Golder Associates Ltd.

1011 6th Avenue S.W.
Calgary, Alberta, Canada T2P 0W1
Telephone (403) 299-5600
Fax (403) 299-5606

REPORT ON

001513

1995 ANNUAL GEOTECHNICAL PERFORMANCE EVALUATION and INSTRUMENTATION DATA REPORT FARO MINE YUKON VOLUME II

Submitted to:

Anvil Range Mining Corporation
Faro, Yukon
Y0B 1K0

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March 1996

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LIST OF OPERATIONAL INSTRUMENTS 1995

Reference Number	Reference Line Chainage	Instrument
BH85-4	2+03	Hydraulic piezometer
BH88-15	1+92	Shallow pneumatic piezometer Intermediate pneumatic piezometer Deep pneumatic piezometer
BH85-2	2+04	Hydraulic piezometer
BH88-16	1+71	Shallow pneumatic piezometer Deep pneumatic piezometer
BH85-3	1+30	Hydraulic piezometer
BH85-1	2+04	Hydraulic piezometer
BH85-5	1+27	Hydraulic piezometer Thermistor
BH85-6	1+32	Hydraulic piezometer

FRESH WATER SUPPLY DAM

PIEZOMETERS

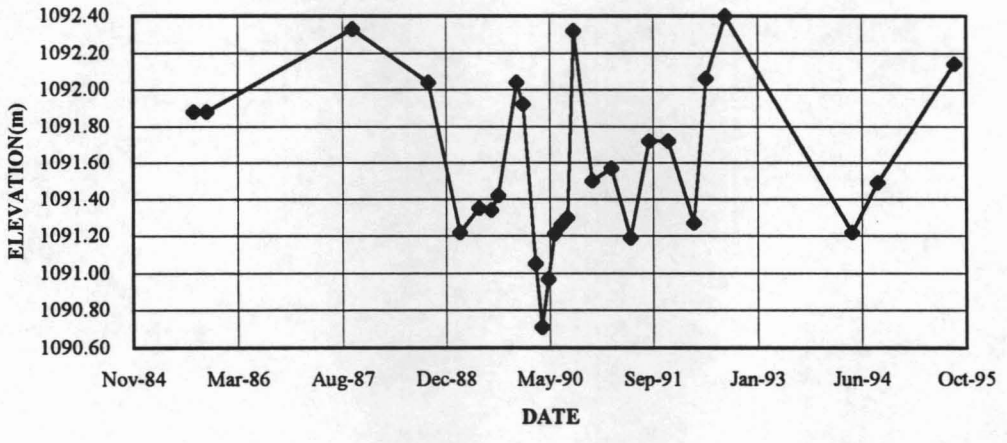
Anvil Range Mining Corp.

Faro Mine Instrumentation
Fresh Water Supply Dam

BH85-4	Location:	Fresh Water Supply Dam	Ground Elevation:	1098.89	Coordinates:	
	Date Installed:	1985	Tip Elev.:	1089.2	Surface	
			Stick-up:	0.61/0.46/0.75	Protector:	yes

Date	Water level from top of pipe	Piezometric Elevation(m)
Sep-85	7.62	1091.88
Nov-85	7.62	1091.88
Oct-87	7.17	1092.33
Oct-88	7.46	1092.04
Mar-89	8.13	1091.22
Jun-89	8.00	1091.35
Aug-89	8.01	1091.34
Sep-89	7.93	1091.42
Dec-89	7.31	1092.04
Jan-90	7.43	1091.92
Mar-90	8.30	1091.05
Apr-90	8.64	1090.71
May-90	8.38	1090.97
Jun-90	8.14	1091.21
Jul-90	8.09	1091.26
Aug-90	8.05	1091.30
Sep-90	7.03	1092.32
Dec-90	7.85	1091.50
Mar-91	7.78	1091.57
Jun-91	8.16	1091.19
Sep-91	7.63	1091.72
Dec-91	7.63	1091.72
Jan-92		
Apr-92	8.08	1091.27
Jun-92	7.29	1092.06
Sep-92	6.95	1092.40
May-94	8.42	1091.22
Sep-94	8.15	1091.49
Sep-95	7.50	1092.14

HYDRAULIC PIEZOMETER BH85-4



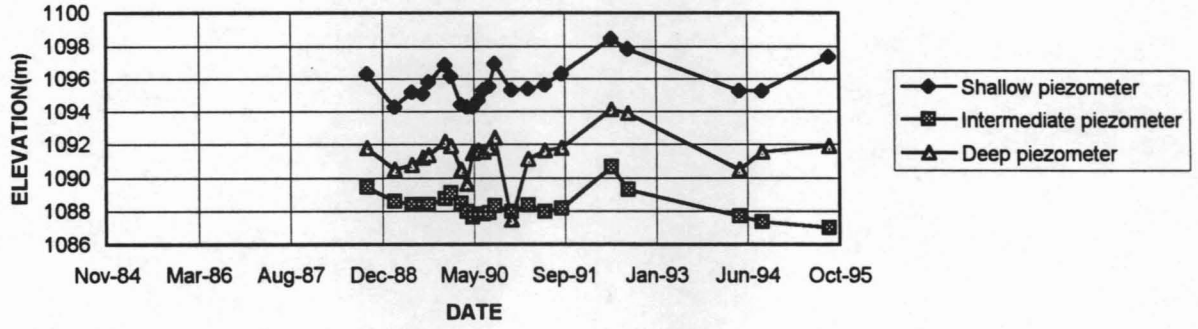
Anvil Range Mining Corp.

Faro Mine Instrumentation
Fresh Water Supply Dam

BH88-15	Location:	Fresh Water Supply Dam	Ground Elevation:	1098.90	Coordinates:
	Date Installed:	1988	Shallow Tip Elevation:	1094.20	Surface
			Intermediate Elevation:	1087.00	Protector: yes
			Deep Tip Elevation :	1079.30	

Date	Reading (psi)			Piezometric Elevation (m)		
	Shallow	Intermediate	Deep	Shallow	Intermediate	Deep
Sep-85						
Nov-85						
Oct-87						
Oct-88	3.00	3.50	17.80	1096.3	1089.45	1091.76
Mar-89	0.10	2.30	16.00	1094.27	1088.61	1090.5
Jun-89	1.40	2.00	16.40	1095.18	1088.40	1090.78
Aug-89	1.25	2.00	17.00	1095.08	1088.40	1091.2
Sep-89	2.30	2.00	17.20	1095.81	1088.40	1091.34
Dec-89	3.80	2.50	18.40	1096.86	1088.75	1092.18
Jan-90	2.80	3.00	18.00	1096.16	1089.10	1091.9
Mar-90	0.30	2.10	16.00	1094.41	1088.47	1090.5
Apr-90	0.10	1.40	14.80	1094.27	1087.98	1089.66
May-90	0.10	0.90	17.40	1094.27	1087.63	1091.48
Jun-90	0.70	1.20	17.60	1094.69	1087.84	1091.62
Jul-90	1.60	1.20	17.50	1095.32	1087.84	1091.55
Aug-90	1.90	1.30	17.80	1095.53	1087.91	1091.76
Sep-90	3.90	1.90	18.70	1096.93	1088.33	1092.39
Dec-90	1.60	1.40	11.65	1095.32	1087.98	1087.455
Mar-91	1.70	1.95	16.90	1095.39	1088.37	1091.13
Jun-91	2.00	1.40	17.60	1095.60	1087.98	1091.62
Sep-91	3.00	1.65	17.80	1096.30	1088.16	1091.76
Dec-91	4.20	2.70	18.50			
Jan-92						
Apr-92						
Jun-92	6.05	5.20	21.15	1098.44	1090.64	1094.105
Sep-92	5.20	3.30	20.80	1097.84	1089.31	1093.86
May-94	1.50	1.00	16.00	1095.25	1087.70	1090.5
Sep-94	1.50	0.50	17.50	1095.25	1087.35	1091.55
Sep-95	4.50	0.00	18.00	1097.35	1087.00	1091.9

PNEUMATIC PIEZOMETER BH88-15



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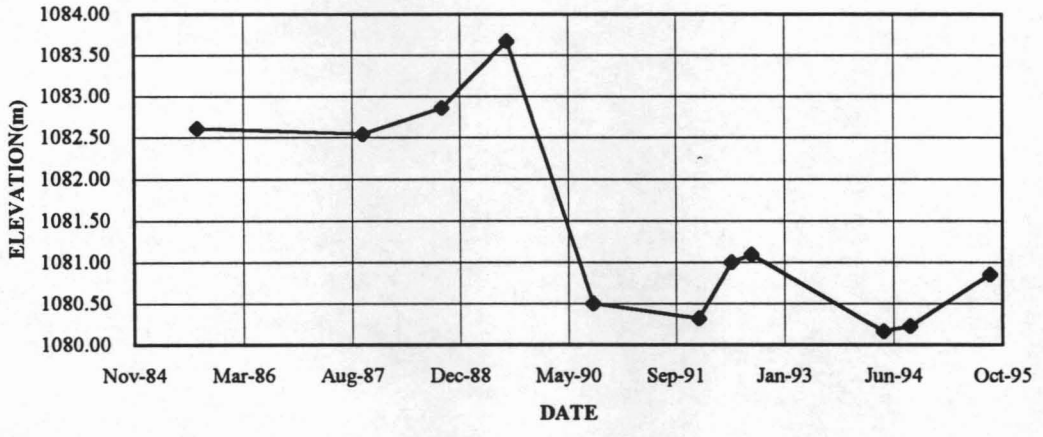
Anvil Range Mining Corp.

Faro Mine Instrumentation
Fresh Water Supply Dam

BH85-2	**Location:**	Fresh Water Supply Dam	**Ground Elevation:**	1082.4	**Coordinates:**	
	Date Installed:	1985	**Tip Elev.:**	1078.75	**Surface**	
			Stick-up:	2.1m/1.51m	**Protector:**	yes

Date	Water level from top of pipe	Piezometric Elevation(m)
Sep-85	1.89	1082.61
Nov-85	Frozen	
Oct-87	1.96	1082.54
Oct-88	1.64	1082.86
Mar-89		
Jun-89		
Aug-89	0.83	1083.67
Sep-89		
Dec-89		
Jan-90	Frozen	
Mar-90	Frozen	
Apr-90	Dry	
May-90	Dry	
Jun-90	Dry	
Jul-90	Dry	
Aug-90	Dry	
Sep-90	4.00	1080.50
Dec-90	-	
Mar-91	dry	
Jun-91	blocked	
Sep-91	blocked	
Dec-91	-	
Jan-92	4.18	1080.32
Apr-92	blocked	
Jun-92	3.50	1081.00
Sep-92	3.41	1081.09
May-94	3.75	1080.16
Sep-94	3.68	1080.23
Sep-95	3.06	1080.85

HYDRAULIC PIEZOMETER BH85-2



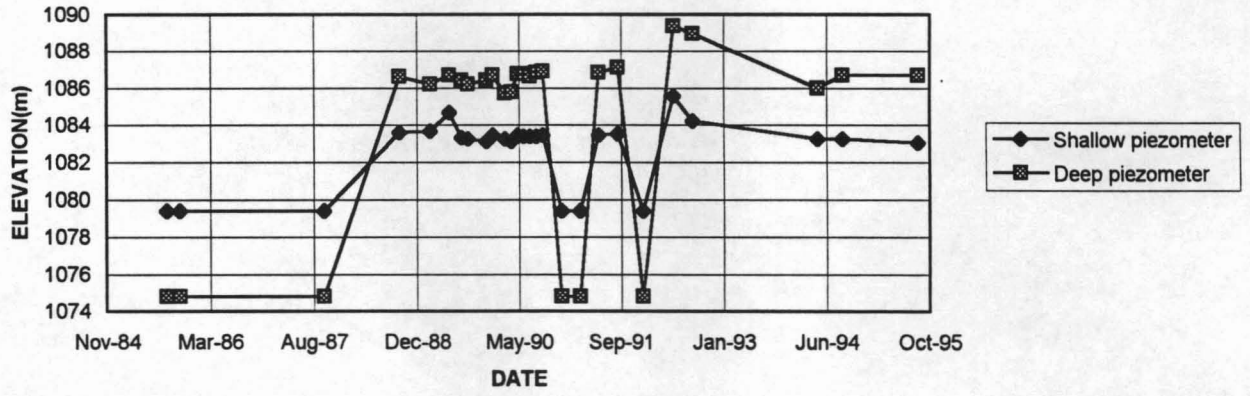
Anvil Range Mining Corp.

