	0.21	0.37	0.03	2	Yf	Tvpp	P	12	4	0	0	NA	M	<1mm	No comments
55+35.06	SH	139	76	2.11	0.00	1.93	0.32	2	Ysh	Tf	P	21	4	0	3	0.07	Br	0-15mm	LT is 0.07m above tapeline, normal offset, south side down
55+35.33	F	133	86	1.25	2.50	3.10	1.03	1	Tf	In	P	13	4	0	0	NA	C,M	0-3mm, <1mm	No comments
55+35.35	F	173	81	0.00	0.78	0.06	0.03	2	Rk	Yf	I	13	3	0	0	NA	C	<1mm	UT is 0.2m above tapeline
55+35.47	F	124	84	1.36	0.51	1.79	0.12	2	Rk	Yf	P	12	4	0	0	NA	M	<1mm	No comments
55+35.89	F	234	82	0.00	0.75	0.63	0.36	2	Rk	Yf	P	12	3	0	0	NA	M	<1mm	UT is 0.10m below tapeline
55+35.96	F	129	88	0.45	0.51	0.88	0.37	2	Ysh	Rk	P	13	4	0	0	NA	C,M	0-1mm, <1mm	No comments

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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
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Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+36.11	F	147	85	0.16	0.46	0.45	0.36	2	Tsh	Ysh	P	13	4	0	0	NA	C,M	0-6mm, <1mm	No comments
55+36.22	SH	131	84	1.42	3.00	3.44	1.86	1	Yf	In	P	21	3	0	0	0.03	Br,C	0-43mm, 0-5mm	normal offset, south side down
55+36.49	F	151	83	1.01	0.60	1.39	0.75	2	Tvpp	Rk	P	13	4	0	0	NA	C,M	<1mm	No comments
55+36.55	VPP	345	09	2.06	0.00	0.07	2.02	2	Tf	Tf	I	11	1	0	0	NA	V	3-12mm	LT is 0.01m above tapeline
55+36.86	VPP	349	17	0.38	0.00	0.01	0.37	2	Rk	Rk	I	11	2	0	0	NA	V	1-3mm	LT is 0.06m above tapeline
55+37.32	VPP	355	18	0.00	0.84	0.01	0.82	2	Rk	Rk	I	11	1	0	0	NA	V	1-6mm	UT is 0.18m below tapeline
55+37.89	F	124	86	0.30	0.00	0.29	0.01	2	Tvpp	Tvpp	I	11	2	0	0	NA	V	1mm	LT is 0.13m above tapeline
55+38.65	F	129	84	0.00	0.62	0.60	0.29	2	Yf	Rk	I	11	3	0	0	NA	V	1-2mm	UT is 0.20m below tapeline
55+38.68	SH	137	80	3.46	3.71	5.20	3.85	1	Yf	In	P	21	6	0	0	UNK	Br	0-3mm	possible reactivated cooling joint
55+38.73	F	247	86	0.59	0.16	0.72	0.28	2	Tf	Yf	P	12	5	0	0	NA	M,V	trace	No comments

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Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+38.95	F	098	86	0.73	0.68	1.38	0.44	1	Air	Yf	U	12	5	0	0	NA	M	trace	amplitude 0.03m, wavelength 0.37m
55+39.06	SH	128	82	3.50	1.25	4.25	0.90	2	Tf	Ysh	P	11	5	0	17	0.09	C,V	1mm, 2-3mm	normal offset down to the south
55+39.09	VPP	338	16	0.00	0.78	0.12	0.76	2	Rk	Rk	I	11	1	0	0	NA	C,V	trace, 2-12mm	UT is 0.06m below tapeline
55+39.14	VPP	355	08	0.64	0.00	0.12	0.62	2	Rk	Tf	I	11	1	0	0	NA	C,V	0-2mm, 1-6mm	LT is 0.14m above tapeline
55+39.80	F	104	87	0.21	0.62	0.78	0.30	1	Air	Tf	P	11	3	0	1	NA	C,V	trace	No comments
55+39.85	F	152	84	0.00	1.28	1.08	0.84	1	Air	Tvpp	P	11	4	0	0	NA	M,C	trace, 0-6mm	UT is at tapeline
55+39.92	F	134	85	2.30	0.33	2.55	0.70	2	Yf	Yf	P	11	4	0	10	NA	M,C	trace, 0-15mm	No comments
55+40.13	F	149	76	0.28	0.64	0.63	0.72	2	Yf	Tf	P	11	4	0	0	NA	C,M	trace	No comments
55+40.30	F	128	82	1.98	2.50	4.10	2.10	2	Yf	Yf	P	11	3	0	0	NA	S	<1mm	No comments
55+40.36	F	240	75	0.38	0.15	0.40	0.28	2	Tf	Tf	I	11	3	0	0	NA	M	<1mm	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+40.37	F	103	76	0.94	0.00	0.84	0.30	2	Yf	Tf	I	11	3	0	0	NA	M	<1mm	LT is 0.08m above tapeline
55+40.66	F	250	88	0.40	0.00	0.39	0.10	2	Tvpp	Tf	I	11	3	0	0	NA	S	<1mm	LT is 0.11m above tapeline
55+40.70	F	116	85	0.65	0.12	0.76	0.30	2	Tvpp	Tf	P	11	4	0	0	NA	M	<1mm	No comments
55+40.75	F	270	80	0.53	0.13	0.60	0.10	2	Yf	Yf	I	11	3	0	0	NA	M	<1mm	No comments
55+40.85	F	165	85	0.20	0.00	0.09	0.08	2	Tf	Tf	P	11	4	0	0	NA	M	<1mm	LT is at tapeline
55+40.96	F	122	76	1.00	0.00	0.88	0.30	2	Tf	Yf	I	11	3	0	0	NA	S,M	<1mm	LT is at tapeline
55+41.01	F	255	78	0.60	0.17	0.70	0.38	2	Tf	Yf	P	11	4	0	0	NA	M	<1mm	No comments
55+41.02	F	109	78	0.00	1.40	1.10	1.00	2	Tf	Tvpp	I	11	3	0	0	NA	S	2mm	UT is 0.20m below tapeline
55+41.08	F	208	82	0.00	0.23	0.17	0.18	2	Rk	Tf	P	11	4	0	0	NA	M	<1mm	UT is 0.1m below tapeline
55+41.22	F	145	88	0.21	0.51	0.70	0.30	2	Rk	Tvpp	I	11	4	0	0	NA	S	1mm	No comments
55+41.45	F	140	84	2.10	0.74	2.30	1.00	2	Yf	Rk	P	11	5	0	0	NA	M	<1mm	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
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Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+41.48	F	215	86	1.27	0.00	0.33	1.06	2	Tf	Yvpp	I	11	2	0	0	NA	NA	NA	LT is 0.17m above tapeline
55+41.55	VPP	305	18	0.00	0.60	0.01	0.60	2	Rk	Tf	I	11	3	0	0	NA	V	2mm	UT is 0.22m below tapeline
55+41.60	F	130	74	0.00	0.40	0.38	0.12	2	Yf	Tvpp	I	11	3	0	0	NA	S	1mm	UT is 0.16m below tapeline
55+41.66	F	035	86	0.25	0.25	0.43	0.25	2	Rk	Yf	I	11	3	0	0	NA	S	<1mm	No comments
55+42.63	F	275	88	0.27	1.04	1.30	0.35	2	Yf	Ysh	I	11	3	0	0	NA	S	1mm	No comments
55+42.70	VPP	345	22	0.50	0.00	0.06	0.40	2	Tsh	Rk	I	11	3	0	0	NA	V	2mm	LT is at tapeline
55+42.95	VPP	300	20	2.06	0.00	0.04	2.00	2	Yvpp	Tf	I	11	3	0	0	NA	V	0-3mm	LT is 0.12m above tapeline
55+43.07	F	195	85	0.10	1.20	0.54	1.25	2	Tsh	Yvpp	I	11	3	0	0	NA	NA	NA	No comments
55+43.13	SH	240	82	0.60	2.50	2.40	2.40	1	Yf	In	P	11	5	0	0	UNK	Br	10mm	possible shear, offset unknown
55+43.15	VPP	305	22	0.00	0.53	0.05	0.53	2	Tf	Tflt	I	11	2	0	0	NA	S	2mm	UT is 0.20m below tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
Compiled by: Sheldon K Johnson

Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+43.16	VPP	300	20	0.31	0.00	0.06	0.30	2	Tf	Tflt	I	11	2	0	0	NA	V	1mm	LT is 0.12m above tapeline
55+43.32	F	090	85	0.43	0.54	0.90	0.23	2	Yf	Tvpp	I	11	2	0	0	NA	S	1mm	No comments
55+43.55	F	132	82	0.70	2.83	3.10	2.30	1	Yflt	In	P	11	5	0	0	NA	M,S	<1mm	No comments
55+43.59	F	215	86	0.00	0.36	0.23	0.30	2	Tf	Tf	P	11	4	0	0	NA	M	<1mm	UT is 0.12m below tapeline
55+43.65	F	082	88	1.70	0.24	1.70	0.15	2	Yf	Yf	I	11	4	0	0	NA	M	<1mm	No comments
55+43.80	F	060	88	1.34	0.40	1.50	0.30	2	Rk	Yf	P	11	4	0	0	NA	S,M	<1mm	No comments
55+43.99	F	135	84	0.22	2.57	2.10	2.20	1	Yf	In	P	11	4	0	0	NA	S,M	<1mm	No comments
55+44.26	F	098	80	0.44	0.80	1.20	0.30	2	Tvpp	Yf	I	11	3	0	0	NA	S	2mm	No comments
55+44.27	F	158	85	0.00	0.88	0.70	0.60	2	Yf	Yf	I	11	2	0	0	NA	S	<1mm	UT is 0.03m below tapeline
55+44.45	F	210	90	0.50	0.05	0.35	0.50	2	Ysh	Yf	I	11	2	0	0	NA	S	<1mm	No comments
55+44.70	F	110	88	0.66	0.10	0.65	0.05	2	Rk	Tf	I	11	2	0	0	NA	NA	NA	No comments
55+44.93	VPP	300	18	0.00	1.20	0.04	1.20	2	Yf	Tsh	I	11	2	0	0	NA	S	3mm	UT is 0.12m below tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
Compiled by: Sheldon K Johnson

Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+44.94	SH	260	84	2.00	1.83	3.50	0.80	1	St	Yf	P	21	4	0	2	0.08	Br	10mm	offset up to the north
55+45.09	F	092	86	1.90	0.00	1.80	0.15	2	Yf	Rk	I	11	4	0	0	NA	M	<1mm	LT is at tapeline
55+45.33	VPP	342	15	1.31	0.00	0.03	1.30	2	Rk	Rk	I	11	2	0	0	NA	V	2-4mm	LT is 0.14m above tapeline
55+45.43	F	090	80	0.30	0.12	0.37	0.15	2	Rk	Rk	I	11	2	0	0	NA	NA	NA	No comments
55+45.83	F	060	82	0.50	0.12	0.55	0.13	2	Tvpp	Tvpp	I	11	3	0	0	NA	M	<1mm	No comments
55+46.45	F	138	79	0.40	0.61	0.98	0.51	2	Rk	Yf	I	13	3	0	0	NA	V	1-3mm	No comments
55+46.51	F	141	90	0.00	0.96	0.78	0.51	2	Rk	Yf	P	11	5	0	0	NA	M	<1mm	UT is 0.18m below tapeline
55+46.63	VPP	355	32	0.40	0.00	0.06	0.39	2	Tf	Rk	I	11	1	0	0	NA	C,V	1-2mm, 4-5mm	LT is 0.11m above tapeline
55+46.92	F	101	88	0.70	1.01	1.64	0.50	1	Yf	In	P	13	4	0	0	NA	C,Br	0-10mm, 0-17mm	No comments
55+46.98	F	114	85	1.09	0.43	1.43	0.38	2	Yf	Tvpp	P	11	4	0	0	NA	S,M	<1mm	No comments
55+47.54	F	262	88	0.56	0.00	0.54	0.10	2	Rk	Rk	P	12	4	0	0	NA	M	<1mm	LT is at tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+47.88	F	224	86	0.80	1.22	1.80	1.15	1	Air	Rk	I	11	3	0	0	NA	S	<1mm	No comments
55+47.93	F	135	86	0.01	0.52	0.51	0.21	1	Air	Rk	P	11	4	0	0	NA	M,C	trace	No comments
55+48.07	F	170	61	0.33	0.00	0.10	0.33	2	Tf	Tf	P	13	3	0	0	NA	S	<1mm	LT is 0.13m above tapeline
55+48.36	F	219	53	0.04	0.69	0.47	0.63	2	Tf	Rk	P	12	3	0	0	NA	NA	NA	No comments
55+48.41	F	100	86	3.34	0.13	3.20	0.80	2	Yf	Ysh	P	13	4	0	6	NA	C,M	0-6mm, trace	No comments
55+48.42	F	133	86	0.00	2.36	1.96	0.60	1	Ysh	In	P	13	5	0	0	NA	C,M	0-1mm, <1mm	UT is 0.14m below tapeline
55+48.45	F	136	81	1.90	0.02	1.86	1.05	2	Yf	Ysh	P	11	5	0	0	NA	C,M	0-1mm, trace	No comments
55+48.46	VPP	356	15	0.00	2.07	0.01	2.05	2	Tf	Tf	I	11	1	0	0	NA	C,V	0-1mm, 0-17mm	UT is 0.01m below tapeline
55+48.49	SH	242	88	5.30	2.62	5.40	1.60	0	St	In	P	21	6	0	0	UNK	C,Br	0-20mm, 0-25mm	trace of MnO, offset unknown, possibly reverse with 0.09m south side down

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+48.66	VPP	350	13	1.40	0.00	0.08	1.39	2	Tsh	Rk	I	11	2	0	0	NA	V	3-9mm	LT is 0.19m above tapeline
55+48.77	F	123	85	0.67	1.98	2.27	1.25	2	Ysh	Tf	P	11	4	0	0	NA	M	<1mm	No comments
55+48.88	F	106	81	1.19	0.12	1.29	0.09	2	Rk	Tvpp	I	11	3	0	0	NA	V	1-2mm	No comments
55+50.01	F	075	83	0.20	1.35	1.42	0.20	2	Rk	Rk	P	11	4	0	0	NA	C,M	0-2mm, trace	No comments
55+50.19	SH	128	84	6.30	1.26	6.70	1.10	1	St	Tf	P	13	4	0	0	0.04	S,C	trace	trace of MnO, normal offset, down to the south
55+50.63	F	328	76	0.84	0.27	1.10	0.15	2	Yf	Yf	U	13	3	0	0	NA	M,C	trace, 0-8mm	amplitude 0.04m, wavelength 0.50m
55+50.67	F	302	72	0.58	0.76	1.30	0.15	2	Rk	Rk	U	13	3	0	4	NA	C,M	0-2mm, <1mm	amplitude 0.03m, wavelength 0.66m

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht(m)	Wd(m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+51.57	SH	160	88	1.11	1.12	1.73	1.22	2	Rk	Tsh	I	11	3	0	0	0.01	NA	NA	possible reactivated cooling joint, normal offset, south side down
55+52.03	SH	095	84	3.43	2.38	5.40	1.30	1	Rk	In	P	11	4	0	4	0.04	M,C	trace, 0-6mm	normal offset, down to the south
55+52.64	F	216	83	0.26	0.82	0.89	0.75	2	Tf	Yf	P	11	3	0	0	NA	C	0-2mm	No comments
55+52.68	F	016	83	0.24	0.87	0.86	0.68	1	Yf	Air	P	11	3	0	0	NA	C	trace	No comments
55+52.86	F	053	86	0.18	0.87	0.97	0.35	2	Tf	Rk	I	11	3	0	0	NA	V	1mm	No comments
55+53.03	SH	132	83	1.53	1.83	2.95	1.65	2	Rk	Tf	P	11	4	0	0	0.04	C,Br	0-3mm, 0-4mm	normal offset, down to the south
55+53.60	SH	121	81	2.42	2.70	4.45	1.95	1	Rk	In	I	11	3	0	5	0.05	C,Br	0-6mm, 0-20mm	normal offset, down to the south
55+53.94	SH	135	87	3.00	2.64	4.00	1.75	1	Yf	In	I	21	3	0	10	0.06	C,Br	0-5mm, 0-20mm	reverse offset, down to the north