Faro Mine Instrumentation
Fresh Water Supply Dam

BH88-16	Location:	Fresh Water Supply Dam	Ground Elevation:	1084.00	Coordinates:	
	Date Installed:	1988	Shallow Tip Elevation:	1079.40	Surface Protector:	yes
			Deep Tip Elevation :	1074.80		

Date	Reading (psi)		Piezometric Elevation (m)	
	Shallow	Deep	Shallow	Deep
Sep-85			1079.4	1074.8
Nov-85			1079.4	1074.8
Oct-87			1079.4	1074.8
Oct-88	6.00	16.90	1083.6	1086.63
Mar-89	6.10	16.30	1083.67	1086.21
Jun-89	7.50	17.00	1084.65	1086.7
Aug-89	5.60	16.60	1083.32	1086.42
Sep-89	5.50	16.30	1083.25	1086.21
Dec-89	5.30	16.60	1083.11	1086.42
Jan-90	5.80	17.00	1083.46	1086.7
Mar-90	5.50	15.60	1083.25	1085.72
Apr-90	5.30	15.70	1083.11	1085.79
May-90	5.80	17.10	1083.46	1086.77
Jun-90	5.70	17.10	1083.39	1086.77
Jul-90	5.70	16.90	1083.39	1086.63
Aug-90	5.70	17.20	1083.39	1086.84
Sep-90	5.80	17.30	1083.46	1086.91
Dec-90			1079.4	1074.8
Mar-91			1079.4	1074.8
Jun-91	5.80	17.20	1083.46	1086.84
Sep-91	5.90	17.60	1083.53	1087.12
Dec-91	-	-		
Jan-92			1079.4	1074.8
Apr-92	buried	buried		
Jun-92	8.80	20.80	1085.56	1089.36
Sep-92	6.90	20.20	1084.23	1088.94
May-94	5.50	16.00	1083.25	1086
Sep-94	5.50	17.00	1083.25	1086.7
Sep-95	5.20	17.00	1083.04	1086.7

PNEUMATIC PIEZOMETER BH88-16



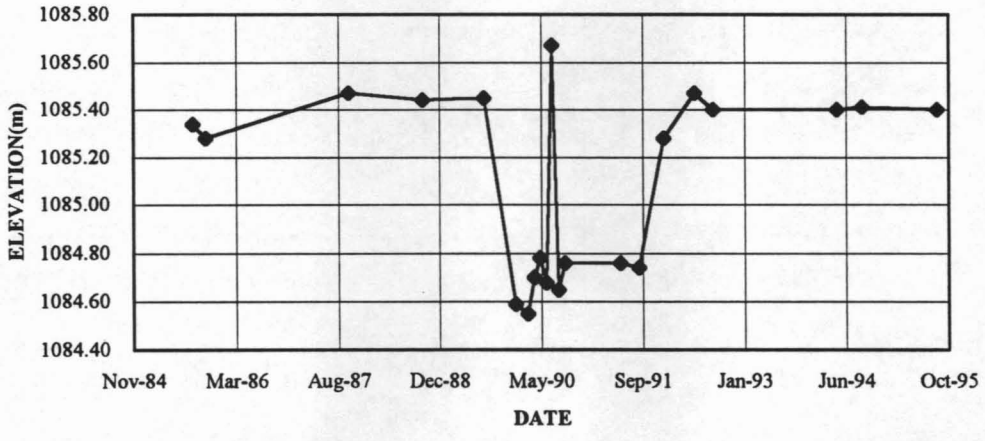
Anvil Range Mining Corp.

Faro Mine Instrumentation
Fresh Water Supply Dam

BH85-3	Location:	Fresh Water Supply Dam	Ground Elevation:	1087.34	Coordinates:	
	Date Installed:	1985	Tip Elev.:	1083.68	Surface Protector:	yes
			Stick-up:	0.53m/0.46m		

Date	Water level from top of pipe	Piezometric Elevation(m)
Sep-85	2.53	1085.34
Nov-85	2.59	1085.28
Oct-87	2.40	1085.47
Oct-88	2.43	1085.44
Mar-89		
Jun-89		
Aug-89	2.42	1085.45
Sep-89		
Dec-89		
Jan-90	3.28	1084.59
Mar-90	3.32	1084.55
Apr-90	3.17	1084.70
May-90	3.09	1084.78
Jun-90	3.19	1084.68
Jul-90	2.20	1085.67
Aug-90	3.22	1084.65
Sep-90	3.11	1084.76
Dec-90		
Mar-91	dry	
Jun-91	3.11	1084.76
Sep-91	3.13	1084.74
Dec-91		
Jan-92	2.59	1085.28
Apr-92		
Jun-92	2.40	1085.47
Sep-92	2.47	1085.40
May-94	2.40	1085.40
Sep-94	2.39	1085.41
Sep-95	2.40	1085.40

HYDRAULIC PIEZOMETER BH85-3



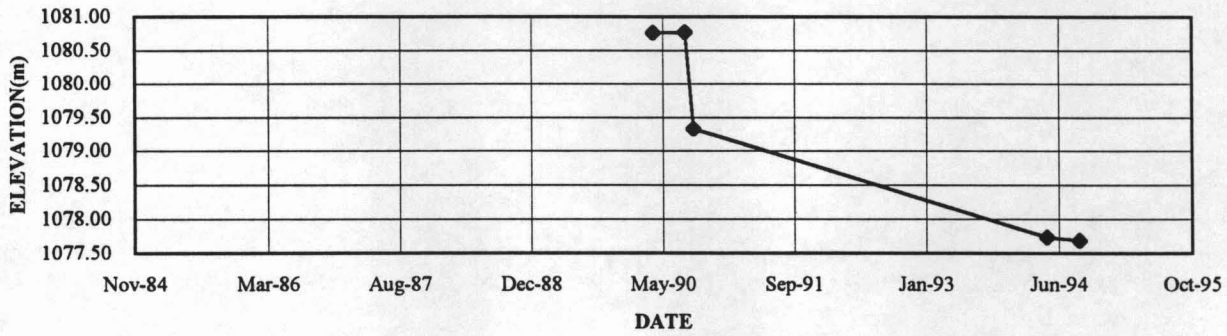
Anvil Range Mining Corp.

Faro Mine Instrumentation
Fresh Water Supply Dam

BH85-1	Location:	Fresh Water Supply Dam	Ground Elevation:	1078.68	Coordinates:	
	Date Installed:	1985	Tip Elev.:	1072.04	Surface Protector:	yes
			Stick-up:	2.1m/1.1m		

Date	Water level from top of pipe	Piezometric Elevation(m)
Sep-85	Artesian	
Nov-85	Frozen	
Oct-87	Artesian	
Oct-88	Artesian	
Mar-89		
Jun-89		
Aug-89	Artesian	
Sep-89		
Dec-89		
Jan-90	Frozen	
Mar-90	Frozen	
Apr-90	0.02	1080.76
May-90	Artesian	
Jun-90	Artesian	
Jul-90	Artesian	
Aug-90	0.01	1080.77
Sep-90	1.45	1079.33
Dec-90	-	
Mar-91	dry	
Jun-91	artesian	
Sep-91	artesian	
Dec-91	-	
Jan-92	buried	
Apr-92		
Jun-92		
Sep-92		
May-94	2.04	1077.74
Sep-94	2.09	1077.69
Sep-95	artesian	

HYDRAULIC PIEZOMETER BH85-1



Golder Associates

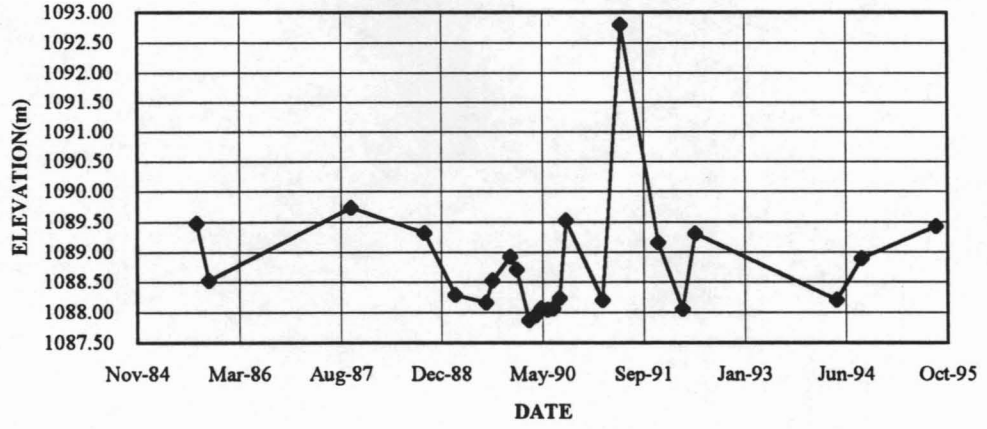
Anvil Range Mining Corp.

Faro Mine Instrumentation
Fresh Water Supply Dam

BH85-5	**Location:** Fresh Water Supply Dam	**Ground Elevation:**	1098.74	**Coordinates:**	
	Date Installed: 1985	**Tip Elev.:**	1087.31	**Surface**	
		Stick-up:	0.49/0.16/0.56	**Protector:**	yes

Date	Water level from top of pipe	Piezometric Elevation(m)
Sep-85	9.75	1089.48
Nov-85	10.70	1088.53
Oct-87	9.50	1089.73
Oct-88	9.91	1089.32
Mar-89	10.61	1088.29
Jun-89		
Aug-89	10.74	1088.16
Sep-89	10.38	1088.52
Dec-89	9.98	1088.92
Jan-90	10.19	1088.71
Mar-90	11.03	1087.87
Apr-90	10.95	1087.95
May-90	10.83	1088.07
Jun-90	10.85	1088.05
Jul-90	10.83	1088.07
Aug-90	10.66	1088.24
Sep-90	9.38	1089.52
Dec-90		
Mar-91	10.70	1088.20
Jun-91	6.10	1092.80
Sep-91	dry	
Dec-91	9.75	1089.15
Jan-92		
Apr-92	10.84	1088.06
Jun-92	9.60	1089.30
Sep-92	frozen	
May-94	11.09	1088.21
Sep-94	10.41	1088.89
Sep-95	9.88	1089.42

HYDRAULIC PIEZOMETER BH85-5

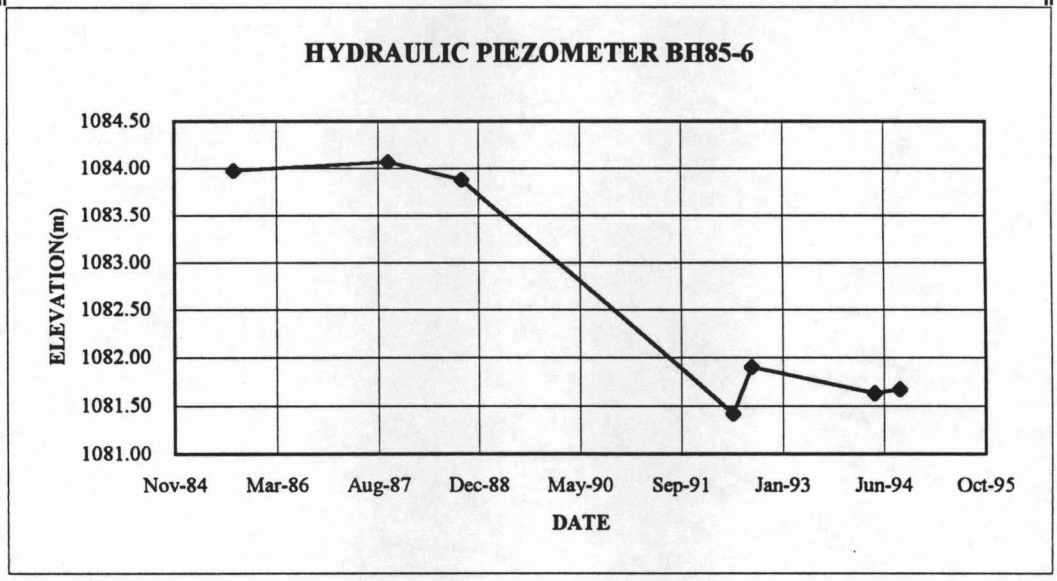


Anvil Range Mining Corp.