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht(m)	Wd(m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+54.91	F	081	88	0.62	1.10	1.64	0.40	2	Rk	Tf	P	11	4	0	0	NA	M	<1mm	No comments
55+55.01	F	071	87	2.03	2.28	3.90	1.20	2	Yf	Yf	P	11	4	0	0	NA	M	<1mm	No comments
55+55.31	SH	304	71	2.66	2.57	3.55	1.35	1	Yf	In	P	11	4	0	7	0.03	C,M	0-7mm, <1mm	normal offset, down to the north
55+56.15	F	228	82	0.00	1.07	0.54	0.90	2	Tf	Yvpp	I	11	5	0	0	NA	M	<1mm	UT is 0.15m below tapeline
55+56.16	F	135	80	2.80	1.00	3.10	0.65	2	Yf	Tf	P	11	5	0	0	NA	M	<1mm	No comments
55+56.40	F	148	80	0.00	2.37	2.00	2.00	2	Rk	Tvpp	P	11	5	0	0	NA	M	<1mm	UT is at tapeline
55+56.55	F	145	85	2.30	0.40	2.20	0.40	2	Yf	Rk	P	11	5	0	0	NA	M	<1mm	No comments
55+56.85	F	075	85	1.54	0.00	1.50	0.11	2	Tvpp	Tvpp	I	11	2	0	0	NA	S	<1mm	LT is 0.06m above tapeline
55+57.79	F	130	84	0.90	2.95	3.50	2.20	1	Rk	In	P	11	5	0	0	NA	M	<1mm	No comments
55+58.05	F	215	88	1.02	0.00	0.90	0.19	2	Rk	Tvpp	I	11	2	0	0	NA	NA	NA	LT is 0.12m above tapeline
55+58.25	VPP	305	20	2.90	0.00	0.02	2.90	2	Yf	Tf	I	11	2	0	0	NA	V	5mm	LT is at tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+58.57	F	310	30	1.70	0.00	0.17	1.25	2	Tf	Tf	P	11	5	0	0	NA	M	<1mm	LT is 0.18m above tapeline
55+58.58	F	134	85	2.10	0.48	2.50	0.44	1	St	Tf	P	11	5	0	0	NA	M	<1mm	No comments
55+58.92	F	230	82	1.30	0.60	1.70	0.60	2	Yf	Tf	P	11	5	0	0	NA	M	<1mm	No comments
55+59.38	F	135	86	0.84	0.76	1.44	0.35	2	Yf	Tvpp	P	11	5	0	0	NA	M	<1mm	No comments
55+60.15	VPP	353	11	2.02	0.18	2.10	0.08	1	Tf	St	I	12	2	0	0	NA	S	1.5mm	No comments
55+60.47	SH	141	77	0.62	1.86	1.94	1.63	2	Yf	Tf	P	12	3	0	4	0.01	M	2mm	normal offset, south side down
55+60.66	F	247	88	1.98	0.81	2.57	0.62	2	Tf	Yf	I	12	4	0	30	NA	M	2mm	No comments
55+60.71	F	246	89	0.46	2.53	2.51	1.03	1	Tvpp	In	I	32	3	0	0	NA	Ar,Br	11mm	No comments
55+60.89	SH	254	85	0.40	2.52	2.50	1.27	0	St	In	I	32	4	0	6	0.025	Ar,Br	10mm	normal offset, north side down
55+61.58	F	127	82	0.75	0.58	1.24	0.41	2	Rk	Tvpp	I	11	2	0	2	NA	S	0.5mm	No comments
55+61.65	F	106	86	2.40	1.39	3.23	0.74	1	St	Tf	I	12	3	0	0	NA	M	1mm	No comments
55+61.95	SH	119	82	2.29	0.89	2.71	0.52	1	St	Tf	P	12	4	0	0	0.02	Q,M	3mm	normal offset, south side down

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+62.12	VPP	353	09	0.00	3.48	2.96	0.09	2	Tf	Rk	I	12	1	0	0	NA	S	2mm	UT is 0.21m below tapeline
55+62.63	F	139	86	0.55	3.01	2.41	1.77	1	Rk	In	I	14	5	0	0	NA	Ar,Br	19mm	No comments
55+62.74	F	126	81	2.06	0.17	2.17	0.46	2	Rk	Tf	I	11	2	0	25	NA	NA	NA	No comments
55+62.83	SH	231	84	2.72	3.16	4.78	2.41	0	St	In	P	21	3	0	6	UNK	C,Q	8mm	No comments
55+62.95	SH	134	84	0.14	2.91	2.25	2.13	1	Tf	In	I	21	2	0	2	0.01	C	2mm	normal offset, south side down
55+63.14	F	152	77	0.29	1.64	1.69	1.55	2	Tf	Tf	I	12	3	0	0	NA	NA	NA	No comments
55+63.60	F	154	89	0.00	2.19	2.01	1.68	1	St	Rk	I	12	2	0	0	NA	M	1mm	UT is 0.19m below tapeline
55+64.27	SH	136	87	2.99	2.61	4.86	1.62	1	Rk	In	I	22	3	0	12	0.035	Q,M	3mm	normal offset, south side down
55+64.43	F	234	84	2.39	0.44	2.66	0.48	2	Rk	Yf	I	11	2	0	0	NA	NA	NA	No comments
55+65.57	VPP	198	03	2.33	0.00	2.28	0.12	2	Tf	Yf	I	12	2	0	0	NA	NA	NA	LT is 0.03m above tapeline
55+65.61	F	103	86	1.20	0.55	1.70	0.28	2	Yf	Tf	P	13	3	0	0	NA	V	1-3mm	No comments
55+66.09	F	211	87	0.46	0.70	0.91	0.82	2	Tf	Tf	P	11	3	0	0	NA	NA	NA	MnO coating

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+66.47	F	146	87	0.00	1.46	0.85	1.23	2	Yf	Yf	P	11	3	0	0	NA	C	0-2mm	UT is 0.16m below tapeline
55+66.67	VPP	346	18	1.45	0.00	0.12	1.42	2	Rk	Rk	I	11	2	0	0	NA	V	2-5mm	LT is 0.10m above tapeline
55+67.10	F	236	83	0.93	0.37	1.20	0.76	2	Tvpp	Tvpp	I	13	2	0	0	NA	M	<1mm	No comments
55+67.19	F	144	83	1.71	0.27	1.59	0.87	2	Tvpp	Rk	P	11	2	0	0	NA	C,S	<1mm	No comments
55+67.73	F	054	17	1.98	0.00	1.70	1.65	2	Rk	Tsh	U	11	2	0	0	NA	M	<1mm	LT is at tapeline, amplitude 0.9m, wavelength 0.72m
55+67.75	SH	094	86	7.00	1.90	6.50	2.70	0	St	In	I	21	2	0	25	0.02	C,V,Br	0-2mm, 1-5mm, 0-5cm	normal offset, down to the south
55+68.26	F	140	76	1.03	0.00	0.84	0.44	2	Rk	Rk	P	11	5	0	0	NA	M,S	trace	LT is 0.13m above tapeline
55+68.27	F	136	71	0.31	0.81	0.93	0.68	2	Rk	Rk	P	11	5	0	0	NA	M	<1mm	No comments
55+68.75	VPP	305	15	0.00	1.90	0.08	1.90	2	Tf	Tf	I	11	2	0	0	NA	V	4mm	UT is 0.10m below tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
Compiled by: Sheldon K Johnson

Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+68.85	F	151	76	0.00	1.24	0.23	1.09	2	Tf	Yf	P	11	4	0	0	NA	S,M	trace, <1mm	UT is 0.3m below tapeline
55+69.21	F	144	76	0.23	0.71	0.76	0.53	2	Rk	Tf	P	11	4	0	0	NA	M	<1mm	No comments
55+69.57	F	070	53	0.52	0.80	1.05	0.35	2	Yvpp	Yf	U	11	4	0	0	NA	M	<1mm	amplitude 0.04m, wavelength 0.36m
55+69.65	F	148	75	0.70	3.27	3.10	3.00	1	Tvpp	In	P	11	5	0	0	NA	M	<1mm	No comments
55+70.00	F	140	80	0.30	0.92	1.20	0.70	2	Tvpp	Yvpp	I	11	5	0	0	NA	M	<1mm	No comments
55+70.07	F	140	88	1.00	0.00	0.90	0.25	2	Yf	Tvpp	I	11	5	0	0	NA	S,M	<1mm	LT is at tapeline
55+70.40	F	135	82	0.00	2.40	1.95	1.90	1	Rk	In	P	11	5	0	0	NA	M	<1mm	UT is 0.27m below tapeline
55+70.88	SH	142	80	0.75	2.96	2.30	0.31	1	Tvpp	In	P	11	5	0	0	0.03	M	<1mm	reverse offset up to the south
55+71.25	F	152	80	0.63	0.42	0.85	0.65	2	Rk	Tf	I	11	2	0	0	NA	NA	NA	No comments
55+71.72	F	235	82	1.17	0.75	1.65	0.90	2	Yf	Tsh	P	11	5	0	0	NA	S,M	<1mm	No comments
55+72.13	F	130	80	0.50	0.60	0.98	0.95	2	Tf	Tf	I	11	2	0	0	NA	S	1mm	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
Compiled by: Sheldon K Johnson

Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+72.43	F	128	84	0.90	1.30	2.04	1.00	2	Tvpp	Yf	P	11	5	0	4	NA	M	<1mm	No comments
55+72.87	F	135	82	1.10	0.96	1.95	0.50	2	Tvpp	Yf	P	11	5	0	0	NA	S,M	<1mm	No comments
55+73.23	F	122	88	0.65	1.04	1.65	0.64	1	Yf	St	P	11	5	0	0	NA	M	<1mm	No comments
55+73.47	F	246	88	0.40	1.04	1.40	0.15	2	Yf	Tf	I	11	5	0	0	NA	S	1mm	No comments
55+73.75	F	134	76	0.00	1.34	1.15	0.79	1	Tf	In	P	12	6	0	0	NA	M	<1mm	UT is 0.23m below tapeline
55+74.97	SH	162	75	1.15	4.68	2.65	5.04	1	Tf	In	P	12	5	0	0	0.01	C,M	0-3mm, <1mm	right lateral strike-slip shear, continuous MnO coating
55+76.16	F	238	90	0.23	2.57	2.76	1.22	1	Tvpp	In	P	12	5	0	0	NA	M	<1mm	continuous MnO coating
55+77.33	F	134	82	6.19	2.93	7.68	2.91	1	Tf	In	P	13	5	0	0	NA	C,M	0-3mm, <1mm	No comments
55+78.14	F	159	81	2.52	0.00	2.46	0.86	2	Yf	Yf	P	13	3	0	0	NA	C,M	<1mm	LT is 0.15m above tapeline
55+78.15	F	162	79	0.43	0.90	0.89	1.07	2	Yf	Ysh	P	13	3	0	0	NA	C,M	0-1mm, <1mm	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
Compiled by: Sheldon K Johnson

Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+78.73	FLT	132	82	4.26	2.00	4.06	2.05	1	Tf	In	P	22	4	0	5	0.14	V	0-1mm	<1mm MnO, 2 to 4mm purple alteration margin, normal offset, south side down
55+79.62	F	141	82	2.95	0.18	3.06	0.64	2	Yf	Tvpp	P	13	3	0	0	NA	C,M	<1mm	No comments
55+79.97	F	086	90	2.99	1.26	4.08	0.77	2	Rf	Rk	P	13	4	0	18	NA	C,M	<1mm	possible shear, but can't determine any offset
55+80.81	F	149	76	0.54	0.98	1.07	1.01	2	Yf	Yf	P	12	3	0	0	NA	M	<1mm	No comments
55+81.02	F	161	77	1.56	2.00	3.26	2.90	1	Yf	In	P	12	4	0	0	NA	M	<1mm	No comments
55+81.51	F	073	85	0.71	0.79	1.50	0.14	2	Rk	Tf	P	12	4	0	10	NA	C,M	0-8mm, <1mm	calcite is spotty
55+82.91	F	130	81	2.58	2.10	4.13	1.63	1	Rk	In	P	12	3	0	0	NA	C,M	<1mm	No comments
55+83.19	F	138	82	2.65	0.22	2.73	0.51	2	Yf	Tvpp	P	12	4	0	0	NA	M	<1mm	No comments
55+83.30	F	136	84	4.79	2.33	5.33	1.93	1	Yf	In	P	12	4	0	0	NA	M	<1mm	No comments
55+83.82	F	137	78	1.00	1.40	2.10	1.20	0	St	St	P	11	5	0	3	NA	S	4mm	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
Compiled by: Sheldon K Johnson

Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+84.07	F	138	88	2.30	0.50	2.40	0.32	2	Tvpp	Tvpp	I	11	2	0	4	NA	S	patchy	No comments
55+84.41	F	055	82	1.90	0.95	2.80	0.50	2	Yf	Yf	P	11	5	0	2	NA	S,M	2mm,<1mm	No comments
55+84.60	F	145	84	0.00	2.05	1.70	1.40	0	St	St	P	11	5	0	2	NA	S,M	2mm,<1mm	UT is at tapeline
55+84.92	F	132	88	0.65	1.90	2.35	1.40	0	St	St	P	11	5	0	0	NA	S,M	<1mm	No comments
55+84.98	F	140	85	0.62	0.44	1.03	0.40	2	Yf	Tvpp	I	11	3	0	0	NA	V	1mm	No comments
55+85.46	F	132	84	1.50	2.50	3.10	2.40	0	St	St	P	11	5	0	2	NA	M,S	<1mm,2mm	No comments
55+86.40	F	150	80	1.00	0.00	0.60	0.80	2	Yf	Tvpp	I	11	2	0	0	NA	NA	NA	LT is at tapeline
55+86.61	F	145	80	0.64	2.50	2.35	2.40	1	Rk	St	P	11	5	0	0	NA	M	<1mm	No comments
55+86.62	F	235	88	1.05	0.26	1.23	0.30	1	St	Tf	P	11	5	0	0	NA	M	<1mm	No comments
55+86.70	F	295	60	0.47	1.30	1.25	1.00	2	Yf	Tf	P	11	5	0	0	NA	M	<1mm	No comments
55+87.80	F	120	84	1.50	0.28	1.60	0.30	1	St	Tvpp	I	11	2	0	10	NA	V	1mm	No comments
55+87.87	SH	220	70	0.68	1.15	1.50	1.10	0	St	St	P	21	4	0	50	UNK	S,Br	20mm	possible fault, offset unknown
55+89.27	FLT	135	80	1.06	2.35	3.20	2.20	0	St	In	P	21	5	0	5	0.18	Br,M	4mm,<1mm	reverse offset, south side up

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
Compiled by: Sheldon K Johnson

Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+90.30	SH	140	90	0.90	2.60	3.30	2.20	0	St	St	I	21	2	0	0	UNK	Br	30mm	offset unkno
55+90.38	SH	045	88	0.00	1.15	0.90	0.70	2	Tf	Tflt	P	21	5	0	0	UNK	Br,M	<1mm	UT is 0.25m below tapeline, offset unknown
55+90.86	F	355	80	0.00	3.00	1.30	3.30	1	St	Rk	P	11	5	0	0	NA	M	<1mm	UT is 0.10m below tapeline
55+91.30	F	128	76	0.90	0.34	1.12	0.35	2	Yf	Yf	P	11	3	0	0	NA	NA	NA	No comments
55+92.08	VPP	358	16	0.00	1.14	0.30	1.14	2	Tf	Tf	I	11	2	0	0	NA	V	2mm	UT is 0.24m below tapeline
55+92.49	SH	085	89	1.41	0.50	1.73	0.50	1	St	Tvpp	P	21	5	0	10	UNK	Br	5mm	offset unknown
55+94.20	F	165	78	1.40	1.50	1.40	2.35	0	St	St	P	11	5	0	0	NA	M	<1mm	No comments
55+94.53	F	130	82	0.55	0.55	0.80	0.70	2	Yf	Yf	P	11	5	0	0	NA	M	<1mm	No comments
55+94.70	F	132	84	0.75	0.40	1.04	0.30	1	St	Yf	P	11	5	0	3	NA	M	<1mm	No comments
55+95.37	F	145	75	1.20	0.40	1.10	1.00	0	St	St	I	11	4	0	0	NA	M	<1mm	No comments
55+98.20	SH	175	76	1.90	2.40	1.30	3.60	0	St	St	I	21	4	0	0	UNK	M,Br	<1mm,4cm	offset unknown
55+98.62	F	100	86	0.17	1.20	1.22	0.60	2	Tsh	Tvpp	I	11	5	0	0	NA	M	<1mm	No comments
55+99.20	F	070	84	0.60	2.00	2.10	1.10	2	Tsh	Yf	I	11	4	0	0	NA	M	<1mm	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
Compiled by: Sheldon K Johnson

Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
55+99.92	SH	136	78	0.77	1.70	2.10	1.40	1	St	Tvpp	I	31	3	0	10	UNK	S	1-2mm	offset unknown
56+01.25	VPP	350	16	0.00	1.40	0.10	1.40	2	Rk	Tsh	I	11	2	0	0	NA	V	1-2mm	UT is 0.06m below tapeli
56+02.45	F	095	90	0.83	1.10	1.60	0.40	1	St	Ysh	I	11	5	0	4	NA	S	2-3mm	No comments
56+02.48	F	098	86	0.94	1.30	1.70	0.40	1	St	Ysh	P	11	5	0	5	NA	M	<1mm	No comments
56+02.65	VPP	355	18	0.00	1.10	0.20	1.10	2	Tf	Yf	I	11	2	0	0	NA	V	3mm	UT is 0.11m below tapeline
56+03.00	F	138	80	0.00	1.70	1.40	1.40	0	St	St	P	11	5	0	2	NA	Ar,M	<1mm	UT is at tapeline
56+03.65	F	290	76	1.00	0.50	1.30	0.20	1	St	Ysh	I	11	5	0	10	NA	S,M	4mm,<1mm	No comments
56+04.56	F	235	88	2.13	1.04	3.00	0.70	0	St	St	P	11	5	0	50	NA	Br,M	20mm, <1mm	No comments
56+04.58	F	140	85	1.55	0.70	1.90	0.70	1	St	Yflt	P	11	4	0	10	NA	S	2mm	No comments
56+05.15	FLT	240	88	0.30	1.90	2.00	0.65	1	St	Tflt	P	31	5	0	0	0.11	M,Br	<1mm, 20mm	offset up to the north
56+05.50	F	144	82	0.00	1.59	1.30	1.40	1	St	Tvpp	P	11	4	0	0	NA	M,S	<1mm,1mm	UT is behind steel, maybe at tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
56+06.19	F	020	85	0.40	0.60	0.36	0.70	1	St	Tf	P	11	5	0	0	NA	M	<1mm	No comments
56+07.28	F	150	78	0.50	0.51	0.70	0.80	1	St	Yvpp	I	11	3	0	0	NA	NA	NA	No comments
56+07.33	F	090	88	0.90	0.34	1.00	0.10	2	Rk	Tvpp	I	11	3	0	0	NA	NA	NA	No comments
56+07.85	VPP	183	13	0.97	0.00	0.04	0.97	2	Tf	Rk	I	13	3	0	0	NA	V	1mm	LT is 0.1m above tapeline, vapor phase parting begins at 56+07.85 on north end, UT is at 56+08.82, 6mm alteration margin
56+07.98	F	152	85	1.19	1.87	2.60	1.60	2	Tf	Tf	P	12	4	0	2	NA	M	<1mm	No comments
56+08.10	F	225	84	0.82	0.18	0.99	0.48	1	Tf	Air	P	13	3	0	2	NA	M,U	<1mm	unknown white infilling
56+08.83	F	141	75	0.38	2.16	2.53	1.82	1	Tf	St	P	13	4	0	1	NA	M,C	<1mm,2mm	No comments
56+08.87	VPP	005	15	0.00	1.02	0.07	1.02	0	St	St	I	13	3	0	0	NA	V	1mm	UT is 0.28m below tapeline, 10mm alteration margin

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
56+08.87	CJ	148	81	2.34	3.02	4.48	3.37	0	St	In	P	13	5	0	20	NA	M,V	<1mm	4mm alteration margin
56+09.65	F	149	82	2.82	2.00	4.35	1.80	1	St	Rk	P	13	5	0	4	NA	M,V	<1mm	No comments
56+09.74	F	243	77	0.08	2.34	2.35	1.10	1	Tf	In	P	12	4	0	1	NA	M,V	<1mm	brecciated infilling intermittent, varies in thickness up to 25mm, most of fracture is approx. 1.5m below tapeline
56+09.95	F	145	85	1.82	2.54	3.75	1.95	0	St	In	P	13	5	0	2	NA	M,V	<1mm	No comments
56+10.08	F	148	84	1.22	0.00	1.16	0.35	0	St	St	P	12	5	0	1	NA	M	<1mm	LT is 0.14m above tapeline
56+10.95	F	140	77	0.87	2.50	2.70	2.25	0	St	St	P	11	5	0	0	NA	NA	NA	<1mm MnO coating
56+11.93	F	155	75	0.97	1.26	1.45	1.85	2	Yf	Rk	P	11	4	0	0	NA	S,M	trace	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
56+11.95	F	095	86	0.00	1.01	1.00	0.50	1	Air	Yf	P	11	5	0	4	NA	C,Br	0-1mm, 6mm	trace of MnO, UT is 0.14m below tapeli
56+12.02	F	085	88	2.11	0.19	2.20	0.25	1	St	Tf	P	11	5	0	0	NA	NA	NA	<1mm MnO coating
56+14.10	F	210	85	1.23	2.16	2.90	2.50	1	St	Tf	P	12	5	0	0	NA	M	<1mm	No comments
56+14.45	F	141	73	0.00	1.86	1.56	1.54	1	Tf	In	P	12	5	0	0	NA	M	<1mm	UT is 0.04m below tapeline
56+14.83	F	138	74	0.60	2.00	2.10	1.82	2	Tf	Tf	P	12	5	0	0	NA	M	<1mm	No comments
56+15.86	F	226	74	0.76	0.70	1.08	0.80	2	Tf	Tf	P	31	5	0	0	NA	Br	0.03-0.05mm	zone of crushed rock below fracture, no sign of shear
56+16.20	F	137	65	1.25	0.70	1.90	1.40	1	St	Yf	P	13	4	0	0	NA	S,M	1mm, trace	No comments
56+17.31	F	088	90	0.10	1.43	1.02	0.72	1	Tf	In	P	12	5	0	0	NA	M	trace	No comments
56+17.47	SH	145	76	1.14	2.48	3.30	2.45	0	St	In	P	21	5	0	4	0.02	Br,M	0-15mm, <1mm	reverse offset, up to the south

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
56+17.88	F	085	88	1.76	0.64	2.22	0.44	1	St	Tsh	P	11	5	0	0	NA	S,M	trace, <1mm	No comments
56+18.43	F	136	78	1.00	0.79	1.52	1.20	1	Air	Tsh	P	11	3	0	0	NA	NA	NA	No comments
56+18.97	F	125	80	1.80	1.33	2.50	0.95	2	Ysh	Ysh	P	21	5	0	0	NA	C,Br,M	0-5mm, 0-17mm, <1mm	No comments
56+19.09	FLT	120	84	2.55	2.20	4.40	1.80	0	St	In	P	21	5	0	0	0.13	M,Br	<1mm, 0-25mm	norm offset, down to the south
56+20.24	F	148	75	0.27	1.15	1.24	1.04	1	St	Tf	P	11	4	0	3	NA	S,M	<1mm	No comments
56+20.33	F	225	74	1.29	0.44	1.47	1.30	1	Air	Yf	P	11	4	0	0	NA	M	<1mm	No comments
56+20.68	F	220	84	0.90	0.32	1.10	0.63	1	St	Tf	P	11	5	0	0	NA	S,M	<1mm	No comments
56+21.00	F	230	82	0.20	1.50	1.61	0.95	1	Air	Tf	I	11	3	0	0	NA	M	<1mm	No comments
56+21.36	SH	145	75	0.18	2.91	2.27	2.25	0	St	In	P	21	5	0	2	0.08	C,M	0-1mm, <1mm	offset down the south
56+21.54	F	140	78	0.35	0.52	0.76	0.49	2	Tf	Tvpp	P	11	4	0	0	NA	NA	NA	No comments
56+22.02	F	150	85	0.53	0.63	1.16	0.56	0	St	St	P	11	3	0	0	NA	NA	NA	No comments
56+22.43	F	135	86	1.10	2.04	2.75	1.70	0	St	St	P	11	5	0	3	NA	M,C	<1mm,3mm	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
Compiled by: Sheldon K Johnson

Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
56+22.76	SH	130	80	0.80	1.47	1.94	1.26	0	St	St	P	21	5	0	6	0.06	C,Br	1-20mm, 0-2mm	normal offset, down to the south
56+22.84	F	135	75	0.95	0.70	1.23	0.74	1	St	Yf	P	11	5	0	0	NA	Br,C	<1mm, 0-2mm	<1mm MnO
56+23.05	VPP	355	25	1.30	0.40	0.90	1.65	2	Tf	Tf	I	11	2	0	6	NA	C	4-5mm	No comments
56+23.22	F	155	84	1.13	0.00	0.78	0.75	2	Tf	Tvpp	P	11	2	0	0	NA	C	1mm	LT is at tapeline
56+24.61	F	073	88	0.61	1.18	1.64	0.70	2	Tvpp	Yf	P	11	5	0	0	NA	M	<1mm	No comments
56+24.99	F	222	85	0.86	1.51	2.00	1.45	1	Air	Yf	P	13	5	0	0	NA	M	<1mm	No comments
56+25.31	F	087	87	0.38	0.75	1.03	0.49	2	Yf	Tf	P	11	5	0	0	NA	M	<1mm	No comments
56+25.67	F	130	78	0.54	2.61	2.54	2.13	0	Air	In	P	11	5	0	0	NA	M	<1mm	No comments
56+25.93	SH	131	85	0.47	2.38	2.35	1.97	1	Ysh	In	P	21	5	0	0	0.03	Br,V	7mm,1mm	north side down, revers offset
56+26.18	SH	138	83	0.52	2.61	2.50	2.40	1	Ysh	In	P	21	5	0	0	UNK	Br,V	0-5mm, <1mm	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
56+26.79	F	157	83	0.70	2.60	2.25	2.48	1	Tf	In	P	13	5	0	30	NA	C,V	trace, <1mm	trace of MnO
56+27.59	F	131	72	2.00	1.30	2.80	1.30	1	St	Tf	P	13	5	0	0	NA	C,Br	0-7mm, 0-20mm	<1mm MnO
56+27.94	F	134	75	3.65	0.78	3.60	1.11	0	St	St	P	11	5	0	0	NA	M,C	trace	No comments
56+28.31	F	143	90	2.13	0.17	2.00	0.46	0	St	St	P	11	4	0	0	NA	C,M	<1mm	No comments
56+28.82	SH	101	84	1.92	0.80	2.62	0.20	0	St	St	P	21	5	0	0	0.01	Br	6-9mm	normal offset, south side down
56+30.52	SH	141	75	3.47	0.62	3.35	1.20	0	St	St	P	21	5	0	80	0.09	Br,C	0-9mm, <1mm	<1mm MnO, normal offset, south side down
56+30.90	F	140	75	0.00	2.00	1.96	1.70	0	Air	St	P	13	5	0	2	NA	M,C	<1mm,2mm	UT is 0.05m below tapeline, abundant manganese
56+31.33	F	137	79	0.25	3.04	3.07	2.27	0	Air	In	P	13	4	0	2	NA	M,V	<1mm	No comments
56+31.54	F	140	81	0.57	2.85	3.30	2.52	0	Air	In	P	12	5	0	7	NA	M,V	<1mm	abundant manganese

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
56+32.65	F	226	71	0.94	0.62	1.53	1.03	1	Tf	St	P	12	3	0	3	NA	M,V	<1mm	abundant manganese in lower quarter of fracture, minor vapor phase infilling
56+32.70	F	154	85	0.00	1.02	1.00	0.79	1	Tf	St	P	11	3	0	1	NA	NA	NA	UT is 0.14m below tapeline, slight curve in upper 1/4 of fracture, maybe mining induced
56+32.80	VPP	005	11	1.16	0.09	0.08	1.24	2	Rk	Rk	I	12	3	0	0	NA	V	2mm	10mm alteration margin
56+33.58	SH	140	77	0.22	1.30	1.40	1.15	1	St	Tsh	P	12	4	0	1	0.02	M,V	<1mm	abundant manganese, offset down northeast

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
56+33.85	SH	118	89	1.23	2.04	3.27	1.51	0	Air	In	P	12	4	0	3	0.01	M,V	<1mm	abundant manganese, reverse offset, down on northeast
56+34.05	F	139	65	0.62	0.61	1.15	0.66	0	Air	St	P	12	5	0	0	NA	V,M	<1mm	abundant vapor phase infilling
56+34.23	SH	095	89	0.86	1.31	1.96	1.80	2	Tf	Tsh	P	12	5	0	2	0.01	M,V	<1mm	reverse offset, down on north
56+34.30	F	135	78	1.02	0.78	1.65	1.35	1	Air	Tf	P	12	5	0	3	NA	V,M	<1mm	No comments
56+34.90	F	138	77	1.96	0.42	2.06	1.30	1	St	Tf	P	12	5	0	2	NA	V,M	<1mm	abundant manganese and vapor phase infilling
56+35.08	F	141	78	0.00	1.03	0.97	0.63	1	Air	Tsh	P	13	4	0	3	NA	M,V	<1mm	UT is 0.04m below tapeli
56+35.48	SH	151	84	1.05	3.07	3.90	3.35	1	Yf	In	P	12	5	0	1	0.02	M,V	<1mm	normal offset, down on southwest

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
56+35.91	F	152	85	0.00	2.10	2.05	1.78	2	Rk	Tvpp	P	12	4	0	1	NA	M,V	<1mm	2mm alteration margin, UT is 0.26m below tapeline
56+36.00	F	237	75	0.88	0.40	1.16	0.48	1	Air	Rk	I	12	5	0	2	NA	M,C	<1mm,2mm	abundant manganese
56+36.40	F	084	83	0.00	1.10	0.96	0.30	2	Yf	Tf	P	12	3	0	0	NA	M,V	<1mm	UT is 0.27m below tapeline
56+36.46	F	245	87	1.50	0.18	1.64	0.45	1	St	Yf	P	13	5	0	0	NA	M,Bx	<1mm,8mm	No comments
56+37.31	F	210	78	0.98	0.28	1.24	0.66	0	Air	St	I	13	3	0	10	NA	M,C	<1mm	minor MnO infilling, minor crystalline calcite
56+38.02	F	121	80	0.72	0.57	1.26	0.26	2	Tf	Yf	P	12	4	0	5	NA	M,V	<1mm	minor vapor phase infill