Faro Mine Instrumentation
Fresh Water Supply Dam

BH85-6	**Location:**	Fresh Water Supply Dam	**Ground Elevation:**	1083.74	**Coordinates:**	
	Date Installed:	1985	**Tip Elev.:**	1078.26	**Surface**	
			Stick-up:	0.48m/1.11m	**Protector:**	yes

Date	Water level from top of pipe	Piezometric Elevation(m)
Sep-85	0.25	1083.97
Nov-85	Frozen	
Oct-87	0.15	1084.07
Oct-88	0.34	1083.88
Mar-89		
Jun-89		
Aug-89	Gets stuck	
Sep-89		
Dec-89		
Jan-90	Frozen	
Mar-90	Frozen	
Apr-90	Dry	
May-90		
Jun-90	Dry	
Jul-90	Dry	
Aug-90	Dry	
Sep-90	Blocked	
Dec-90		
Mar-91	dry	
Jun-91	blocked	
Sep-91	dry	
Dec-91	-	
Jan-92	blocked	
Apr-92	blocked	
Jun-92	2.80	1081.42
Sep-92	2.32	1081.90
May-94	3.22	1081.63
Sep-94	3.18	1081.67
Sep-95		



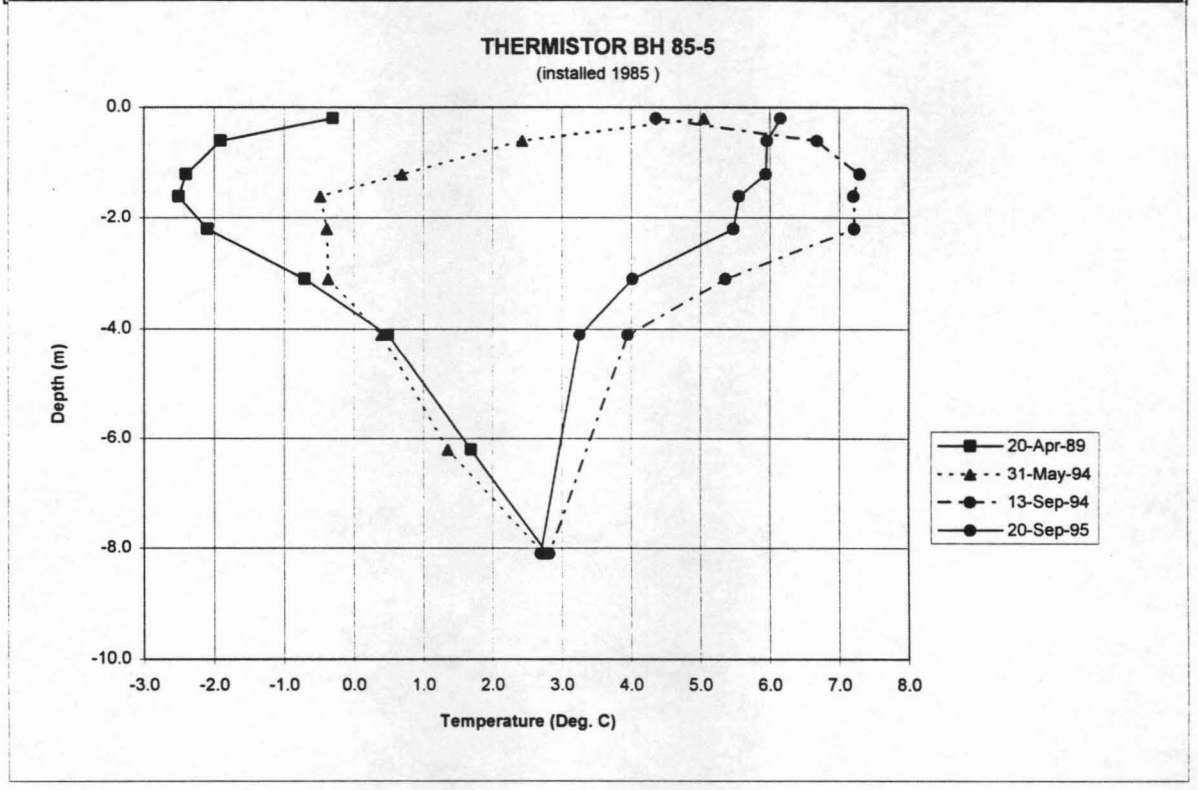
FRESH WATER SUPPLY DAM

THERMISTORS

BH 85-5	**Location:**	Fr. Water Supply Dam Cre	**Elevation:**	1098.74	**Coordinates:**	not available		
	Date Installed:	1985	**Thermistor Type:**	Cantec Controls YSI 44007	**Ice-Bath Calibration:**	not applied	**Surface Protector:**	yes
Depth Correction	0							

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 20-Apr-89	Resistivity (kOhms) 31-May-94	Resistivity (kOhms) 13-Sep-94	Resistivity (kOhms) 20-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
0.2	-0.2	16.54	12.63	13.07	11.96					
0.6	-0.6	17.89	14.34	11.61	12.03					
1.2	-1.2	18.45	15.74	11.32	12.10					
1.6	-1.6	18.53	16.69	11.36	12.32					
2.2	-2.2	18.22	16.68	11.40	12.42					
3.1	-3.1	16.93	16.64	12.47	13.33					
4.1	-4.1	15.94	16.02	13.39	13.86					
6.2	-6.2	14.96	15.22							
8.1	-8.1	14.18	14.22	14.16	14.25					

Depth on String (m)	Actual Depth (m)	Temperature (C) 20-Apr-89	Temperature (C) 31-May-94	Temperature (C) 13-Sep-94	Temperature (C) 20-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
0.2	-0.2	-0.30	5.06	4.37	6.16					
0.6	-0.6	-1.90	2.43	6.68	5.96					
1.2	-1.2	-2.40	0.69	7.30	5.94					
1.6	-1.6	-2.50	-0.47	7.21	5.56					
2.2	-2.2	-2.10	-0.38	7.22	5.48					
3.1	-3.1	-0.70	-0.37	5.36	4.02					
4.1	-4.1	0.50	0.40	3.95	3.26					
6.2	-6.2	1.70	1.35							
8.1	-8.1	2.80	2.74	2.83	2.70					



LIST OF OPERATIONAL INSTRUMENTS 1995

Reference Number	Reference Line Chainage	Instrument
CD4	0+400	Shallow pneumatic piezometer damaged Deep pneumatic piezometer tip #365 Thermistor
CD5	0+510	Thermistor
CD7	0+710	Pneumatic piezometer tip #391
CD9	0+960	Pneumatic piezometer tip#346
CD10	0+990	Slope Indicator Thermistor Pneumatic piezometer tip#367
CD13	1+350	Shallow pneumatic piezometer tip#350 Deep pneumatic piezometer tip#381
CD15	1+530	Slope Indicator Thermistor Shallow pneumatic piezometer tip#353 Deep pneumatic piezometer tip#362
CD17	1+705	Thermistor
BH91-CD-1	1+767	Slope Indicator
CD19	1+900	Slope Indicator Thermistor Shallow pneumatic piezometer.tip#365 Deep pneumatic piezometer tip#382
BH91-CD-2	1+998	Slope Indicator
CD20	2+000	Thermistor
BH81-125	2+100	Thermistor
CD21	2+100	Slope Indicator Thermistor Shallow pneumatic piezometer tip#345 Deep pneumatic piezometer tip#366

LIST OF OPERATIONAL INSTRUMENTS 1995

Reference Number	Reference Line Chainage	Instrument
BH88-06	2+115	Slope Indicator
BH88-07	2+115	Thermistor Shallow pneumatic piezometer tip#11342 Deep pneumatic piezometer tip#11338
BH88-10	2+160	Slope Indicator
BH88-11	2+160	Thermistor Shallow pneumatic piezometer tip#11345 Deep pneumatic piezometer tip#11337
BH94-CD-1	2+300	Slope Indicator
CD24	2+365	Thermistor
CD25	2+460	Thermistor
CD26	2+600	Thermistor Shallow pneumatic piezometer tip#349 Deep pneumatic piezometer tip#356
CD27	2+765	Thermistor
SP-2	1+530	Slope Indicator Thermistor
SP-3	1+900	Thermistor
SP-5	2+950	Slope Indicator Thermistor

Note: Following inclinomter probes were used to read the slope indicators

Inclinometer probe	Faro Mine	Golder	RST
Sensor S/N	SI-1000	50303-M	SM 92512
Year of reading	1988-1992	1994	1995
Instrument Constant	2500	25000	5000

DIVERSION CANAL DYKE

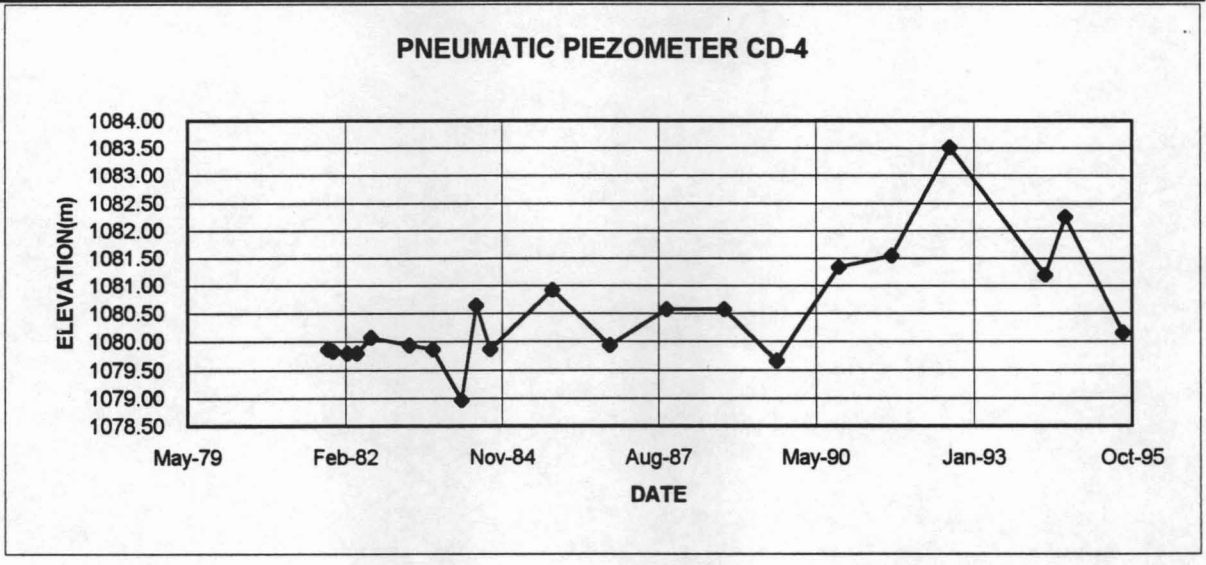
PIEZOMETERS

Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke

CD-4	Location: Canal Dyke St.0+400	Ground Elevation: 1089.70	Coordinates: 757.2N, 2050.7E
	Date Installed: 1981	Tip Elevation: 1078.40	Surface Protector: yes