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
56+38.95	VPP	340	18	0.00	1.61	0.08	1.61	2	Rk	Rk	I	13	3	0	0	NA	V,M	1mm,<1mm	UT is 0.27m below tapelin LT is at 56+37.34, 4mm alteration margin, very minor MnO infilling
56+39.19	F	237	82	0.00	1.48	1.36	0.84	2	Tf	Rk	P	12	3	0	0	NA	M,V	<1mm	UT is 0.08m below tapeline, 1mm alteration margin, very minor infilling
56+39.25	F	130	78	2.32	0.26	2.57	0.73	1	St	Rk	P	12	5	0	8	NA	M,V	<1mm	No comments
56+39.29	F	139	66	0.00	1.90	1.43	1.45	1	Tf	St	P	11	5	0	0	NA	C,M	2mm, <1mm	UT is 0.11m below tapeline
56+39.31	F	247	83	0.89	0.19	0.93	0.13	1	St	Yf	P	11	5	0	0	NA	M	<1mm	No comments
56+40.21	F	132	74	3.25	1.45	4.25	1.50	1	St	Rk	P	11	5	0	0	NA	C,M	trace, <1mm	No comments
56+40.47	F	137	77	0.72	2.82	3.10	2.60	1	Tvpp	In	P	11	5	0	0	NA	M,C	trace, 0-4mm	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
56+40.58	F	143	78	0.77	1.49	1.90	1.36	2	Tvpp	Tsh	P	11	5	0	0	NA	M,C	trace, 0-1mm	No comments
56+41.06	F	138	84	0.78	0.98	1.56	1.05	2	Rk	Tf	P	11	5	0	0	NA	M,C,O	<1mm, 0-2mm, 0-2mm	No comments
56+41.21	F	140	79	2.17	0.00	1.83	1.10	2	Yf	Rk	P	11	5	0	0	NA	C,M	0-2mm, <1mm	LT is at tapeline
56+42.00	SH	243	79	3.30	1.49	3.10	1.10	1	St	Tf	P	21	5	0	0	0.08	Br	6-55mm	reverse offset, north side up
56+42.16	F	141	83	3.35	2.75	4.80	3.20	0	St	In	P	21	5	0	0	NA	C,M	1-2mm, <1mm	No comments
56+42.20	F	139	71	0.17	1.02	0.72	1.04	1	Tf	St	P	11	3	0	0	NA	C	0-1mm	No comments
56+42.33	F	130	86	0.89	1.31	2.06	0.83	1	St	Yf	I	11	3	0	0	NA	M,V	trace, 1mm	No comments
56+42.55	VPP	350	06	0.00	1.87	0.05	1.85	2	Tsh	Rk	I	11	1	0	0	NA	C,V	0-1mm, 1-2mm	UT is 0.07m below tapeline
56+43.70	F	153	85	0.90	0.11	0.81	0.40	2	Rk	Tvpp	P	11	3	0	0	NA	M,C	trace, <1mm	No comments
56+44.00	F	137	76	3.15	1.19	3.45	1.44	1	St	Tf	P	11	5	0	0	NA	M,C	trace	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht(m)	Wd(m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
56+44.25	F	134	76	0.00	1.14	1.03	0.81	2	Tf	Rk	P	11	5	0	0	NA	M	<1mm	UT is 0.06m below tapelin
56+44.26	VPP	351	12	1.15	0.00	0.03	1.13	2	Rk	Tf	I	11	2	0	0	NA	V	1-3mm	LT is 0.14m above tapeline
56+44.54	F	142	85	0.00	1.23	1.12	0.74	1	St	Tf	P	11	4	0	0	NA	C	0-1mm	UT is 0.24m below tapeline
56+44.63	F	141	77	2.95	0.50	2.90	0.85	1	St	Tvpp	P	11	5	0	0	NA	M	<1mm	No comments
56+45.49	SH	242	81	0.00	1.98	1.46	1.33	1	Tflt	St	P	21	5	0	0	0.04	Br	0-27mm	normal offset, north side down, UT is 0.19m below tapeline
56+45.50	SH	241	83	2.02	0.00	1.95	0.43	1	St	Tflt	P	21	5	0	0	UNK	Br	0-25mm	LT is 0.03m above tapeline
56+45.76	F	142	68	2.60	1.56	4.10	2.10	0	St	St	P	11	5	0	0	NA	M	<1mm	steel set intersects fracture 0.2m below tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
56+45.77	FLT	145	78	0.00	1.60	1.20	1.10	0	St	St	P	11	5	0	0	0.22	C,M	2mm,<1mm	UT is 0.3m below tapelin reverse offse down to the north
56+46.50	VPP	352	18	0.00	2.00	0.15	2.00	2	Tf	Tf	I	11	2	0	0	NA	V	0-2mm	UT is 0.1m below tapeline
56+47.26	F	310	85	0.30	0.80	0.90	0.40	2	Yf	Yf	P	11	5	0	0	NA	M	<1mm	No comments
56+47.60	F	140	72	0.60	3.30	2.13	3.00	1	Tf	St	P	11	5	0	0	NA	M	<1mm	No comments
56+49.22	F	175	88	1.70	0.00	0.50	1.70	1	Tf	St	P	11	3	0	0	NA	NA	NA	LT is at tapeline
56+49.47	F	205	82	1.00	1.10	1.50	2.30	2	Yf	Yf	P	11	5	0	0	NA	M	1mm	No comments
56+49.78	F	140	86	1.20	2.25	3.10	1.90	1	St	Yf	I	11	4	0	0	NA	C,M	trace, <1mm	No comments
56+49.95	F	065	90	0.75	1.40	1.80	0.70	2	Tvpp	Tvpp	P	11	4	0	0	NA	M	<1mm	No comments
56+50.76	F	340	86	0.71	1.20	0.75	1.30	0	St	St	I	11	3	0	0	NA	C	3mm	No comments
56+51.20	F	228	86	0.93	0.40	1.30	0.35	2	Tf	Rk	I	11	3	0	0	NA	M	<1mm	No comments
56+51.50	F	158	88	1.20	0.20	0.90	0.95	0	St	St	P	11	3	0	0	NA	C	1mm	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
56+51.88	VPP	348	16	0.00	1.54	0.07	1.54	1	Tf	St	I	11	2	0	0	NA	V	0-2mm	UT is 0.29m below tapelin
56+51.90	F	075	90	0.84	1.10	1.80	0.21	1	Tvpp	St	I	11	4	0	0	NA	M	<1mm	No comments
56+52.60	F	310	86	1.13	0.36	1.20	0.12	1	St	Tvpp	I	11	2	0	0	NA	S	1mm	No comments
56+53.22	F	145	78	0.25	1.54	1.52	1.05	0	St	St	P	11	5	0	0	NA	M	<1mm	No comments
56+53.40	F	245	88	1.10	0.11	1.00	0.15	1	St	Yflt	I	11	2	0	0	NA	M	<1mm	No comments
56+53.49	SH	146	90	1.02	2.77	2.69	2.30	0	St	In	P	11	5	0	6	0.05	C,M,V, Br	2mm,<1mm , <1mm, 2-18mm	normal offset, down to the north
56+54.59	CJ	355	32	2.00	1.00	0.70	2.50	2	Tf	Tflt	P	11	5	0	0	NA	C	<1mm	No comments
56+54.75	F	075	86	1.75	1.10	2.60	0.61	0	St	St	P	11	5	0	0	NA	M	<1mm	No comments
56+54.90	F	150	79	0.35	1.56	1.54	1.40	2	Yf	Yf	P	11	5	0	0	NA	M	<1mm	No comments
56+55.04	F	132	88	1.73	0.70	2.29	0.45	1	St	Tvpp	P	11	5	0	0	NA	M	<1mm	No comments
56+55.16	F	165	88	1.60	0.25	1.10	1.70	2	Yf	Tsh	I	11	3	0	0	NA	C,M	<1mm	No comments
56+55.98	F	290	82	1.25	0.14	1.21	0.09	2	Tvpp	Tvpp	I	11	3	0	0	NA	S	1mm	No comments
56+56.93	F	145	84	2.00	0.73	2.30	0.80	1	St	Tsh	P	11	5	0	0	NA	M	<1mm	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht(m)	Wd(m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
56+57.44	SH	221	87	4.00	2.65	4.90	3.25	0	St	St	P	21	5	0	0	0.05m	Br,M	0-45mm, <1mm	normal offset, down to the north
56+58.50	F	136	86	1.26	2.50	2.90	2.30	1	Tsh	St	P	11	4	0	5	NA	M,C	<1mm, 0-4mm	No comments
56+58.80	F	145	88	1.56	0.32	1.41	0.36	1	Tvpp	St	P	11	3	0	0	NA	C	trace	No comments
56+59.21	F	327	55	2.80	0.00	2.29	2.08	1	Rk	St	P	11	5	0	0	NA	M,C	trace, 0-1mm	LT is 0.21m above tapeline
56+59.28	F	149	83	0.27	0.82	0.84	0.65	2	Tf	Rk	P	11	3	0	0	NA	NA	NA	no infilling
56+59.74	F	215	75	0.00	1.03	0.73	0.84	2	Tf	Tf	P	11	3	0	0	NA	NA	NA	no infilling, UT is 0.04m below tapeline
56+59.75	F	148	83	0.53	1.62	1.67	1.45	2	Yvpp	Rk	I	11	3	0	0	NA	C	0-2mm	No comments
56+59.77	F	138	84	0.40	2.02	1.87	1.80	2	Yvpp	Yvpp	I	11	3	0	0	NA	C	0-2mm	No comments
56+59.91	F	143	83	0.72	2.60	2.80	2.50	1	Yf	In	P	11	4	0	0	NA	M,C	trace, 0-4mm	No comments
56+60.09	F	145	75	0.79	0.32	0.97	0.57	1	Tf	St	P	11	5	0	0	NA	M,C	trace, <1mm	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
Compiled by: Sheldon K Johnson

Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
56+60.30	F	141	78	0.92	0.48	1.25	0.81	2	Tf	Rk	P	11	5	0	0	NA	M,C	<1mm	No comments
56+60.78	F	231	89	2.00	0.48	2.46	0.15	2	Tvpp	Tf	I	11	2	0	0	NA	C,V	trace, 2mm	No comments
56+61.08	F	106	89	0.89	0.30	1.18	0.06	2	Tvpp	Tvpp	P	11	3	0	0	NA	V	trace	No comments
56+61.99	FLT	139	82	15.00	2.70	6.50	10.00	0	O	In	P	31	4	0	15	0.95	Br	6-15cm	circumference of tunnel, normal offset, south side down
56+62.32	F	138	76	0.79	1.01	1.55	1.15	2	Rk	Yf	P	11	4	0	0	NA	M,S	trace, 1mm	No comments
56+62.88	F	139	82	0.16	1.98	1.85	1.33	1	Yf	In	P	11	5	0	0	NA	S,Br,M	1mm, 0-5mm, trace	No comments
56+63.10	F	143	78	0.00	1.27	1.02	0.92	1	Yf	St	P	11	5	0	0	NA	M	<1mm	UT is 0.22m below tapeline
56+63.18	F	329	80	1.52	0.21	1.63	0.32	1	St	Yf	P	11	4	0	0	NA	C,M	0-5mm, <1mm	0-3mm pink clay(?)
56+63.73	F	148	81	1.15	0.00	0.91	0.31	1	St	Yvpp	P	11	5	0	0	NA	M	trace	LT is at tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
56+64.12	F	141	75	2.20	1.53	3.10	1.70	0	St	St	P	11	4	0	0	NA	S	1mm	No comments
56+65.28	F	139	87	1.69	1.30	2.80	1.20	1	St	Yf	P	11	5	0	0	NA	C,M	spotty, <1mm	No comments
56+65.80	F	135	86	1.60	0.18	1.51	0.22	1	St	Yvpp	P	11	5	0	0	NA	M	<1mm	No comments
56+67.26	F	150	86	1.20	1.13	2.16	0.40	1	St	Yf	I	11	5	0	0	NA	M	<1mm	No comments
56+67.37	F	240	85	0.70	1.10	1.34	0.90	2	Yf	Tf	P	11	5	0	0	NA	M	<1mm	No comments
56+67.94	SH	148	88	0.46	1.75	1.76	1.10	0	St	St	I	11	5	0	70	UNK	Br,M	70mm, <1mm	offset unknown
56+68.24	F	138	86	0.42	0.60	0.80	0.40	2	Yf	Yf	P	11	5	0	0	NA	M	<1mm	No comments
56+68.35	F	240	85	0.75	0.80	1.40	0.40	2	Tf	Yf	I	11	2	0	0	NA	C	<1mm	No comments
56+68.44	F	090	90	1.75	0.33	1.70	0.31	1	St	Ysh	P	11	5	0	0	NA	M	<1mm	No comments
56+68.49	SH	268	80	1.30	1.10	2.00	0.30	1	St	Ysh	I	11	4	0	0	UNK	Br,M	30mm, <1mm	offset unknown
56+68.78	F	133	82	0.94	1.28	1.90	1.10	1	St	Ysh	P	11	5	0	0	NA	C,M	<1mm	No comments
56+68.93	F	280	86	0.30	1.20	1.32	0.31	2	Ysh	Tf	P	11	5	0	0	NA	C,M	<1mm	No comments
56+70.55	F	268	88	1.10	0.00	1.00	0.20	1	Tf	St	P	11	5	0	0	NA	M	<1mm	LT is 0.20m above tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
56+71.55	F	235	84	1.40	1.30	2.60	1.20	1	St	Ysh	P	11	5	0	0	NA	M	<1mm	No comments
56+71.85	F	238	86	0.00	1.06	0.85	0.60	1	Tvpp	St	P	11	5	0	0	NA	M	<1mm	UT is 0.20m below tapeline
56+72.13	F	135	88	0.00	1.26	1.10	0.60	1	Tvpp	St	P	11	5	0	0	NA	M	<1mm	UT is 0.20m below tapeline
56+73.30	F	052	88	0.00	1.08	0.90	0.62	2	Tvpp	Yf	I	11	3	0	0	NA	C	<1mm	UT is at tapeline
56+73.55	F	286	86	0.13	1.25	1.20	0.31	2	Tvpp	Yf	I	21	4	0	10	NA	Br	10mm	No comments
56+74.02	SH	103	88	0.10	0.95	0.90	0.22	2	Yf	Yf	I	21	5	0	5	UNK	Br,M	0-50mm, <1mm	offset unknown
56+74.05	F	315	86	0.00	1.40	1.20	0.95	2	Ysh	Rk	P	11	5	0	0	NA	C	<1mm	UT is at tapeline
56+74.25	F	312	78	0.00	1.10	1.00	0.60	2	Ysh	Yf	I	11	2	0	0	NA	S,C	<1mm	UT is at tapeline
56+74.89	F	175	88	0.00	1.30	0.40	1.30	2	Ysh	Ysh	P	11	5	0	0	NA	M	<1mm	UT is at tapeline
56+76.43	F	095	90	0.97	0.20	1.00	0.18	1	St	Yf	I	11	2	0	0	NA	S	1-2mm	No comments
56+76.80	F	068	86	0.77	0.40	0.80	0.70	1	St	Tf	P	11	5	0	0	NA	M	0-1mm	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
56+77.60	F	260	85	0.70	0.60	1.00	0.22	1	Tf	St	I	11	4	0	0	NA	S,M	1mm,<1mm	No comments
56+77.61	VPP	308	12	1.10	0.00	0.10	1.10	1	St	Tf	I	11	3	0	0	NA	S	1-2mm	LT is at tapeline
56+77.91	F	085	84	0.33	0.71	1.00	0.09	2	Rk	Yvpp	I	11	3	0	0	NA	S	1mm	No comments
56+79.02	F	108	80	1.00	0.00	0.95	0.11	1	St	Yf	I	21	4	0	0	NA	Br	5mm	LT is at tapeline
56+79.11	F	106	88	0.00	1.00	0.95	0.35	2	Yf	Rk	I	11	4	0	0	NA	S	2mm	UT is at tapeline
56+79.55	F	126	84	1.03	0.40	1.20	0.31	1	St	Rk	P	11	5	0	0	NA	M	<1mm	No comments
56+80.82	F	096	86	0.00	1.20	1.10	0.60	2	Yf	Tf	I	11	2	0	0	NA	M	<1mm	UT is 0.22m below tapeline
56+80.90	F	220	75	1.40	0.20	0.90	1.30	1	St	Yf	P	11	5	0	0	NA	M	<1mm	No comments
56+81.47	F	122	84	0.34	0.90	1.20	0.65	2	Yf	Yf	I	11	3	0	0	NA	S	<1mm	No comments
56+82.12	F	235	75	0.50	0.80	1.03	0.60	1	St	Yvpp	P	11	5	0	0	NA	M	<1mm	No comments
56+82.45	VPP	310	14	1.00	0.00	0.02	1.00	0	St	St	I	11	2	0	0	NA	V	0-5mm	LT is 0.10m above tapeline
56+84.02	F	058	70	0.30	1.75	1.20	1.80	1	Ysh	St	P	11	5	0	0	NA	M	<1mm	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
56+84.15	F	355	08	2.40	0.00	0.56	2.30	2	Tsh	Yf	P	11	4	0	0	NA	S,M	2mm,<1mm	LT is 0.21m above tapelin
56+84.28	SH	130	85	1.14	1.30	2.20	0.60	1	St	Tvpp	I	21	2	0	0	UNK	Br,S	10mm,2mm	offset unknown, possible fracture
56+85.17	SH	128	80	0.50	0.94	1.20	0.50	1	St	Yf	I	21	2	0	0	UNK	Br	50mm	possible fracture, offset unknown
56+85.39	F	136	82	0.25	0.90	1.10	0.60	1	Tf	St	I	21	2	0	0	NA	Br	10mm	No comments
56+86.25	F	240	78	1.00	0.20	1.10	0.90	0	St	St	P	11	5	0	0	NA	M	<1mm	No comments
56+87.61	F	126	88	1.10	0.20	1.00	0.30	1	St	Tf	I	11	2	0	0	NA	S,C	<1mm	No comments
56+89.25	F	238	85	0.00	1.30	1.23	0.80	2	Tvpp	Tvpp	P	11	5	0	0	NA	M	<1mm	UT is 0.11m below tapeline
56+89.26	F	250	84	0.00	1.20	1.10	0.65	2	Tvpp	Tvpp	I	11	5	0	0	NA	S,M	2mm,<1mm	UT is 0.15m below tapelin
56+89.80	VPP	308	09	0.00	1.10	0.06	1.10	0	St	St	I	11	3	0	5	NA	S	0-5mm	UT is 0.08m below tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
56+92.05	F	157	85	0.95	0.00	0.76	0.60	1	Yf	St	P	12	5	0	12	NA	M,V	<1mm	LT is 0.2m above tapeline, very minor vapor phase
56+92.37	F	180	88	0.00	1.76	0.56	0.25	2	Rk	Yf	C	12	4	0	5	NA	V	<1mm	UT is 0.23m below tapeline, radius 2.0m
56+92.42	SH	135	74	0.72	1.26	1.82	0.97	2	Tf	Rk	P	12	4	0	1	UNK	V,Br	<1mm, 0-30mm	up to 3mm vapor phase around fracture, breccia locally present, this is likely a shear, but cannot determine amount of offset
56+94.96	F	218	79	0.20	0.93	0.92	0.36	1	Rk	St	P	12	5	0	0	NA	M	<1mm	No comments
56+96.28	F	318	74	0.51	0.31	0.81	0.11	2	Tvpp	Tvpp	P	13	4	0	2	NA	V	1mm	2mm alteration margin

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Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
56+96.72	F	282	75	0.00	1.73	1.72	0.66	2	Yf	Tf	P	12	5	0	3	NA	M	<1mm	UT is 0.11m below tapeline
56+96.74	F	131	81	0.58	0.49	0.77	0.42	2	Yf	Yf	C	12	5	0	10	NA	M,Br	<1mm, 0-7mm	LT is 0.25m above tapeline, fracture curves to 317/65, radius 0.25m, local breccia
56+96.84	F	320	84	1.23	0.67	1.10	0.47	1	Yf	St	P	12	5	0	5	NA	M,Br	<1mm, 0-50mm	breccia filled locally as pods/lenses, possible shear(?)
56+98.60	F	054	77	0.80	0.38	1.11	0.37	2	Rk	Yf	P	12	5	0	3	NA	Br,C,M	0-5mm, 0-2mm, <1mm	breccia and calcite filling locally
56+98.89	F	320	87	0.40	0.50	0.85	0.42	2	Yf	Yf	P	12	5	0	3	NA	M	<1mm	No comments
57+00.75	F	127	87	0.00	1.10	1.03	0.54	1	In	Tf	P	12	4	0	0	NA	M	trace	UT is at tapeline
57+00.80	VPP	350	26	0.00	2.00	1.85	0.04	1	St	Tf	I	13	2	0	0	NA	V	2mm	UT is 0.15m below tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
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Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
57+00.95	F	315	80	0.65	0.83	1.40	0.42	2	Tvpp	Tf	P	12	3	0	0	NA	M	trace	No comments
57+03.98	F	292	84	0.98	0.84	1.70	0.37	1	St	Tf	P	12	4	0	0	NA	M	<1mm	No comments
57+04.60	F	298	85	0.16	1.26	1.40	0.70	2	Yf	Tf	P	12	4	0	0	NA	M	<1mm	No comments
57+05.25	F	164	77	1.10	0.20	1.20	0.80	1	St	Tf	P	11	3	0	0	NA	NA	NA	No comments
57+05.81	F	235	88	0.60	0.56	1.10	0.40	2	Tf	Tf	U	12	4	0	0	NA	M	<1mm	wavelength 0.4m, amplitude 0.03m
57+06.48	F	077	86	0.15	1.05	1.07	0.43	2	Tf	Tf	P	12	5	0	0	NA	M	trace	No comments
57+07.13	F	297	88	1.02	0.00	1.00	0.05	1	St	Yf	U	12	4	0	0	NA	M	trace	LT is 0.05m above tapeline, wavelength 0.50m, amplitude 0.03m
57+07.19	F	152	86	1.20	0.00	1.08	0.80	2	Tf	Yf	P	12	5	0	0	NA	M	<1mm	LT is 0.10m above tapelin
57+07.75	F	109	81	1.07	0.00	1.02	0.15	1	St	Tf	P	12	5	0	0	NA	M	trace	LT is at tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
57+07.88	F	100	90	0.73	0.28	0.90	0.11	0	St	St	P	13	4	0	0	NA	V,U	<1mm	white mineral infilling (can't scratc with knife)
57+08.28	VPP	051	10	0.94	0.80	1.71	0.30	2	Yf	Tf	I	13	2	0	0	NA	V	0-1mm	No comments
57+08.48	F	127	82	1.25	0.45	1.58	0.27	1	St	Yf	P	11	4	0	0	NA	NA	NA	No comments
57+08.52	F	270	86	0.00	1.10	0.96	0.56	1	Tf	In	P	12	5	0	0	NA	M	trace	UT is 0.12m below tapeline
57+08.65	F	126	83	0.00	1.05	0.91	0.66	1	Tf	St	P	12	5	0	0	NA	M	<1mm	UT is 0.30m below tapeline
57+09.40	F	114	85	0.50	0.93	1.35	0.27	1	St	Yf	P	12	4	0	0	NA	M	<1mm	No comments
57+09.49	F	120	81	0.72	0.31	0.92	0.28	2	Yf	Yf	P	12	5	0	0	NA	M	<1mm	No comments
57+09.50	F	125	85	0.00	0.90	0.80	0.47	2	Yf	Rk	P	12	5	0	0	NA	M	<1mm	UT is 0.17m below tapeline
57+09.87	F	137	79	0.40	0.60	0.82	0.51	2	Tf	Yf	P	11	4	0	0	NA	NA	NA	No comments
57+10.00	F	138	77	0.27	1.67	1.50	1.28	2	Yf	Yf	P	11	4	0	0	NA	NA	NA	No comments

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Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
57+10.33	VPP	062	17	1.80	0.00	1.76	0.11	1	St	Rk	I	13	2	0	0	NA	V	0-1mm	LT is 0.12m above tapeline, 1 to 4mm alteration ba
57+10.66	F	132	86	0.37	1.46	1.57	0.93	2	Yf	Tf	P	11	4	0	0	NA	NA	NA	No comments
57+10.99	F	139	85	1.10	0.65	1.56	0.48	1	St	Yf	P	11	3	0	0	NA	NA	NA	No comments
57+11.15	F	142	87	1.20	0.30	1.38	0.25	1	St	Yf	P	11	4	0	0	NA	NA	NA	No comments
57+11.82	F	309	86	1.30	0.60	1.78	0.32	1	St	Yf	P	12	4	0	0	NA	M	trace	No comments
57+12.14	F	303	86	0.38	1.60	1.57	0.60	1	Yf	In	P	12	4	0	0	NA	M	<1mm	No comments
57+12.19	F	126	86	1.04	0.00	1.00	0.20	1	St	Yf	P	12	4	0	0	NA	M,S	trace, <1mm	LT is 0.12m above tapeline
57+12.31	F	156	89	0.16	0.85	0.82	0.61	2	Yf	Yf	P	12	4	0	0	NA	C,M	2mm,<1mm	2mm crystalline calcite along 10% of trace

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
Compiled by: Sheldon K Johnson

Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
57+13.77	FLT	289	86	8.00	2.07	7.20	9.00	1	Rk	In	P	32	4	0	0	UNK	Br	0-100mm	probable normal fault of unknown offset, vapor phase partings are offset, thick zones of broken rock in foot wall
57+14.38	F	299	82	0.51	0.75	1.21	0.22	2	Yf	Yf	P	12	3	0	0	NA	C	0-1mm	No comments
57+14.57	F	120	88	0.84	0.42	1.22	0.30	2	Yf	Tvpp	P	12	5	0	0	NA	M	<1mm	No comments
57+14.68	F	119	81	1.17	1.68	2.40	1.12	1	Yf	St	P	12	5	0	0	NA	M	<1mm	No comments
57+14.81	F	123	83	1.30	1.29	1.15	1.01	1	Yf	St	P	12	5	0	0	NA	M	<1mm	No comments
57+15.20	F	300	83	1.62	0.35	1.85	0.28	0	St	St	P	12	4	0	0	NA	U	0-1mm	very small crystals, can't scratch with knife
57+15.55	F	120	84	0.53	1.56	1.92	1.01	1	St	Rk	P	12	4	0	0	NA	M	<1mm	No comments
57+15.59	F	122	85	0.46	0.63	0.93	0.37	2	Rk	Rk	P	12	4	0	0	NA	M	spotty	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
Compiled by: Sheldon K Johnson

Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
57+15.65	F	122	86	1.13	1.68	2.68	1.12	1	St	Yf	P	12	4	0	0	NA	M	spotty	No comments
57+15.70	F	127	85	1.55	1.35	2.66	0.88	2	Tf	Yf	P	12	4	0	0	NA	M	spotty	No comments
57+15.88	F	118	89	2.02	0.09	2.02	0.31	2	Tf	Yf	P	12	4	0	0	NA	M	spotty	No comments
57+15.94	F	129	88	2.11	0.56	2.52	0.43	2	Yf	Yf	P	12	4	0	0	NA	M	spotty	No comments
57+16.09	F	127	89	1.37	0.79	2.02	0.61	1	St	Rk	P	12	5	0	12	NA	M,Br	<1mm, 0-20mm	not true breccia infilling, more shattered in situ rock in lenses/pods
57+16.38	F	118	87	1.76	0.42	2.09	0.58	0	St	St	C	12	5	0	2	NA	M,V	<1mm	dip reverses approx. 0.5m below tapeline to 298/84, radius 5m, spotty vapor phase
57+16.40	F	132	88	0.83	0.23	1.00	0.18	1	Yf	St	P	12	5	0	1	NA	M	<1mm	No comments
57+16.82	SH	128	87	1.34	0.38	1.53	0.57	2	Rk	Rk	P	12	5	0	8	UNK	Br,M	0-25mm, <1mm	LT is in breccia

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
57+17.08	SH	297	87	1.14	0.21	1.29	0.36	1	Air	Tvpp	P	12	5	0	5	0.03	M,Br	<1mm, 0-3mm	No comments
57+17.18	F	305	85	1.08	0.30	1.33	0.33	2	Rk	Rk	P	12	5	0	1	NA	M	<1mm	No comments
57+17.32	SH	118	89	1.16	0.18	1.27	0.34	2	Rk	Rk	P	12	5	0	2	0.02	M,Br	<1mm, 0-3mm	reverse offset, south side up
57+17.49	SH	122	82	1.82	0.56	2.18	0.53	0	Rk	St	C	12	5	0	2	0.09	M,Br	<1mm, 0-5mm	normal offset, south side up, orientation reverses at tapeline to 298/87, radius 2m
57+18.04	F	310	80	0.54	0.23	0.75	0.13	2	Tf	Tvpp	I	13	4	0	1	NA	V	1mm	3mm alteration margin, 12mm offset along vapor phase parting at tapeline, no trace possible
57+18.52	F	123	86	0.61	0.31	0.90	0.20	2	Yf	Tvpp	P	12	5	0	1	NA	M,V	<1mm	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
57+18.55	F	282	79	1.06	0.54	1.52	0.26	2	Tvpp	Tvpp	I	13	4	0	1	NA	V	1mm	2mm alteration margin, no trace possibl
57+18.79	F	112	85	0.36	0.66	0.98	0.20	1	Yf	St	P	13	4	0	0	NA	V	1mm	3mm alteration margin
57+19.26	SH	295	89	1.34	0.46	1.70	0.26	1	St	Yf	P	12	5	0	3	0.05	M,V,B	<1mm	very minor vapor phase and breccia infilling, reverse offset, south side up
57+19.34	F	031	86	0.86	0.20	1.03	0.31	2	Yf	Tf	P	12	5	0	2	NA	M	<1mm	No comments
57+19.42	F	300	84	1.40	0.42	1.55	0.33	1	Air	Yf	P	12	4	0	1	NA	M	<1mm	No comments
57+19.53	F	119	90	1.00	0.28	1.26	0.30	2	Yf	Rk	P	12	5	0	1	NA	M,V	<1mm	No comments
57+19.71	F	303	87	0.43	0.86	1.27	0.42	2	Rk	Tvpp	P	12	5	0	0	NA	M,V	<1mm	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
57+19.82	F	304	88	0.79	0.52	1.26	0.38	2	Yf	Rk	P	12	4	0	2	NA	M,V	<1mm	possible shear, breccia region occurs on the north side of this fracture which may have offset
57+20.45	SH	305	83	0.45	0.77	1.20	0.45	2	Yf	Rk	P	12	5	0	5	0.02	M,V	<1mm	reverse offset, north side up
57+20.50	F	306	79	0.45	0.35	0.78	0.24	2	Yf	Tvpp	P	12	5	0	1	NA	M,V	<1mm	No comments
57+20.60	F	102	89	0.34	0.46	0.75	0.18	2	Rk	Tvpp	P	12	5	0	6	NA	M	<1mm	No comments
57+20.72	F	039	74	0.34	0.37	0.70	0.14	2	Tvpp	Yf	I	12	3	0	0	NA	M	<1mm	No comments
57+20.91	F	061	86	0.78	0.19	0.95	0.24	2	Yf	Rk	I	12	4	0	1	NA	M	<1mm	No comments
57+20.92	F	077	34	1.34	0.06	1.20	0.44	2	Yf	Tf	P	13	5	0	2	NA	M	<1mm	13mm alteration margin
57+23.07	F	291	87	0.98	0.24	1.20	0.05	2	Rk	Rk	P	21	4	0	0	NA	Br	0-5mm	No comments
57+24.80	F	280	85	1.14	0.00	1.10	0.12	2	Tf	Tvpp	P	12	4	0	0	NA	V	<1mm	LT is at tapeline
57+24.93	F	083	37	0.97	0.20	1.15	0.10	0	In	St	P	21	4	0	0	NA	Br	0-5mm	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht(m)	Wd(m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
57+26.90	F	100	48	0.84	0.90	1.70	0.15	0	St	St	P	12	4	0	0	NA	V,U	0-1mm	soft white mineral, no reaction with HCl
57+28.95	FLT	205	90	40.00	5.30	2.30	2.42	0	In	In	P	23	4	0	1	UNK	Bx,Ar	15cm,1mm	offset unknown, 18 degree rake on oblique strike-slip slickensides, Ghost Dance fault (?), appears to have moved along strike (slicks)
57+51.02	F	139	75	0.45	0.62	0.63	0.56	2	L	L	P	12	5	0	1	NA	NA	NA	no recordable fractures from 57+47.20 to 57+51.02