Date	Reading (psi)	Piezometric Elevation (m)
Nov-81	2.1	1079.87
Dec-81	2.05	1079.84
Mar-82	2	1079.80
May-82	2	1079.80
Aug-82	2.4	1080.08
Apr-83	2.2	1079.94
Sep-83	2.1	1079.87
Mar-84	0.8	1078.96
Jun-84	3.2	1080.64
Sep-84	2.1	1079.87
Oct-85	3.6	1080.92
Oct-86	2.2	1079.94
Oct-87	3.1	1080.57
Jul-88		
Oct-88	3.1	1080.57
Mar-89		
Jun-89		
Aug-89		
Sep-89	1.8	1079.66
Jan-90		
Feb-90		
Mar-90		
Apr-90		
May-90		
Jun-90		
Jul-90		
Aug-90		
Oct-90	4.2	1081.34
Feb-91		
Mar-91		
Apr-91		
May-91		
Jun-91		
Jul-91		
Sep-91	4.5	1081.55
Apr-92		
Jun-92		
Sep-92	7.3	1083.51
May-94	4	1081.20
Sep-94	5.5	1082.25
Sep-95	2.5	1080.15

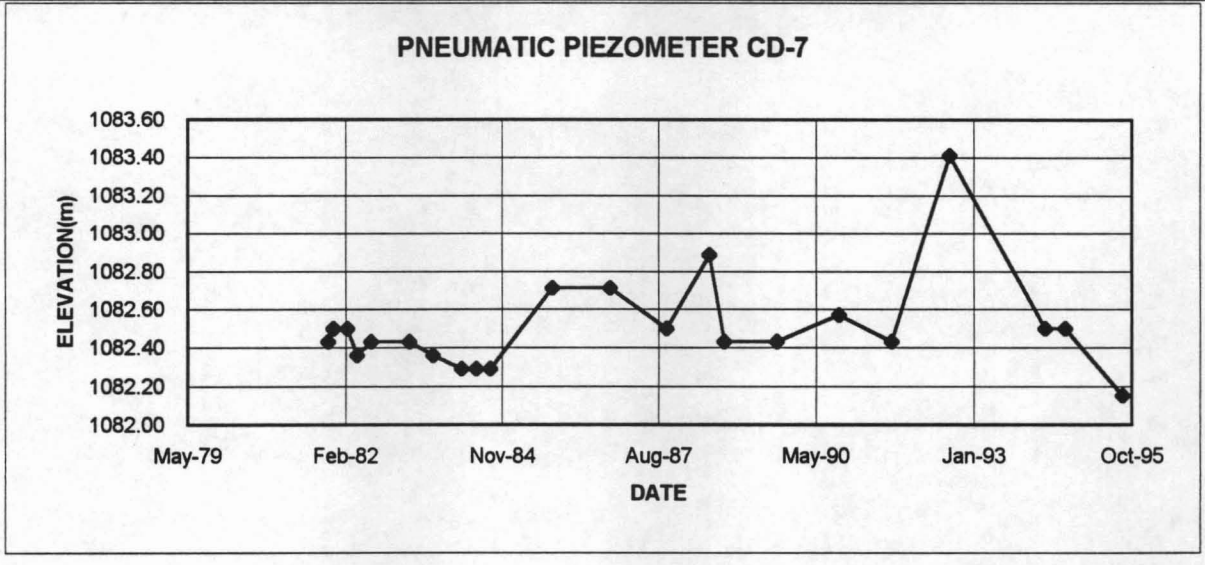


Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke

CD-7	Location: Canal Dyke St.0+710	Ground Elevation: 1089.40	Coordinates: 879.6N, 1793.3E
	Date Installed: 1981	Tip Elevation: 1081.80	Surface Protector: yes

Date	Reading (psi)	Piezometric Elevation (m)
Nov-81	0.9	1082.43
Dec-81	1	1082.50
Mar-82	1	1082.50
May-82	0.8	1082.36
Aug-82	0.9	1082.43
Apr-83	0.9	1082.43
Sep-83	0.8	1082.36
Mar-84	0.7	1082.29
Jun-84	0.7	1082.29
Sep-84	0.7	1082.29
Oct-85	1.3	1082.71
Oct-86	1.3	1082.71
Oct-87	1	1082.50
Jul-88	1.55	1082.89
Oct-88	0.9	1082.43
Mar-89		
Jun-89		
Aug-89		
Sep-89	0.9	1082.43
Jan-90		
Feb-90		
Mar-90		
Apr-90		
May-90		
Jun-90		
Jul-90		
Aug-90		
Oct-90	1.1	1082.57
Feb-91		
Mar-91		
Apr-91		
May-91		
Jun-91		
Jul-91		
Sep-91	0.9	1082.43
Apr-92		
Jun-92		
Sep-92	2.3	1083.41
May-94	1	1082.50
Sep-94	1	1082.50
Sep-95	0.5	1082.15

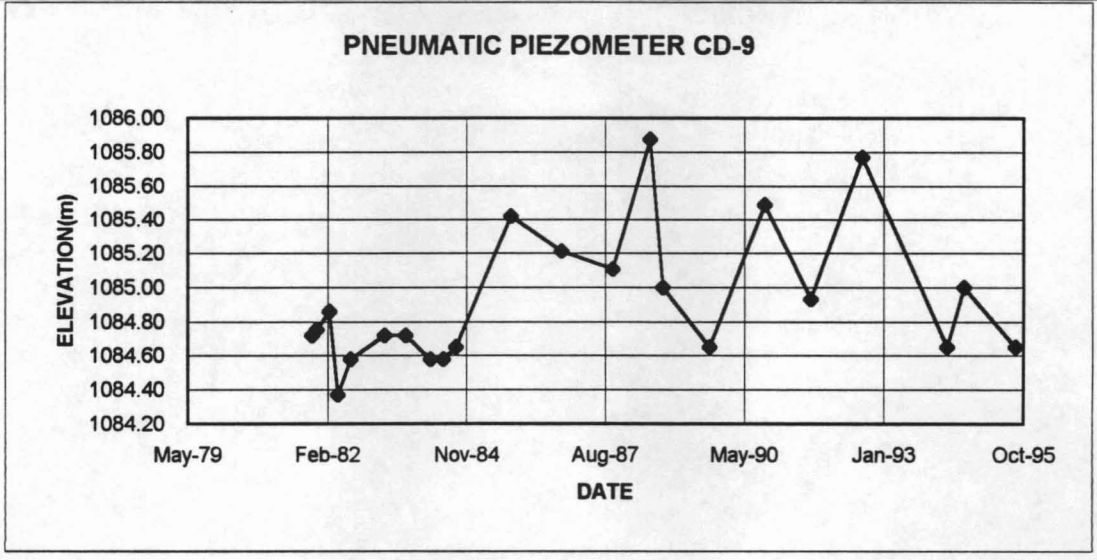


Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke

CD-9	Location: Canal Dyke St.0+960	Ground Elevation: 1088.60	Coordinates: 990.2N, 1552.2E
	Date Installed: 1981	Tip Elevation: 1083.60	Surface Protector: yes

Date	Reading (psi)	Piezometric Elevation (m)
Nov-81	1.6	1084.72
Dec-81	1.65	1084.76
Mar-82	1.8	1084.86
May-82	1.1	1084.37
Aug-82	1.4	1084.58
Apr-83	1.6	1084.72
Sep-83	1.6	1084.72
Mar-84	1.4	1084.58
Jun-84	1.4	1084.58
Sep-84	1.5	1084.65
Oct-85	2.6	1085.42
Oct-86	2.3	1085.21
Oct-87	2.15	1085.11
Jul-88	3.25	1085.88
Oct-88	2	1085.00
Mar-89		
Jun-89		
Aug-89		
Sep-89	1.5	1084.65
Jan-90		
Feb-90		
Mar-90		
Apr-90		
May-90		
Jun-90		
Jul-90		
Aug-90		
Oct-90	2.7	1085.49
Feb-91		
Mar-91		
Apr-91		
May-91		
Jun-91		
Jul-91		
Sep-91	1.9	1084.93
Apr-92		
Jun-92		
Sep-92	3.1	1085.77
May-94	1.5	1084.65
Sep-94	2	1085.00
Sep-95	1.5	1084.65

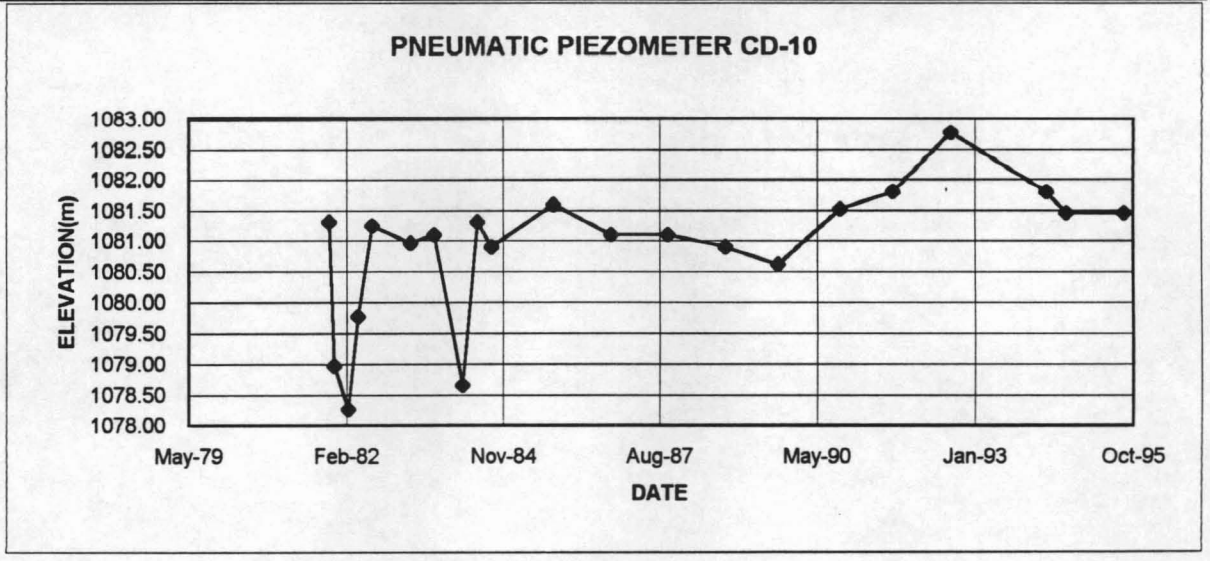


Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke

CD-10	Location: Canal Dyke St.0+990	Ground Elevation: 1088.30	Coordinates: 1008.7N, 1519.7E
	Date Installed: 1981	Tip Elevation: 1077.60	Surface Protector: yes

Date	Reading (psi)	Piezometric Elevation (m)
Nov-81	5.3	1081.31
Dec-81	1.95	1078.97
Mar-82	0.95	1078.27
May-82	3.1	1079.77
Aug-82	5.2	1081.24
Apr-83	4.8	1080.96
Sep-83	5	1081.10
Mar-84	1.5	1078.65
Jun-84	5.3	1081.31
Sep-84	4.7	1080.89
Oct-85	5.7	1081.59
Oct-86	5	1081.10
Oct-87	5	1081.10
Jul-88		
Oct-88	4.7	1080.89
Mar-89		
Jun-89		
Aug-89		
Sep-89	4.3	1080.61
Jan-90		
Feb-90		
Mar-90		
Apr-90		
May-90		
Jun-90		
Jul-90		
Aug-90		
Oct-90	5.6	1081.52
Feb-91		
Mar-91		
Apr-91		
May-91		
Jun-91		
Jul-91		
Sep-91	6	1081.80
Apr-92		
Jun-92		
Sep-92	7.4	1082.78
May-94	6	1081.80
Sep-94	5.5	1081.45
Sep-95	5.5	1081.45

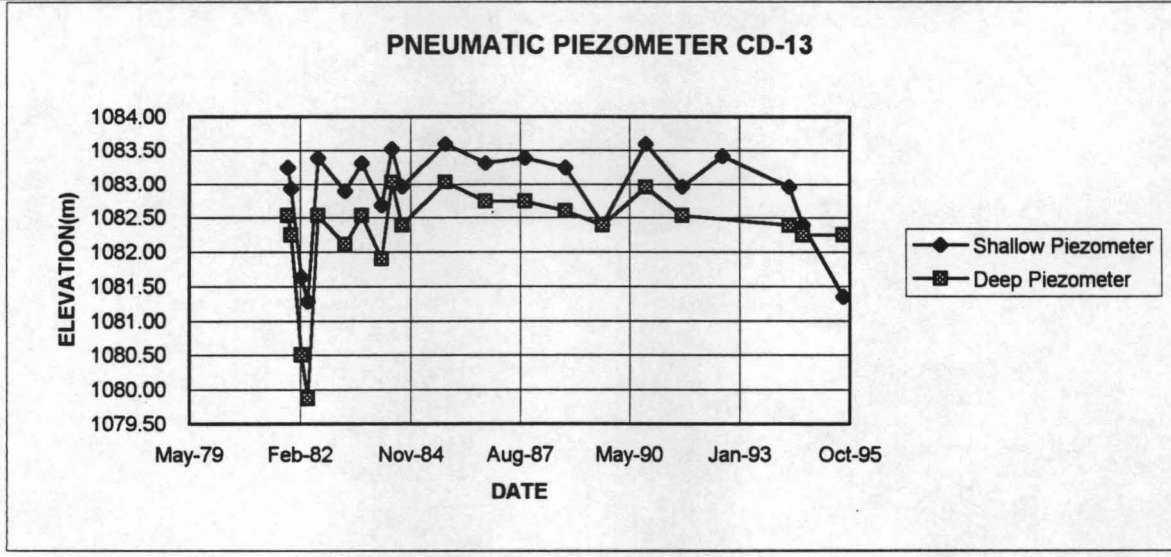


Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke

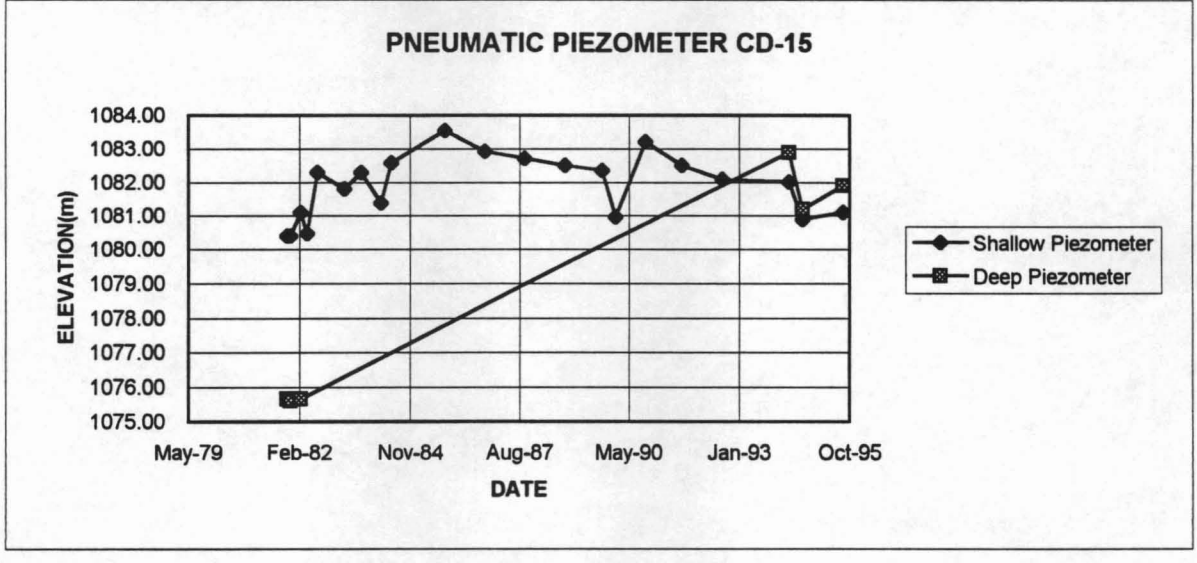
CD-13	Location: Canal Dyke St.1+350	Ground Elevation: 1087.60	Coordinates:
	Date Installed: 1981	Shallow Tip Elevation: 1081.00	Surface
		Deep Tip Elevation: 1077.00	Protector: yes

Date	Reading (psi)		Piezometric Elevation (m)	
	Shallow	Deep	Shallow	Deep
Nov-81	3.2	7.9	1083.24	1082.53
Dec-81	2.75	7.5	1082.93	1082.25
Mar-82	0.9	5	1081.63	1080.5
May-82	0.4	4.1	1081.28	1079.87
Aug-82	3.4	7.9	1083.38	1082.53
Apr-83	2.7	7.3	1082.89	1082.11
Sep-83	3.3	7.9	1083.31	1082.53
Mar-84	2.4	7	1082.68	1081.9
Jun-84	3.6	8.6	1083.52	1083.02
Sep-84	2.8	7.7	1082.96	1082.39
Oct-85	3.7	8.6	1083.59	1083.02
Oct-86	3.3	8.2	1083.31	1082.74
Oct-87	3.4	8.2	1083.38	1082.74
Jul-88				
Oct-88	3.2	8	1083.24	1082.6
Mar-89				
Jun-89				
Aug-89				
Sep-89	2	7.7	1082.40	1082.39
Jan-90				
Feb-90				
Mar-90				
Apr-90				
May-90				
Jun-90				
Jul-90				
Aug-90				
Oct-90	3.7	8.5	1083.59	1082.95
Feb-91				
Mar-91				
Apr-91				
May-91				
Jun-91				
Jul-91				
Sep-91	2.8	7.9	1082.96	1082.53
Apr-92				
Jun-92				
Sep-92	3.45		1083.42	
May-94	2.8	7.7	1082.96	1082.39
Sep-94	2	7.5	1082.40	1082.25
Sep-95	0.5	7.5	1081.35	1082.25



CD-15	Location: Canal Dyke St.1+530	Ground Elevation: 1087.00	Coordinat 1233.7N, 1028.7E
	Date Installed: 1981	Shallow Tip Elevation: 1080.40	Surface
		Deep Tip Elevation: 1075.60	Protector: yes

Date	Reading (psi)		Piezometric Elevation (m)	
	Shallow	Deep	Shallow	Deep
Nov-81	0	0.1	1080.40	1075.67
Dec-81	0	0.02	1080.40	1075.614
Mar-82	1	0.1	1081.10	1075.67
May-82	0.1		1080.47	
Aug-82	2.7		1082.29	
Apr-83	2		1081.80	
Sep-83	2.7		1082.29	
Mar-84	1.4		1081.38	
Jun-84	3.1		1082.57	
Sep-84				
Oct-85	4.5		1083.55	
Oct-86	3.6		1082.92	
Oct-87	3.3		1082.71	
Jul-88				
Oct-88	3		1082.50	
Mar-89				
Jun-89				
Aug-89				
Sep-89	2.8		1082.36	
Jan-90	0.8		1080.96	
Feb-90				
Mar-90				
Apr-90				
May-90				
Jun-90				
Jul-90				
Aug-90				
Oct-90	4		1083.20	
Feb-91				
Mar-91				
Apr-91				
May-91				
Jun-91				
Jul-91				
Sep-91	3		1082.50	
Apr-92				
Jun-92				
Sep-92	2.4		1082.08	
May-94	2.3	10.4	1082.01	1082.88
Sep-94	0.7	8	1080.89	1081.2
Sep-95	1	9	1081.10	1081.9

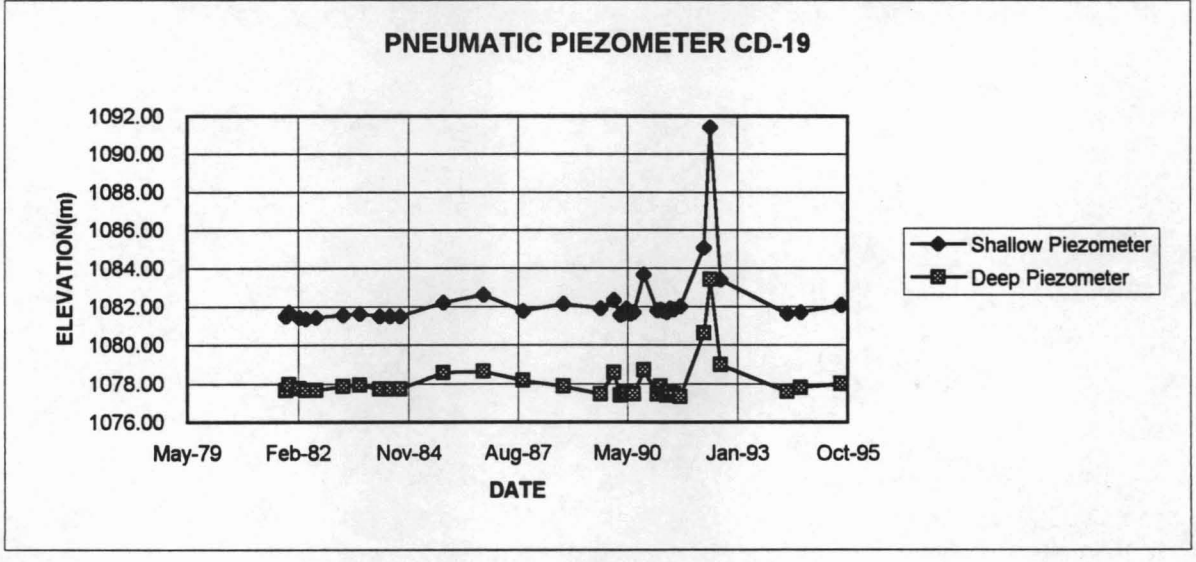


Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke

CD-19	Location: Canal Dyke St.1+900	Ground Elevation: 1086.30	Coordinat 1357.8N, 687.9E
	Date Installed: 1981	Shallow Tip Elevation: 1081.00	Surface Protector: yes
		Deep Tip Elevation: 1077.30	