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
57+53.70	SH	136	84	3.40	0.00	3.10	0.90	2	Yf	L	P	12	4	0	2	0.03	NA	NA	LT is 0.22m above tapeline, offset down to the south, abundant (5-40%) lithophysae, no other recordable fractures to station 57+60.80
57+61.50	F	137	72	1.30	0.00	1.05	1.60	2	L	Rk	P	12	4	0	2	NA	NA	NA	LT is 0.06m above tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
57+61.72	SH	145	72	0.68	3.10	2.40	2.60	1	Rk	In	P	21	4	0	0	UNK	Br	2-3mm	roughness estimated, abundant lithophysae in this interval, sizes up to 0.4mm, some filled and open, all ranges of infilling in between, white crust of mineral has no reaction with HCl, breaks easy with knife pressure, can be crushed with fingernail, white mineral coating ranges in thickness from 0 to 1mm

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
57+91.33	FLT	148	90	5.80	2.60	6.90	7.17	1	Rk	In	P	33	2	0	0	0.30	Ar	50mm	No comments
57+91.92	SH	151	84	0.58	2.17	1.68	1.61	1	In	Rk	I	23	2	0	0	0.02	Ar,Br	3mm	normal offset, south side dow
57+98.94	F	133	77	0.32	1.29	1.10	0.46	2	Rk	Tf	I	13	3	0	0	NA	Br	8mm	No comments
58+00.50	FLT	144	85	16.50	2.44	7.65	9.80	0	In	In	P	33	3	0	50	1.0	Ar	40mm	reverse offset, south side up
58+05.57	F	152	76	2.19	0.00	1.92	1.21	2	Rk	Rk	I	13	2	0	0	NA	Br	4mm	LT is 0.14m above tapeline
58+05.87	F	153	70	1.15	0.58	1.04	0.71	2	Rk	Rk	I	13	3	0	0	NA	Br	3mm	No comments
58+12.50	FLT	135	90	25.00	1.62	5.50	14.00	2	Rk	Rk	P	14	4	0	30	0.3	Br	30mm	normal offset
58+13.05	F	155	76	2.50	3.25	3.80	4.70	1	Rk	In	I	14	4	0	0	NA	Br	15mm	fracture consists of several interconnected fractures
58+15.00	F	238	89	4.15	1.15	5.10	1.20	1	St	L	P	14	4	0	0	NA	Br	15mm	No comments
58+20.95	FLT	159	81	20.00	3.50	6.80	12.00	0	O	In	P	14	3	0	0	0.5	Br	200mm	normal offset
58+22.30	FLT	162	83	2.45	2.40	2.00	3.80	0	St	St	P	14	3	0	0	0.2	Br	30mm	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
58+23.75	F	163	83	0.00	1.40	0.70	1.10	2	Rk	Yf	P	12	3	0	0	NA	NA	NA	UT is 0.28m below tapeline, fracture surface clean
58+28.10	F	162	78	0.12	1.56	1.58	1.41	2	Rk	Yf	P	13	3	0	0	NA	Br	3mm	No comments
58+28.98	F	144	84	0.78	2.38	2.25	1.31	0	Air	In	I	15	2	0	0	NA	Ar	4mm	clay infilling is medium brown
58+29.00	SH	156	79	0.07	1.49	1.23	1.32	2	Yf	Tf	I	23	1	0	2	UNK	Br,Ar	3mm	offset unknown
58+29.58	SH	172	71	0.00	1.64	1.47	1.39	1	Air	Tf	I	23	2	0	0	UNK	Br	2mm	offset unknown, UT is 0.03m below tapeline
58+34.04	F	252	86	0.79	0.67	1.23	0.32	2	Rk	Rk	I	23	2	0	1	NA	Br	1mm	No comments
58+41.23	F	149	85	0.94	1.16	1.25	0.72	2	Rk	Rk	I	11	2	0	0	NA	NA	NA	No comments
58+42.98	SH	111	83	6.24	0.10	5.10	4.00	2	Tf	Yf	P	24	3	0	0	0.04	Ar	2mm	reverse offset, south side up
58+44.71	F	214	86	1.69	0.19	1.44	1.44	2	Rk	Rk	P	11	2	0	4	NA	NA	NA	No comments
58+45.47	F	143	81	0.87	0.52	1.27	0.83	2	Rk	Rk	I	11	2	0	3	NA	NA	NA	No comments
58+46.00	F	151	83	1.02	0.01	0.95	0.61	2	Rk	Rk	I	12	3	0	2	NA	M	1mm	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
58+46.52	FLT	135	77	12.20	2.81	7.80	8.20	0	In	In	P	33	3	0	45	0.7	Ar/M, Br	35mm, 10cm	offset down to the north
58+48.49	F	132	88	5.60	2.89	7.00	2.45	1	Yf	In	P	11	3	0	0	NA	NA	NA	No comments
58+48.89	SH	140	75	10.50	0.00	8.10	7.70	1	In	Rk	P	11	3	0	7	0.03	C	0.5mm	offset down to the south, LT is 0.14m above tapeline
58+51.55	F	144	74	5.12	0.55	4.46	4.31	2	Tf	Tf	P	11	3	0	2	NA	NA	NA	No comments
58+52.03	F	168	81	1.18	0.70	1.57	1.47	2	Yf	Rk	P	11	3	0	5	NA	NA	NA	No comments
58+53.57	SH	228	80	4.26	0.39	2.61	0.83	2	Rk	Rk	I	21	3	0	0	0.01	Br	1mm	offset down to the south
58+55.55	F	211	77	1.67	0.23	1.39	1.30	1	Yf	Air	I	12	4	0	0	NA	NA	NA	No comments
58+56.91	F	208	78	0.06	0.97	0.73	0.76	2	Rk	Tf	I	12	2	0	0	NA	M	trace	No comments
58+58.65	F	133	77	2.11	0.00	1.93	0.40	2	Yf	Rk	P	13	4	0	4	NA	S,M	trace	LT is at tapeline
58+59.70	F	069	89	0.40	1.02	1.39	0.32	2	Rk	Rk	P	11	4	0	0	NA	S,M	trace	No comments
58+64.74	FLT	326	85	7.00	2.95	4.50	11.00	1	Yf	In	P	31	3	0	0	0.7	Br,Bx	35cm	reverse offset, north side down

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
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Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
58+77.00	F	041	86	0.42	1.90	1.20	1.77	2	Rk	Rk	I	12	2	0	0	NA	NA	NA	No comments
58+86.90	SH	147	88	17.00	0.90	5.50	12.00	0	O	O	P	21	3	0	5	0.01	Br	0-15cm	shear bisects tunnel circumference, south side down
58+87.90	F	133	73	1.03	1.07	1.80	1.00	2	Rk	Rk	I	12	3	0	0	NA	NA	NA	this fracture might extend upwards and connect with a shear with similar orientation
58+88.72	F	136	77	0.00	1.10	0.84	0.76	2	L	L	I	12	3	0	1	NA	NA	NA	UT is 0.05m below tapeline
58+88.89	F	137	75	0.00	1.00	0.85	0.72	2	L	L	I	12	3	0	1	NA	NA	NA	UT is 0.03m below tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
Compiled by: Sheldon K Johnson

Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
58+93.49	SH	274	81	0.44	1.24	1.56	0.25	2	Tf	L	I	21	3	0	0	0.02	Br	2-12mm	reverse offset, north side up, this shear is the lowest mo segment of lengthier shear that extends upward nearly to the crown
58+95.76	F	148	81	2.18	0.03	1.97	0.60	2	Rk	L	P	13	3	0	0	NA	M,V	trace, patchy <1mm	No comments
58+96.55	F	295	84	1.80	0.00	1.78	0.30	2	Yf	Rk	P	13	4	0	10	NA	Br	0-10mm	LT is 0.27m above tapeline
58+98.08	F	144	83	0.98	0.05	0.75	0.82	2	Tvpp	Rk	I	13	3	0	2	NA	C	trace	No comments
58+98.10	F	332	88	1.50	0.30	1.24	1.10	2	Rk	Rk	I	11	2	0	0	NA	M	<1mm	No comments
58+98.22	F	138	84	0.66	3.05	2.15	3.40	1	Yf	In	I	11	2	0	0	NA	M,S	coating only	No comments
58+99.90	VPP	175	22	1.01	0.00	0.10	1.00	2	Rk	Yf	I	11	2	0	0	NA	V,S	1mm	LT is 0.04m above tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
Compiled by: Sheldon K Johnson

Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht(m)	Wd(m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
59+00.01	SH	144	84	1.53	0.00	1.45	0.36	2	Ysh	Tvpp	P	11	4	0	0	UNK	M,S	<1mm	LT is 0.18m above tapeline
59+00.70	F	160	85	0.00	1.67	1.20	1.40	2	Rk	Yvpp	I	11	2	0	0	NA	M	<1mm	UT is 0.17m below tapeline
59+01.12	F	162	78	1.10	0.00	0.60	1.00	2	Yf	Yvpp	I	11	3	0	0	NA	M	NA	LT is 0.22m above tapeline
59+02.94	F	106	85	2.80	0.10	2.50	0.15	2	Rk	Tvpp	P	11	4	0	0	NA	M	<1mm	No comments
59+03.39	F	135	88	3.10	0.00	3.00	0.70	2	Yf	Rk	P	11	4	0	0	NA	S	coating	LT is 0.15m above tapeline
59+04.12	F	080	85	2.60	0.00	2.50	0.05	2	Yf	Rk	P	11	4	0	2	NA	M	<1mm	LT is 0.30m above tapeline
59+05.51	F	160	70	6.70	0.20	3.50	1.60	2	Yf	L	P	12	4	0	1	NA	M	<1mm	No comments
59+05.90	F	160	80	3.80	0.00	2.90	0.70	2	Yf	Rk	P	12	4	0	0	NA	M	<1mm	LT is 0.20m above tapeline
59+06.55	F	150	80	8.00	0.15	5.50	2.50	2	Yf	Rk	P	12	4	0	5	NA	M	<1mm	UT is in crown of tunnel, hard to see
59+06.93	F	162	75	1.87	0.35	0.85	0.90	2	Yf	L	C	12	4	0	0	NA	M	<1mm	radius 0.08m

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
Compiled by: Sheldon K Johnson

Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
59+08.40	SH	145	80	5.50	0.13	3.00	0.90	2	Yf	Rk	P	12	4	0	7	0.06	M	<1mm	UT is in fracture zone, reverse offset lithophysal zone below tapeline, non-lithophysal above tapeline
59+10.28	F	144	87	0.60	0.03	0.56	0.26	2	Tvpp	L	P	12	4	0	0	NA	M,C	trace	No comments
59+10.50	F	140	84	3.42	0.00	2.93	0.95	2	Rk	Tvpp	P	11	4	0	0	NA	M,C	coating, 0-2mm	LT is 0.16m above tapeline
59+11.43	F	312	88	3.33	0.13	2.95	0.35	2	Yf	Tf	P	12	4	0	10	NA	C,M	0-2mm, trace	No comments
59+11.87	F	245	87	0.97	0.33	1.20	0.43	2	Yf	Rk	P	13	4	0	0	NA	Br	0-20mm	possibility that the TBM pushed the broken rock into an open fracture
59+11.97	F	142	86	2.49	0.00	2.30	0.30	2	Tf	Yf	P	12	4	0	1	NA	C,M	trace	LT is 0.29m above tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
59+12.95	F	136	79	10.00	0.20	5.50	7.50	2	Rk	Rk	P	13	4	0	1	NA	C,M	0-3mm, stain	No comments
59+12.97	VPP	350	13	1.53	0.32	0.08	1.81	2	Tf	Rk	I	13	2	0	0	NA	V	2-6mm	No comments
59+13.63	F	133	84	10.00	0.00	5.50	7.50	2	Rk	Rk	P	13	4	0	2	NA	C,M	0-3mm, trace	LT is at tapeline
59+13.72	F	135	83	2.38	0.70	2.31	0.40	1	St	Rk	P	13	4	0	0	NA	C,M	0-2mm, trace	No comments
59+13.85	F	313	88	2.81	0.18	2.84	0.65	2	Rk	Rk	P	13	4	0	5	NA	Br,M,C	0-5mm, trace, 0-2mm	No comments
59+13.95	F	132	80	1.85	0.00	1.70	0.20	2	Yf	VPP	P	12	0	0	0	NA	M	<1mm	LT is 0.03m above tapeline
59+14.30	F	149	86	2.54	0.00	2.41	0.65	2	Rk	Rk	P	13	4	0	1	NA	M,C	trace	LT is 0.19m above tapeline
59+14.43	SH	307	87	1.62	0.09	1.63	0.20	2	Yf	Rk	P	12	4	0	35	0.02	C,M	trace	normal offset north side d
59+15.05	F	318	86	1.46	0.03	1.44	0.15	2	Rk	Tvpp	P	12	4	0	0	NA	C,M	trace	No comments
59+15.50	F	147	87	1.49	0.00	1.47	0.28	2	Yf	Rk	P	12	4	0	0	NA	M	trace	LT is 0.30m above tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
59+15.54	F	146	87	4.17	0.00	2.75	1.10	2	Tf	Rk	P	12	4	0	0	NA	C,M	trace	LT is 0.31m above tapeline
59+16.19	F	135	84	0.15	1.54	1.20	0.70	2	Rk	Rk	P	12	4	0	0	NA	NA	NA	LT is in zone of crushed rock
59+16.70	F	134	89	1.97	0.03	1.85	0.84	2	Rk	Rk	I	12	4	0	0	NA	Br,M	0-20mm, trace	No comments
59+17.60	F	319	86	1.26	0.00	1.24	0.13	2	Rk	Rk	I	13	2	0	15	NA	Br	0-15mm	LT is 0.06m above tapeline
59+20.23	F	138	76	4.20	2.80	4.70	1.10	1	Rk	In	P	12	4	0	1	NA	M	<1mm	No comments
59+20.60	F	140	77	2.80	0.00	2.30	0.50	2	Yf	VPP	P	12	4	0	10	NA	M	<1mm	LT is 0.07m above tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
59+21.11	VPP	040	21	5.00	0.00	5.00	0.00	2	Rk	Rk	U	12	2	0	5	NA	U	1mm	infilling mineral is white and brown calcite (?),quartz and opal (?), no reaction with HCl, 4mm gray alteration margin, vapor phase parting extends from 59+21.11 to 59+16.10, LT is 0.04m above tapeline, wavelength 0.5m, amplitude 0.05m