Date	Reading (psi)		Piezometric Elevation (m)	
	Shallow	Deep	Shallow	Deep
Nov-81	0.7	0.5	1081.49	1077.65
Dec-81	1	0.92	1081.70	1077.944
Mar-82	0.6	0.65	1081.42	1077.755
May-82	0.5	0.5	1081.35	1077.65
Aug-82	0.6	0.5	1081.42	1077.65
Apr-83	0.8	0.8	1081.56	1077.86
Sep-83	0.9	0.9	1081.63	1077.93
Mar-84	0.7	0.6	1081.49	1077.72
Jun-84	0.7	0.6	1081.49	1077.72
Sep-84	0.7	0.6	1081.49	1077.72
Oct-85	1.7	1.8	1082.19	1078.56
Oct-86	2.3	1.9	1082.61	1078.63
Oct-87	1.1	1.2	1081.77	1078.14
Jul-88				
Oct-88	1.6	0.8	1082.12	1077.86
Mar-89				
Jun-89				
Aug-89				
Sep-89	1.3	0.2	1081.91	1077.44
Jan-90	1.9	1.8	1082.33	1078.56
Feb-90				
Mar-90	0.8	0.1	1081.56	1077.37
Apr-90	0.9	0.2	1081.63	1077.44
May-90	1.3	0.3	1081.91	1077.51
Jun-90	0.9	0.2	1081.63	1077.44
Jul-90	1	0.2	1081.70	1077.44
Aug-90				
Oct-90	3.8	2	1083.66	1078.7
Feb-91	1.15	0.2	1081.81	1077.44
Mar-91	1.2	0.8	1081.84	1077.86
Apr-91	1.1	0.24	1081.77	1077.468
May-91	1	0.1	1081.70	1077.37
Jun-91	1.3	0.4	1081.91	1077.58
Jul-91	1.2	0.25	1081.84	1077.475
Sep-91	1.4	0	1081.98	1077.3
Apr-92	5.8	4.75	1085.06	1080.625
Jun-92	14.9	8.7	1091.43	1083.39
Sep-92	3.4	2.4	1083.38	1078.98
May-94	0.9	0.4	1081.63	1077.58
Sep-94	1	0.7	1081.70	1077.79
Sep-95	1.5	1	1082.05	1078



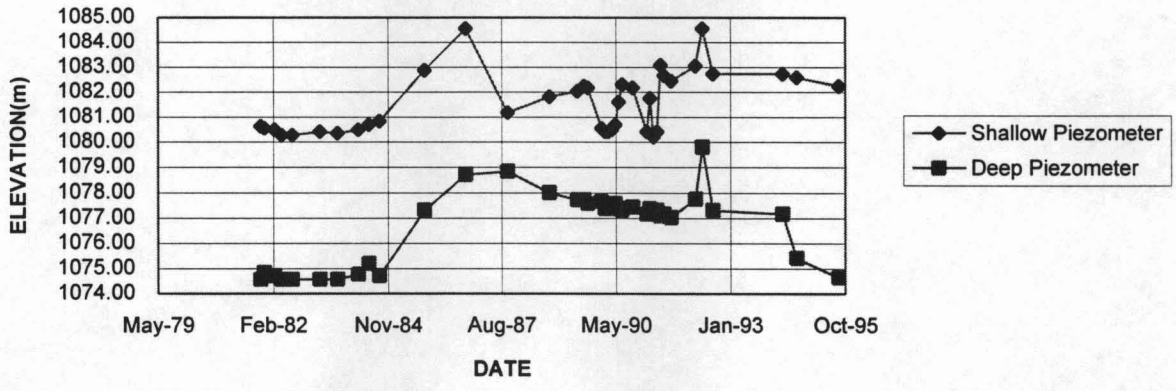
Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke

CD-21	Location: Canal Dyke St.2+100	Ground Elevation:	1085.90	Coordinat 1455.9N, 509.5E
	Date Installed: 1981	Shallow Tip Elevation:	1079.80	Surface
		Deep Tip Elevation:	1074.30	Protector: yes

Date	Reading (psi)		Piezometric Elevation (m)	
	Shallow	Deep	Shallow	Deep
Nov-81	1.2	0.4	1080.64	1074.58
Dec-81	1.1	0.78	1080.57	1074.85
Mar-82	1	0.6	1080.50	1074.72
May-82	0.7	0.4	1080.29	1074.58
Aug-82	0.7	0.4	1080.29	1074.58
Apr-83	0.9	0.4	1080.43	1074.58
Sep-83	0.8	0.4	1080.36	1074.58
Mar-84	1	0.7	1080.50	1074.79
Jun-84	1.3	1.3	1080.71	1075.21
Sep-84	1.5	0.6	1080.85	1074.72
Oct-85	4.4	4.3	1082.88	1077.31
Oct-86	6.8	6.3	1084.56	1078.71
Oct-87	2	6.5	1081.20	1078.85
Jul-88				
Oct-88	2.9	5.3	1081.83	1078.01
Mar-89				
Jun-89	3.2	4.9	1082.04	1077.73
Aug-89	3.5	4.9	1082.25	1077.73
Sep-89	3.4	4.7	1082.18	1077.59
Jan-90	1.1	4.8	1080.57	1077.66
Feb-90	0.9	4.4	1080.43	1077.38
Mar-90	0.9	4.5	1080.43	1077.45
Apr-90	1	4.6	1080.50	1077.52
May-90	1.3	4.7	1080.71	1077.59
Jun-90	2.6	4.4	1081.62	1077.38
Jul-90	3.6	4.3	1082.32	1077.31
Aug-90				
Oct-90	3.4	4.5	1082.18	1077.45
Feb-91	0.9	4.1	1080.43	1077.17
Mar-91	2.8	4.4	1081.76	1077.38
Apr-91	0.6	4.2	1080.22	1077.24
May-91	0.9	4.3	1080.43	1077.31
Jun-91	4.7	4	1083.09	1077.1
Jul-91	4.1	4.1	1082.67	1077.17
Sep-91	3.8	3.9	1082.46	1077.03
Apr-92	4.65	4.95	1083.06	1077.765
Jun-92	6.8	7.87	1084.56	1079.809
Sep-92	4.2	4.3	1082.74	1077.31
May-94	4.2	4.1	1082.74	1077.17
Sep-94	4	1.6	1082.60	1075.42
Sep-95	3.5	0.5	1082.25	1074.65

PNEUMATIC PIEZOMETER CD-21



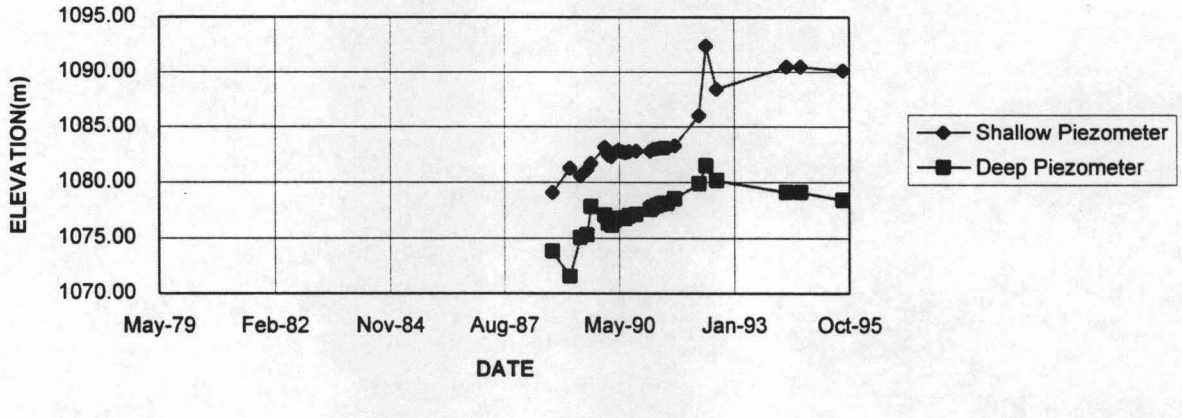
Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke

BH88-7	Location: Canal Dyke St. 2+120 (approx)	Ground Elevation: 1086.30	Coordinates:
	Date Installed: 1981	Shallow Tip Elevation: 1078.60	Surface
		Deep Tip Elevation: 1071.40	Protector: yes

Date	Reading (psi)		Piezometric Elevation (m)	
	Shallow	Deep	Shallow	Deep
Nov-81				
Dec-81				
Mar-82				
May-82				
Aug-82				
Apr-83				
Sep-83				
Mar-84				
Jun-84				
Sep-84				
Oct-85				
Oct-86				
Oct-87				
Jul-88				
Oct-88	0.7	3.45	1079.09	1073.82
Mar-89	3.8	0.2	1081.26	1071.54
Jun-89	2.8	5.2	1080.56	1075.04
Aug-89	3.6	5.6	1081.12	1075.32
Sep-89	4.4	9.2	1081.68	1077.84
Jan-90	6.5	8.1	1083.15	1077.07
Feb-90	5.5	7.1	1082.45	1076.37
Mar-90	5.3	6.8	1082.31	1076.16
Apr-90	5.8	7.4	1082.66	1076.58
May-90	6.1	7.7	1082.87	1076.79
Jun-90	5.9	7.7	1082.73	1076.79
Jul-90	5.8	7.7	1082.66	1076.79
Aug-90	5.9	8	1082.73	1077
Oct-90	6	8.2	1082.80	1077.14
Feb-91	6	8.8	1082.80	1077.56
Mar-91	6.2	9.1	1082.94	1077.77
Apr-91	6.3	9.3	1083.01	1077.91
May-91	6.4	9.5	1083.08	1078.05
Jun-91	6.4	9.6	1083.08	1078.12
Jul-91	6.4	9.6	1083.08	1078.12
Sep-91	6.7	10.2	1083.29	1078.54
Apr-92	10.6	12.1	1086.02	1079.87
Jun-92	19.7	14.4	1092.39	1081.48
Sep-92	14.1	12.5	1088.47	1080.15
May-94	17	11	1090.50	1079.1
Sep-94	17	11	1090.50	1079.1
Sep-95	16.5	10	1090.15	1078.4

PNEUMATIC PIEZOMETER BH88-7



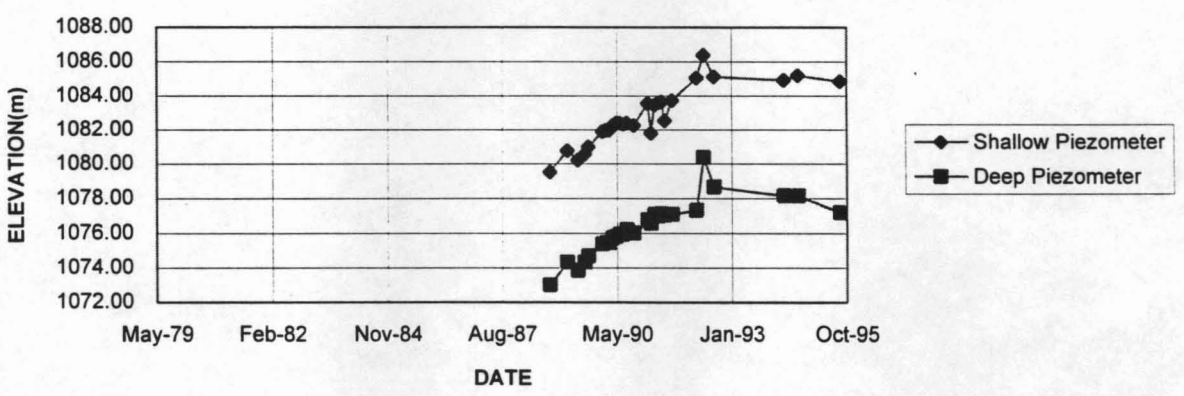
Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke

BH88-11	Location: Canal Dyke St. 2+160 (approx)	Ground Elevation:	1086.20	Coordinates:
	Date Installed: 1981	Shallow Tip Elevation:	1078.90	Surface
		Deep Tip Elevation:	1072.30	Protector: yes