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
59+21.25	F	060	72	2.70	0.00	2.50	0.10	2	Yf	VPP	U	12	4	0	0	NA	M	<1mm	LT is at tapeline, wavelength 0.6m, amplitude 0.05m, for one wavelength at bottom of fracture, the remainder is planar
59+23.00	F	130	85	7.90	0.00	5.00	4.50	2	Rk	Tvpp	P	11	4	0	0	NA	M,S	<1mm	LT is 0.29m above tapeline
59+24.60	SH	130	80	4.60	0.00	3.90	1.50	1	St	Tvpp	P	11	4	0	0	UNK	M,S	<1mm	LT is 0.10m above tapeline, possible strike slip offset
59+25.03	F	060	88	3.20	0.14	3.10	0.15	2	Tf	L	I	11	4	0	0	NA	Br,M	10mm, <1mm	No comments
59+26.19	F	174	80	1.70	0.00	0.64	1.65	2	Tvpp	Tvpp	P	11	3	0	0	NA	M,S	coating	LT is 0.09m above tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
59+26.20	VPP	176	22	7.15	0.00	0.13	7.15	2	Rk	Rk	I	11	2	0	0	NA	S	1-2mm	LT is 0.08m above tapeline
59+26.73	F	143	90	2.80	0.00	2.65	0.45	2	Tf	Tvpp	P	12	4	0	1	NA	V	<1mm	LT is 0.07m above tapeline
59+29.69	F	148	76	5.30	0.00	3.90	2.50	2	Rk	Tvpp	P	12	4	0	0	NA	Br	0-8mm	LT is 0.07m above tapeline, Br = sand size
59+31.70	F	235	86	4.70	0.00	3.90	1.30	2	Tf	Tvpp	P	12	4	0	15	NA	M,S	<1mm	LT is 0.04m above tapeline
59+39.00	F	042	89	3.60	0.00	3.00	0.90	1	Tf	Air	P	12	4	0	7	NA	M	<1mm	LT is 0.15m above tapeline
59+40.08	F	072	88	2.70	0.00	2.30	0.20	2	Rk	Tvpp	P	12	4	0	0	NA	M	<1mm	LT is 0.23m above tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
59+40.18	F	150	81	2.90	0.00	2.70	0.85	2	Rk	VPP	C	12	4	0	0	NA	M	<1mm	LT is 0.30m above tapeline, radius approx. 1.1m, attitude given is for fracture near tapeline, above there the fracture has curved to 320/89
59+41.20	F	148	80	3.00	0.00	2.40	1.00	2	Rk	L	P	12	4	0	1	NA	M	<1mm	LT is at tapeline
59+41.72	F	152	74	1.73	0.00	1.05	0.40	2	Yf	L	P	12	4	0	3	NA	M	<1mm	LT is at tapeline
59+42.54	F	140	83	8.00	0.19	4.00	2.30	2	Rk	Tvpp	P	12	4	0	1	NA	M,U	<1mm, 0-1mm	unknown mineral is white
59+42.59	F	208	76	1.20	0.18	0.90	0.60	2	Yf	Tvpp	P	12	4	0	2	NA	M	<1mm	No comments
59+43.62	F	138	85	2.33	0.24	2.25	0.25	2	Yf	Tvpp	P	12	4	0	0	NA	M,U	<1mm	No comments

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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
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Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
59+43.77	F	140	86	14.00	0.21	8.00	5.00	2	Rk	Tvpp	P	12	4	0	0	NA	M,U	<1mm	unknown mineral is white, trace length A and width are estimated
59+43.95	F	132	80	1.85	0.00	1.70	0.20	2	Yf	Tvpp	P	12	5	0	0	NA	M	<1mm	LT is 0.03m above tapeline
59+45.00	F	151	87	2.22	0.00	1.80	1.30	2	Rk	Yvpp	P	11	3	0	0	NA	M,C	<1mm, patchy 1-2mm	LT is at tapeline
59+45.20	F	145	84	2.50	1.00	3.10	1.10	2	Yf	L	P	11	4	0	0	NA	M,C	<1mm	No comments
59+45.52	F	132	88	2.00	0.00	1.80	0.25	2	Rk	Rk	P	11	3	0	0	NA	M,S	<1mm	LT is 0.30m above tapeline
59+46.05	F	139	90	2.50	0.37	2.60	0.81	2	Yf	Yvpp	P	11	4	0	0	NA	M,C	<1mm, 3mm	No comments
59+46.65	F	149	77	3.60	0.00	3.00	0.90	2	Rk	Yvpp	P	11	4	0	0	NA	M,S	<1mm	LT is 0.22m above tapeline
59+47.35	SH	232	89	3.10	0.57	3.20	0.50	2	Tf	Tsh	P	21	5	0	0	UNK	Br	10-15mm	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Detailed Line Survey-Data Collected from Station 55+00 to 60+00
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Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
59+47.55	F	032	85	1.80	0.00	1.63	0.10	1	St	Tvpp	P	11	4	0	0	NA	M	<1mm	LT is 0.15m above tapeline
59+49.45	F	147	75	5.80	1.80	4.50	2.90	1	St	L	P	12	5	0	0	NA	M	spots, locally coated	No comments
59+50.82	F	131	78	2.05	0.00	2.00	0.35	2	Tvpp	Rk	P	11	5	0	0	NA	M	<1mm coating	LT is 0.13m above tapeline
59+50.91	VPP	341	11	0.00	1.34	0.01	1.33	2	Rk	Rk	I	13	1	0	0	NA	V	2-6mm	UT is 0.03m below tapeline, vapor phase parting parallel to tapeline
59+51.50	F	238	89	4.30	0.04	3.65	1.90	1	St	Tvpp	P	12	5	0	0	NA	M	stain	No comments
59+52.32	VPP	335	19	2.30	0.00	0.13	2.28	2	Rk	Rk	I	13	1	0	0	NA	V	5-12mm	LT is 0.09m above tapelin vapor phase parting parallel to tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
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Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
59+52.75	F	131	82	9.50	0.24	4.20	5.20	1	St	Yvpp	P	11	5	0	0	NA	C,M	0-6mm, stain	No comments
59+53.02	F	137	85	2.12	0.93	2.52	1.10	2	Rk	Rk	P	11	5	0	0	NA	M	coating <1mm	portion of fracture face appears almost polished
59+53.08	VPP	348	25	0.00	2.31	0.09	2.30	2	Tf	Rk	I	13	1	0	0	NA	V	5-16mm	UT is 0.09m below tapeline, vapor phase parting parallel to tapeline
59+53.84	F	133	79	3.50	0.79	4.00	1.05	2	Yf	Rk	P	11	5	0	0	NA	S,M	patchy <1mm, trace	No comments
59+53.85	F	195	81	11.00	0.42	4.00	7.00	1	St	Rk	P	11	5	0	0	NA	M,C	trace	No comments
59+54.60	F	151	77	2.98	0.48	3.28	1.10	2	Rk	Tvpp	P	11	5	0	0	NA	M	coating <1mm	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
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Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
59+54.90	F	225	76	0.64	0.36	0.88	0.44	2	Yf	Yvpp	P	21	5	0	0	NA	M,Br	<1mm coating, 0-6mm	possible shear with <1m offset, north side down
59+55.14	F	261	87	3.95	0.29	3.90	1.30	2	Yf	Tvpp	P	21	5	0	0	NA	M,Br	<1mm coating, 0-30mm	possible shear with 0.21m offset, south side down
59+55.15	VPP	328	27	1.43	0.00	0.02	1.42	2	Tf	Rk	I	11	1	0	0	NA	V	5-10mm	LT is 0.21m above tapeline
59+55.28	F	263	87	1.36	0.26	1.60	0.25	2	Rk	L	P	11	5	0	0	NA	M	stain	No comments
59+57.50	VPP	340	10	1.64	0.00	0.08	6.01	2	Rk	Rk	I	11	1	0	0	NA	V	2-15mm	Az and dip are approximate, LT is 0.04m above tapeline
59+57.58	VPP	345	11	0.00	1.93	0.01	1.92	2	Rk	Rk	I	11	1	0	0	NA	V	1-45mm	UT is 0.13m below tapeline
59+57.94	F	143	76	1.56	0.00	1.36	0.61	2	Yf	Yf	P	11	5	0	0	NA	S,M	stain	LT is 0.05m above tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
Compiled by: Sheldon K Johnson

Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
59+58.06	F	149	83	4.44	0.16	3.40	1.10	2	Tf	Tvpp	P	11	5	0	0	NA	M,S,C	stain, stain, 0-5mm	No comments
59+58.32	F	232	84	7.10	0.28	4.30	4.20	2	Rk	Tf	P	21	5	0	0	NA	C,Br,M	0-20mm, <1mm coating	possible shear with <0.01m offset, north side down
59+58.77	F	233	88	2.16	0.19	2.20	0.25	2	Rk	Tvpp	P	11	5	0	0	NA	S	<1mm coating	No comments
59+59.04	F	160	77	1.88	0.29	1.64	1.15	2	Yf	Tvpp	P	11	5	0	0	NA	S,M	trace, <1mm coating	No comments
59+59.38	F	225	88	0.92	0.10	1.00	0.30	2	Yf	Tvpp	P	11	4	0	0	NA	M	<1mm	No comments
59+59.60	F	208	66	0.54	0.70	0.64	1.00	2	Tf	Yvpp	P	11	4	0	0	NA	M	<1mm	No comments
59+59.72	F	150	75	1.18	0.02	0.70	0.80	2	Yf	Yvpp	P	11	4	0	0	NA	M	<1mm	No comments
59+59.73	F	155	80	0.00	1.25	0.90	1.00	2	Tf	Yvpp	P	11	4	0	0	NA	M	<1mm	UT is 0.07m below tapeline
59+59.75	F	212	75	0.40	0.70	0.80	0.70	2	Tf	L	P	11	4	0	0	NA	M	<1mm	No comments
59+59.89	F	230	82	0.07	1.20	1.02	0.70	2	Yf	Yvpp	I	11	4	0	0	NA	M	<1mm	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
59+59.92	F	245	80	0.70	0.93	1.42	0.80	2	Yf	L	P	11	4	0	0	NA	M	<1mm	No comments
59+60.35	F	156	86	1.20	2.10	1.93	2.30	2	Yvpp	L	P	11	4	0	0	NA	M	<1mm	No comments
59+60.64	F	142	82	2.40	0.69	2.90	1.10	2	Tvpp	Yf	P	11	4	0	0	NA	S,M	<1mm	No comments
59+60.65	F	140	80	0.82	0.77	1.18	1.00	2	Yf	Yf	P	11	4	0	0	NA	S,M	<1mm	No comments
59+61.34	F	142	76	1.94	0.90	2.50	1.00	2	Tvpp	Yvpp	P	11	4	0	0	NA	M	<1mm	No comments
59+61.35	F	020	82	1.30	0.00	0.73	1.10	2	Tvpp	Yf	I	11	3	0	0	NA	S	1mm	LT is at tapeline
59+61.45	F	086	80	2.47	0.53	2.70	0.26	2	Rk	Tvpp	P	11	4	0	0	NA	S,M	1mm, <1mm	No comments
59+61.60	VPP	315	26	0.70	0.80	0.03	1.10	2	Rk	Rk	I	11	3	0	0	NA	S	2-4mm	No comments
59+62.12	F	156	90	0.65	0.55	0.52	1.10	2	Yvpp	Tf	I	11	3	0	0	NA	S	1-2mm	No comments
59+62.61	F	154	84	0.00	1.00	0.60	0.80	2	Tf	Yf	P	11	4	0	0	NA	M	<1mm	UT is 0.2m below tapeline
59+62.63	F	250	86	5.00	1.10	6.00	0.32	2	Yf	L	P	11	4	0	0	NA	M	<1mm	No comments
59+63.59	F	245	88	0.33	0.74	1.00	0.30	2	Rk	Tvpp	P	11	3	0	0	NA	M	<1mm	No comments
59+63.79	F	094	88	0.40	0.85	1.02	0.12	2	Yf	Yvpp	I	11	3	0	0	NA	M	<1mm	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
59+64.40	F	120	75	0.10	1.24	1.21	0.80	2	Yf	Tvpp	P	11	3	0	0	Na	M	<1mm	No comments
59+64.50	F	165	82	1.80	3.50	2.53	4.00	2	Tf	L	P	11	4	0	0	NA	M	<1mm	No comments
59+64.55	F	146	80	1.76	1.46	2.25	1.70	2	Rk	Yf	P	11	4	0	0	NA	M	<1mm	No comments
59+65.44	F	270	87	1.65	1.43	2.68	0.54	2	Rk	Rk	P	11	4	0	0	MA	C	3mm	No comments
59+65.80	F	144	80	4.70	1.52	4.42	2.77	2	Tf	Rk	C	12	3	0	1	NA	C,M	2-3mm, 1mm	radius 3.03m
59+66.81	SH	270	90	3.38	1.72	4.56	0.52	2	Tf	Rk	I	21	3	0	6	0.05	Bx	17mm	reverse offset, north side down
59+66.90	SH	097	88	1.63	0.59	2.03	0.39	2	Vpp	Tf	P	21	4	0	1	0.01	M	0.5mm	normal offset, south side down
59+67.26	F	206	84	1.36	2.55	2.99	3.07	2	Tf	Rk	I	12	3	0	1	NA	M	1mm	No comments
59+68.07	F	151	88	1.54	0.83	1.99	1.41	1	Yf	St	P	12	3	0	0	NA	M,C	1mm, 3mm	No comments
59+68.42	F	141	83	2.92	1.34	3.78	1.95	2	Tf	Yf	P	11	3	0	2	NA	S	1mm	No comments
59+68.59	VPP	169	04	1.92	0.00	1.79	0.11	2	Rk	Rk	I	12	2	0	0	NA	S	1mm	LT is 0.12m above tapeline
59+68.60	F	212	78	0.83	2.02	2.35	1.51	2	Yf	Yf	I	12	2	0	0	NA	M,Q,C	3mm	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
59+69.35	VPP	171	02	0.00	3.71	3.58	0.14	2	Rk	Rk	I	12	2	0	0	NA	S	1mm	UT is 0.21m below tapeline
59+69.50	F	161	76	7.90	3.30	5.30	4.50	2	Rk	Rk	C	12	4	0	2	NA	C,M	4mm	radius 4.3m
59+69.78	F	145	83	5.21	2.74	5.04	2.84	2	Rk	Rk	C	12	3	0	0	NA	S,M	1mm	radius 2.2m
59+70.15	F	266	81	2.64	0.40	2.64	0.54	2	Rk	Tf	P	11	5	0	0	NA	NA	NA	No comments
59+70.81	F	152	78	2.40	2.90	4.05	3.25	2	Rk	Tf	P	12	4	0	0	NA	M	2mm	No comments
59+71.07	F	122	83	1.64	0.15	1.43	0.53	2	Rk	Rk	I	12	2	0	0	NA	S	1mm	No comments
59+71.30	SH	153	84	5.56	2.54	6.01	2.96	2	Yf	Tf	C	12	3	0	0	0.01	M	2mm	reverse offset, radius 2.5m
59+71.47	F	272	83	1.67	0.62	1.93	0.58	2	Rk	Rk	I	12	3	0	2	NA	NA	NA	No comments
59+71.72	F	113	82	0.29	2.87	2.79	1.32	1	Yf	In	I	11	3	0	1	NA	NA	NA	No comments
59+72.07	F	144	73	3.65	1.92	4.73	1.91	2	Rk	Tf	C	12	3	0	3	NA	M,C	2mm, 3-12mm	radius approx. 2.5m
59+72.20	VPP	011	04	0.71	0.84	1.54	0.07	2	Tf	Rk	I	12	2	0	0	NA	S	2mm	6mm thick light grey alteration margin
59+73.00	F	166	70	1.16	0.00	1.10	0.18	2	Rk	Tf	I	13	2	0	0	NA	Br	4mm	LT is 0.19m above tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
59+73.26	VPP	013	08	1.38	0.00	1.29	0.12	2	Tf	Tf	I	12	1	0	0	NA	S	2mm	LT is 0.22m above tapeline, 6mm thick light grey alteration margin
59+73.55	F	114	87	1.11	0.00	1.09	0.12	2	Yf	Tf	I	12	3	0	0	NA	NA	NA	2mm thick light grey alteration margin, LT is 0.21m above tapeline
59+73.56	VPP	009	01	1.35	0.00	1.30	0.09	2	Tf	Tf	I	12	2	0	0	NA	S	2mm	LT is 0.20m above tapeline, 8mm thick light grey alteration margin
59+74.30	F	145	86	1.36	0.23	1.49	0.67	2	Rk	Tf	P	12	3	0	0	NA	M	1mm	No comments
59+74.59	VPP	006	04	0.00	1.21	1.18	0.07	2	Yf	Tf	I	12	2	0	0	NA	V	0-1mm	UT is 0.22m below tapeline, 7mm thick light grey alteration margin