Date	Reading (psi)		Piezometric Elevation (m)	
	Shallow	Deep	Shallow	Deep
Nov-81				
Dec-81				
Mar-82				
May-82				
Aug-82				
Apr-83				
Sep-83				
Mar-84				
Jun-84				
Sep-84				
Oct-85				
Oct-86				
Oct-87				
Jul-88				
Oct-88	0.9	1	1079.53	1073.00
Mar-89	2.7	2.9	1080.79	1074.33
Jun-89	1.9	2.2	1080.23	1073.84
Aug-89	2.4	2.9	1080.58	1074.33
Sep-89	3	3.4	1081.00	1074.68
Jan-90	4.3	4.4	1081.91	1075.38
Feb-90	4.4	4.5	1081.98	1075.45
Mar-90	4.4	4.5	1081.98	1075.45
Apr-90	4.8	4.9	1082.26	1075.73
May-90	5	5	1082.40	1075.8
Jun-90	5	5.2	1082.40	1075.94
Jul-90	4.9	5.2	1082.33	1075.94
Aug-90	5	5.6	1082.40	1076.22
Oct-90	4.8	5.3	1082.26	1076.01
Feb-91	6.65	6.4	1083.56	1076.78
Mar-91	4.15	6.1	1081.81	1076.57
Apr-91	6.5	6.85	1083.45	1077.10
May-91	6.7	6.7	1083.59	1076.99
Jun-91	6.8	6.9	1083.66	1077.13
Jul-91	5.2	6.8	1082.54	1077.06
Sep-91	6.9	6.85	1083.73	1077.095
Apr-92	8.8	7.2	1085.06	1077.34
Jun-92	10.7	11.55	1086.39	1080.39
Sep-92	8.9	9.1	1085.13	1078.67
May-94	8.6	8.4	1084.92	1078.18
Sep-94	9	8.4	1085.20	1078.18
Sep-95	8.5	7	1084.85	1077.2

PNEUMATIC PIEZOMETER BH88-11

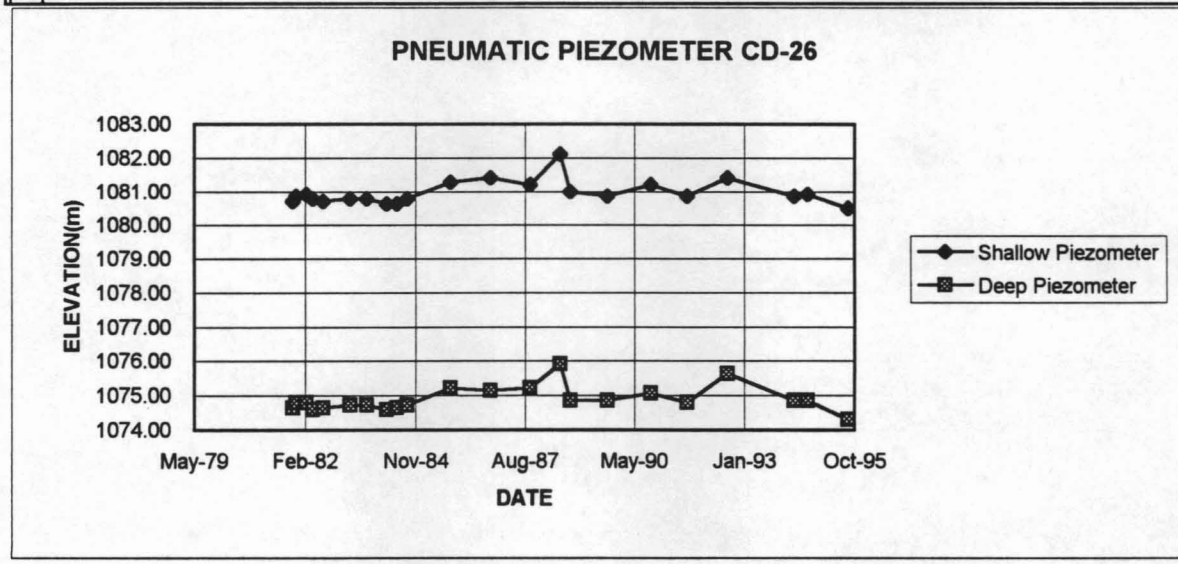


Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke

CD-26	Location: Canal Dyke St.2+600	Ground Elevation: 1085.50	Coordinat 1674.7N, 71.7E
	Date Installed: 1981	Shallow Tip Elevation: 1080.50	Surface
		Deep Tip Elevation: 1074.30	Protector: yes

Date	Reading (psi)		Piezometric Elevation (m)	
	Shallow	Deep	Shallow	Deep
Nov-81	0.3	0.5	1080.71	1074.65
Dec-81	0.5	0.7	1080.85	1074.79
Mar-82	0.6	0.7	1080.92	1074.79
May-82	0.4	0.4	1080.78	1074.58
Aug-82	0.3	0.5	1080.71	1074.65
Apr-83	0.4	0.6	1080.78	1074.72
Sep-83	0.4	0.6	1080.78	1074.72
Mar-84	0.2	0.4	1080.64	1074.58
Jun-84	0.2	0.5	1080.64	1074.65
Sep-84	0.4	0.6	1080.78	1074.72
Oct-85	1.1	1.3	1081.27	1075.21
Oct-86	1.3	1.2	1081.41	1075.14
Oct-87	1	1.3	1081.20	1075.21
Jul-88	2.3	2.3	1082.11	1075.91
Oct-88	0.7	0.8	1080.99	1074.86
Mar-89				
Jun-89				
Aug-89				
Sep-89	0.5	0.8	1080.85	1074.86
Jan-90				
Feb-90				
Mar-90				
Apr-90				
May-90				
Jun-90				
Jul-90				
Aug-90				
Oct-90	1	1.1	1081.20	1075.07
Feb-91				
Mar-91				
Apr-91				
May-91				
Jun-91				
Jul-91				
Sep-91	0.5	0.7	1080.85	1074.79
Apr-92				
Jun-92				
Sep-92	1.3	1.9	1081.41	1075.63
May-94	0.5	0.8	1080.85	1074.86
Sep-94	0.6	0.8	1080.92	1074.86
Sep-95	0	0	1080.50	1074.3



DIVERSION CANAL DYKE

THERMISTERS

Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke

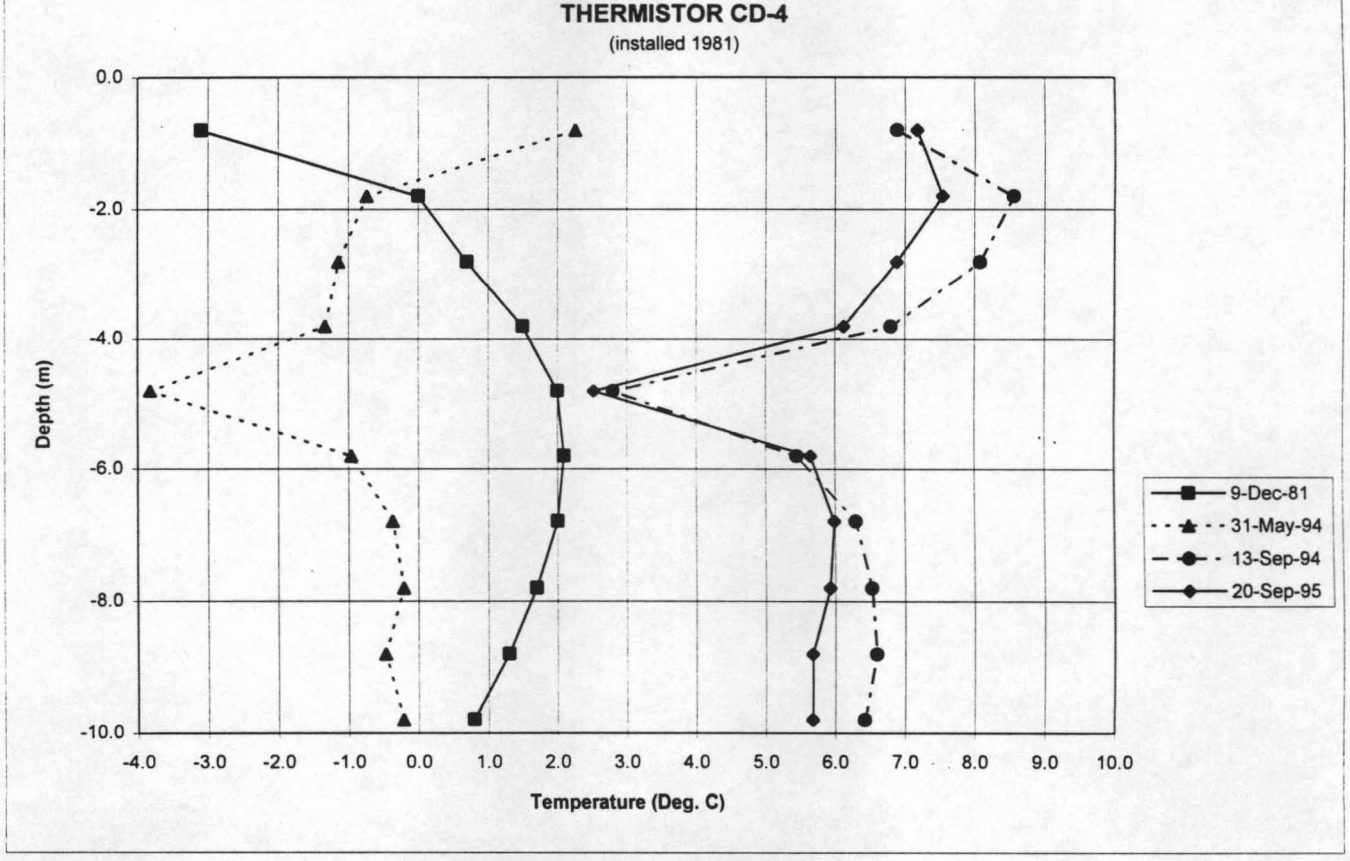
CD-4	Location:	Canal Dyke St. 0+400		Elevation:	1089.7 m	Coordinates	747.2 mN, 2057.0 mE
				Cantec			
Thermistor String #12	Date Installed:	1981	Thermistor Type:	Controls YSI 44007	Ice-Bath Calibration:	applied	Surface Protector: yes
Depth Correction	-0.2						

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 9-Dec-81	Resistivity (kOhms) 31-May-94	Resistivity (kOhms) 13-Sep-94	Resistivity (kOhms) 20-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
1.0	-0.8	19.01	14.45	11.48	11.32					
2.0	-1.8	16.22	16.84	10.59	11.13					
3.0	-2.8	15.62	17.16	10.82	11.47					
4.0	-3.8	15.03	17.37	11.54	11.93					
5.0	-4.8	14.58	19.66	14.00	14.20					
6.0	-5.8	14.52	16.96	12.28	12.16					
7.0	-6.8	14.64	16.51	11.82	12.00					
8.0	-7.8	14.86	16.37	11.68	12.03					
9.0	-8.8	15.16	16.59	11.64	12.18					
10.0	-9.8	15.53	16.35	11.72	12.16					

* The initial reading (Nov 15/81) is excluded from the data set because post-installation temperature equilibruim may not have been complete.