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
59+74.60	F	212	71	2.03	1.90	3.21	2.48	2	Yf	Tf	I	14	3	0	0	NA	Br	4mm	No comments
59+74.70	FLT	222	74	8.30	3.27	7.80	6.90	1	Rk	In	P	31	4	0	5	0.10	Br	12mm	normal offset, north side do
59+75.40	F	149	81	0.58	3.01	1.82	2.98	2	Tflt	Rk	P	11	5	0	0	NA	M,C	trace, 0 to 1mm	No comments
59+75.80	VPP	345	15	0.00	5.12	0.01	5.09	2	Rk	Tf	I	11	2	0	0	NA	C,V	0-2mm, 2-40mm	UT is 0.05m below tapeline
59+76.25	F	144	81	0.60	2.70	2.15	1.50	2	Yf	Yf	P	11	5	0	0	NA	C,M,V	trace to 3mm, trace	No comments
59+76.77	F	138	80	6.50	3.40	5.50	3.50	1	Yf	In	P	11	5	0	0	NA	C,M	trace to 2mm, trace	No comments
59+78.53	F	136	82	1.16	0.00	1.01	0.45	2	Rk	Rk	P	11	4	0	0	NA	M,C	trace, 0-1mm	LT is 0.29m above tapeline
59+79.46	F	158	83	0.21	0.84	0.62	0.52	2	Yvpp	Tf	P	11	4	0	0	NA	M	<1mm	No comments
59+79.70	VPP	350	32	3.07	0.00	0.01	3.05	2	Rk	Rk	I	11	2	0	0	NA	C,V	0-1mm, 1-10mm	LT is 0.02m above tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht(m)	Wd(m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
59+79.80	F	149	73	0.02	1.33	0.72	1.21	2	Rk	Yf	P	11	4	0	0	NA	M,C	trace, 0-3mm	No comments
59+79.80	VPP	345	15	0.00	5.12	0.01	5.09	2	Rk	Tf	I	11	2	0	0	NA	C,V	0-2mm, 2-40mm	UT is 0.05m below tapeline
59+80.65	F	136	84	0.80	0.86	1.42	1.00	2	Yf	Yf	P	11	5	0	0	NA	M,C	trace	No comments
59+80.92	F	283	86	1.08	0.00	1.07	0.10	2	Yf	Rk	P	11	5	0	0	NA	M,C	trace, 0-2mm	LT is 0.09m above tapeline
59+80.97	F	149	73	6.50	0.24	4.10	2.50	1	St	Yf	P	11	5	0	20	NA	M,C	trace, 0-20mm	No comments
59+81.08	SH	103	90	3.22	2.42	5.00	1.70	1	FZ	O	I	21	4	0	0	0.01	Br	1-16cm	normal offset, south side down
59+81.14	F	138	78	0.18	3.82	2.40	3.60	1	Tvpp	O	P	21	4	0	0	NA	C,Br	0-3mm, 0-18mm	No comments
59+81.32	F	148	69	0.10	1.59	0.95	1.42	2	Tf	Yf	P	11	4	0	0	NA	M,C	trace, 0-2mm	No comments
59+81.69	F	144	84	0.82	3.56	0.82	3.95	1	Yf	In	P	11	5	0	0	NA	M	<1mm coating	possible cooling joint
59+81.96	F	142	77	4.20	3.90	5.20	4.50	1	Rk	In	P	11	5	0	0	NA	C,M	trace, <1mm	possible cooling joint

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
59+82.72	F	140	76	0.72	1.06	1.19	1.22	2	Rk	Rk	P	11	5	0	0	NA	M	<1mm coating	fracture surface almost polished
59+83.00	F	131	84	0.19	1.18	1.04	0.91	2	Yf	Rk	P	11	4	0	0	NA	M	<1mm coating	No comments
59+83.76	F	147	88	7.40	3.30	5.50	5.00	0	St	O	P	11	4	0	0	NA	M,C	trace, 0-7mm	possible cooling joint
59+83.79	VPP	178	22	0.00	1.60	0.01	1.60	2	Yf	Yf	U	13	3	0	0	NA	C	<1mm	UT is 0.10m below tapeline, 10mm gray alteration margin, amplitude 0.03m, wavelength 0.45m
59+85.12	F	250	90	3.30	2.70	5.40	1.10	0	St	O	P	12	5	0	0	NA	M	<1mm	fracture is offset 0.03m by intersecting fracture at 59+83.76, 1.25m below tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
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Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
59+85.18	F	250	89	0.93	2.60	2.70	1.40	1	Rk	O	P	12	5	0	0	NA	M	<1mm	No comments
59+85.29	F	166	78	2.70	0.00	2.35	1.10	2	Yf	Yf	P	12	4	0	1	NA	M	<1mm	LT is 0.08m above tapeline
59+85.30	F	170	79	0.88	0.75	0.70	1.20	2	Rk	Rk	P	12	4	0	0	NA	M,C	<1mm	No comments
59+86.80	F	160	77	1.45	3.30	2.80	3.10	2	Rk	Rk	P	12	4	0	0	NA	M	<1mm	No comments
59+86.98	F	249	85	2.50	1.30	3.30	1.10	1	Air	Rk	P	12	4	0	2	NA	M,O,C	<1mm, 0-2mm, 0-2mm	No comments
59+87.08	F	154	86	1.00	1.35	1.70	1.60	2	Rk	Rk	P	12	4	0	0	NA	M,O,C	<1mm, 0-2mm, 0-2mm	No comments
59+87.10	F	170	77	0.00	1.45	0.55	1.25	2	Yf	Yf	P	12	4	0	0	NA	M	<1mm	UT is 0.09m below tapeline
59+87.25	F	138	80	0.90	0.70	1.40	0.90	2	Yf	Yf	P	12	4	0	2	NA	M	<1mm	No comments
59+87.53	F	142	83	2.20	3.60	4.30	3.90	2	Yf	Rk	P	12	4	0	1	NA	M,O,C	<1mm, 0-2mm, 0-2mm	No comments
59+88.57	F	153	81	2.60	0.00	2.40	0.75	2	Yf	VPP	P	12	4	0	0	NA	M	<1mm	LT is 0.12m above tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
59+88.75	F	283	90	1.30	0.50	1.50	0.35	2	Rk	Tvpp	P	12	4	0	0	NA	NA	NA	No comments
59+89.26	F	240	84	0.50	0.60	0.85	0.50	2	Tf	Tvpp	P	12	3	0	1	NA	M,O,C	<1mm, 0-2mm, 0-2mm	No comments
59+89.85	F	130	75	1.05	2.13	1.88	2.70	2	Yf	Yf	P	11	4	0	0	NA	M,C	<1mm, 2-4mm	No comments
59+90.16	F	156	80	3.40	1.45	4.10	1.80	1	St	Yf	P	11	4	0	0	NA	M,C	<1mm, 2-6mm	No comments
59+90.40	F	110	88	2.70	2.50	4.10	2.20	1	Rk	In	P	11	4	0	0	NA	M,C	<1mm, 2-4mm	No comments
59+90.60	F	145	78	3.20	4.50	6.10	4.80	2	Rk	Yf	P	11	4	0	0	NA	M,C	<1mm, 0-5mm	No comments
59+91.35	F	030	78	0.93	0.55	1.40	0.35	2	Tvpp	Yf	I	11	3	0	4	NA	C	spotty	No comments
59+91.70	F	005	80	0.90	0.90	0.40	1.15	2	Yf	Yf	P	11	5	0	0	NA	M	<1mm	No comments
59+92.36	F	170	80	0.00	1.30	0.25	1.30	2	Tf	Yf	I	11	2	0	0	NA	C	spotty	UT is 0.20m below tapeline
59+92.80	F	150	74	3.30	0.45	3.50	1.10	2	Rk	Sh	P	11	4	0	0	NA	C,M	patchy, <1mm	No comments

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
Compiled by: Sheldon K Johnson

Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
59+93.14	SH	238	88	2.70	1.60	4.10	0.80	2	Yf	Ysh	P	21	4	0	0	UNK	Br,C,M	4-6mm, 4-6mm, coating	reverse offset
59+93.46	F	210	78	1.20	0.00	1.06	0.15	2	Ysh	Rk	I	11	3	0	0	NA	M	<1mm	LT is at tapeline
59+93.95	F	145	75	1.92	1.13	1.86	1.50	2	Rk	Yf	P	11	4	0	0	NA	M	<1mm	No comments
59+94.65	F	148	80	0.48	3.56	3.00	5.20	2	Rk	Yf	P	11	4	0	0	NA	M	<1mm	No comments
59+94.80	F	150	76	2.00	5.20	4.10	6.10	1	Tf	In	P	11	5	0	0	NA	M	<1mm	No comments
59+95.41	SH	143	80	3.80	4.30	5.80	5.10	1	Rk	In	P	11	4	0	0	UNK	M,C	<1mm, 2-3mm	reverse offset
59+95.43	F	225	80	0.00	2.70	2.10	2.20	1	Tsh	In	I	11	3	0	0	NA	M	<1mm	UT is 0.05m below tapeline
59+96.10	F	250	85	1.90	1.80	3.40	0.80	2	Tf	Yf	P	11	4	0	0	NA	M	<1mm	No comments
59+97.33	F	160	79	1.60	2.40	2.30	3.40	2	Rk	Yf	P	12	5	0	0	NA	M,O,C	<1mm, 0-2mm, 0-2mm	possible cooling joint

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Detailed Line Survey-Data Collected from Station 55+00 to 60+00
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Station	Typ	Attitude		Trace Length		Ht(m)	Wd(m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
59+97.65	SH	155	80	4.00	4.00	5.00	4.30	1	Yf	O	P	12	5	0	2	UNK	M,O,C	<1mm, 0-2mm, 0-2mm	possible reactivated cooling joint offsets two other fractures, normal offset, lower part of fracture contains 20mm crushed rock breccia, mostly sand sized particles (Ja 13)
59+98.21	F	250	90	1.65	0.45	2.00	0.30	2	Rk	Tf	P	12	5	0	8	NA	M,Bx	<1mm, 0-40mm	planarity is planar except is curved below tapeline, radius 0.1m, Ja is 12 except is 13 below tapeline

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
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Main Drift and South Ramp, Exploratory Studies Facility, Yucca Mountain Project
Detailed Line Survey-Data Collected from Station 55+00 to 60+00
Collected under GP-32, R0, SCP Study Number 8.3.1.4.2.2.4

Station	Typ	Attitude		Trace Length		Ht (m)	Wd (m)	E	UT	LT	Pl	Ja	Rgh	Aptr mm		Off set	Infill type	Infill thick	Comments
		Str	Dip	A (m)	B (m)									Min	Max	m			
59+98.32	F	260	89	1.80	0.50	2.10	0.30	2	Yf	Tf	P	12	5	0	0	NA	M,V	<1mm, 0-2mm	No comments
59+98.34	F	158	80	4.00	3.30	5.00	4.30	2	Yf	Yf	P	12	5	0	0	NA	M	<1mm	No comments
59+98.47	CJ	266	88	2.20	2.70	3.80	1.50	1	Rk	O	P	12	5	0	0	NA	V	0-2mm	offset 0.04m up stationing by fracture 59+97.65, 0.6m below tapeline
59+98.65	F	145	74	0.48	5.10	2.30	4.80	1	Rk	O	P	12	5	0	0	NA	M,V	<1mm, 0-2mm	No comments
59+99.30	F	158	75	5.00	0.00	3.50	1.70	2	Yf	Rk	P	12	5	0	0	NA	M,V	<1mm	LT is 0.18m above tapeline
59+99.35	SH	210	83	2.40	4.70	3.00	4.60	2	Rk	Rk	P	12	5	0	0	0.02	M,V	<1mm	offset occurs on only small part of fracture
59+99.95	F	155	78	1.70	0.00	0.90	1.10	2	Yf	Rk	P	12	5	0	0	NA	M	<1mm	LT is 0.05m above tapeline

Line Survey Mappers: Gary Turlington, Jim Rogers, Donna Sinks, Tom Moyer, Alton Albin, Jim Bowen, Arthur Lee, Dawn Gonzales

Traceline Location: ESF Tunnel, Main Drift and South Ramp, Station 55+00 to 60+00
Dates Mapped: June 4, 1996 to July 2, 1996
Compiled by: Sheldon K Johnson

Abbreviations for Detailed Line Surveys
to be used in Conjunction with Technical Procedure NWM-USGS-GP-32

Heading Abbreviations

Typ - Discontinuity Type
Str - Strike Azimuth
Trace Length
  A - Length above traceline
  B - Length below traceline
Ht - Length of fracture trace along dip
Wd - width of fracture trace along strike
E - ends in fracture in natural medium
UT - Upper Termination
LT - Lower Termination
PI - Planarity
J_a - Joint Alteration Number
Rgh - Roughness Coefficient
Aptr - aperture of fracture
JRC - joint roughness coefficient
Offset - amount of offset along shear of fault
Infill type - infilling type
Infill thick - infilling thickness

Discontinuity Type

F - Fracture
CJ - Cooling Joint
VPP - Vapor Phase Parting
FLT - Fault
SH - Shear (<10cm disp.)
FZ - Fault Zone

Planarity

P - Planar
I - Irregular
U - Undulating (give wavelength (W) and amplitude (A).
C - Curved (give radius)

Joint Alteration Number - J_a

rock wall contact
  Ja.11 tightly healed, hard filling
  Ja.12 unaltered surface stain only
  Ja.13 slightly altered, non softening coating, sandy particles
  Ja.14 silty or sandy clay coatings, little clay
  Ja.15 softening or clay mineral coatings

rock wall contact before 10 cm shear
  Ja.21 sandy particles, clay free disintegrated rock
  Ja.22 over consolidated, non softening clay mineral fillings (<5mm)
  Ja.23 medium or low over consolidation, softening, clay mineral fillings (<5mm)
  Ja.24 swelling clay fillings

no rock wall contact
  Ja.31 zones of disintegrated or crushed rock
  Ja.32 zones of silty or sandy clay
  Ja.33 thick zones of clay

Aperture

Aperture is the open, unfilled distance between the sides of a fracture measured perpendicular to the sides (in mm, give max and min).

Terminations
(UT and LT)

Rk - ends blindly in rock mass
St - end not visible behind ground support
In - fracture extends under precast invert segments
T(discontinuity type) - (angle >45°) such as TF ends in a fracture
Y(discontinuity type)- (angle<45°) such as Yflt ends in a fault
VPP - ends in Vapor Phase Parting
L - ends in lithophysae
C - Crown
Air - Fracture (usually subparallel to tunnel) termination has been excavated
O - obscured

Roughness Coefficient - Rgh

R1 - Stepped, Near-normal steps and ridges occur on the fracture surface
R2 - Rough, Large, angular asperities can be seen
R3 - Moderately rough, asperities are clearly visible and fracture surface feels abrasive
R4 - Slightly rough, small asperities on the fracture surface are visible and can be felt
R5 - Smooth, no asperities, smooth to the touch
R6 - Polished, extremely smooth and shiny

Infilling Type

C - Calcite
F - Fluorite
O - Opal
Q - Quartz
S - Silica (amorphous)
V - Vapor-phase minerals
M - Manganese Oxides
Z - Zeolites
Io - Iron oxides
Fg -Fault Gouge
Fr - Fault Rubble
Br- Broken or crushed rock and sand
Ar - Clay
Bx - Breccia
U - Unknown mineral

Joint Roughness Coefficient

Values range from 1 (smooth) to 19 (rough); values determined by comparison of carpenters shape copier with standard profile; values appear on electronic file, but not on printout

Miscellaneous

NA - Not applicable
NR - Not recorded