Depth on String (m)	Actual Depth (m)	Temperature (C) 9-Dec-81	Temperature (C) 31-May-94	Temperature (C) 13-Sep-94	Temperature (C) 20-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-0.8	-3.10	2.26	6.89	7.18					
2.0	-1.8	0.00	-0.73	8.57	7.55					
3.0	-2.8	0.70	-1.14	8.09	6.39					
4.0	-3.8	1.50	-1.33	6.81	6.13					
5.0	-4.8	2.00	-3.82	2.81	2.33					
6.0	-5.8	2.10	-0.96	5.45	5.65					
7.0	-6.8	2.00	-0.36	6.30	5.99					
8.0	-7.8	1.70	-0.21	6.53	5.93					
9.0	-8.8	1.30	-0.47	6.60	5.68					
10.0	-9.8	0.80	-0.21	6.43	5.68					

* The 5 metre depth tip is suspect



Golder Associates

Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke

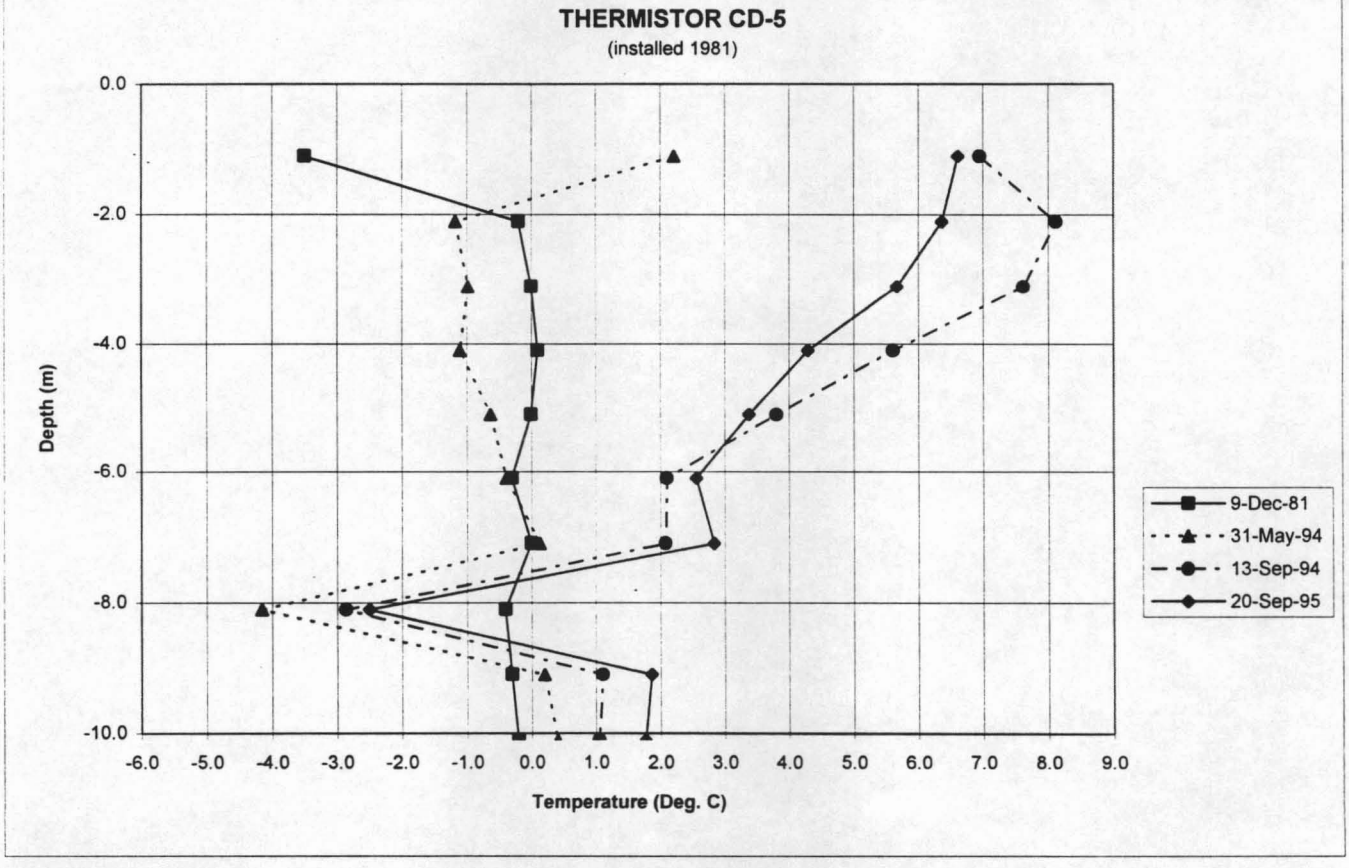
CD-5	Location:	Canal Dyke St. 0+510		Elevation:	1089.8 m	Coordinates	785.4 mN, 1955.3 mE
				Cantec			
Thermistor String #27	Date Installed:	1981	Thermistor Type:	Controls YSI 44007	Ice-Bath Calibration:	applied	Surface Protector: yes
Depth Correction	0.1						

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 9-Dec-81	Resistivity (kOhms) 31-May-94	Resistivity (kOhms) 13-Sep-94	Resistivity (kOhms) 20-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
1.0	-1.1	19.38	14.46	11.43	11.62					
2.0	-2.1	16.37	17.21	10.81	11.78					
3.0	-3.1	16.15	16.98	11.04	12.15					
4.0	-4.1	16.10	17.12	12.21	13.03					
5.0	-5.1	16.21	16.74	13.37	13.66					
6.0	-6.1	16.41	16.48	14.52	14.19					
7.0	-7.1	16.23	16.12	14.60	14.06					
8.0	-8.1	16.52	20.06	18.75	18.40					
9.0	-9.1	16.40	15.98	15.26	14.69					
10.0	-10.1	16.31	15.81	15.30	14.75					

* The initial reading (Nov 15/81) is excluded from the data set because post-installation temperature equilibruim may not have been complete.

Depth on String (m)	Actual Depth (m)	Temperature (C) 9-Dec-81	Temperature (C) 31-May-94	Temperature (C) 13-Sep-94	Temperature (C) 20-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-1.1	-3.50	2.22	6.95	6.62					
2.0	-2.1	-0.20	-1.17	8.12	6.37					
3.0	-3.1	0.00	-0.98	7.62	5.67					
4.0	-4.1	0.10	-1.10	5.61	4.30					
5.0	-5.1	0.00	-0.63	3.81	3.38					
6.0	-6.1	-0.30	-0.39	2.11	2.56					
7.0	-7.1	0.00	0.13	2.09	2.84					
8.0	-8.1	-0.40	-4.15	-2.86	-2.50					
9.0	-9.1	-0.30	0.21	1.11	1.87					
10.0	-10.1	-0.20	0.41	1.05	1.77					

* The 8 metre depth tip is suspect



Golder Associates

Anvil Range Mining Corp.

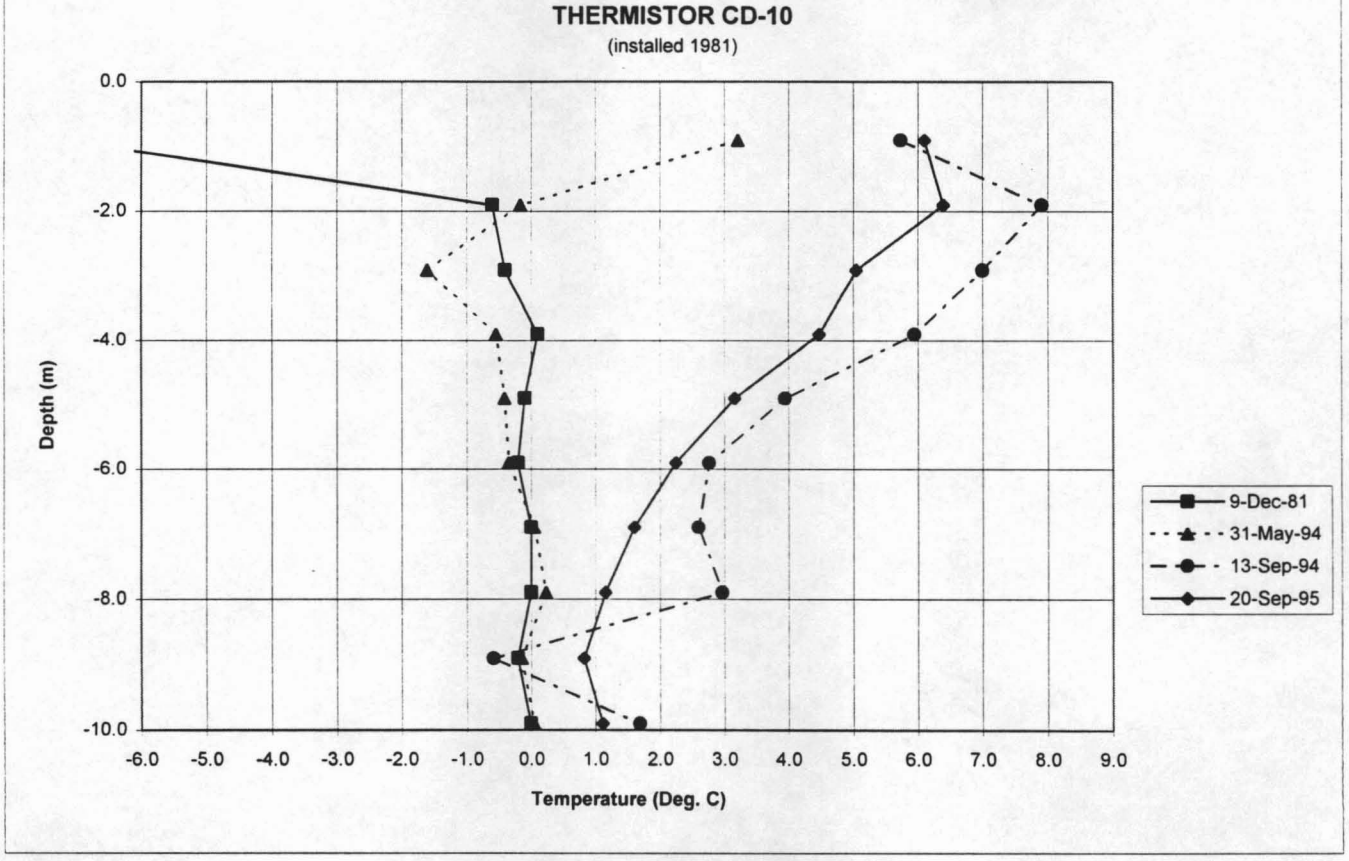
Faro Mine Instrumentation
Canal Dyke

CD-10		Location:	Canal Dyke St. 0+990			Elevation:	1088.3 m	Coordinates	1008.7 mN, 1519.7 mE
						Cantec			
Thermistor String #23		Date Installed:	1981	Thermistor Type:		Controls YSI 44007	Ice-Bath Calibration:	applied	Surface Protector: yes
Depth Correction	-0.1								

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 9-Dec-81	Resistivity (kOhms) 31-May-94	Resistivity (kOhms) 13-Sep-94	Resistivity (kOhms) 20-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
1.0	-0.9	23.70	13.83	12.20	11.98					
2.0	-1.9	16.68	16.31	10.90	11.74					
3.0	-2.9	16.50	17.55	11.39	12.54					
4.0	-3.9	16.13	16.67	12.03	12.94					
5.0	-4.9	16.24	16.50	13.24	13.77					
6.0	-5.9	16.31	16.43	14.03	14.40					
7.0	-6.9	16.19	16.15	14.19	14.92					
8.0	-7.9	16.19	16.00	13.93	15.26					
9.0	-8.9	16.36	16.31	16.68	15.52					
10.0	-9.9	16.21	16.17	14.87	15.31					

* The initial reading (Nov 15/81) is excluded from the data set because post-installation temperature equilibruim may not have been complete.

Depth on String (m)	Actual Depth (m)	Temperature (C) 9-Dec-81	Temperature (C) 31-May-94	Temperature (C) 13-Sep-94	Temperature (C) 20-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-0.9	-7.20	3.22	5.74	6.11					
2.0	-1.9	-0.60	-0.16	7.91	6.40					
3.0	-2.9	-0.40	-1.60	7.00	5.05					
4.0	-3.9	0.10	-0.54	5.95	4.48					
5.0	-4.9	-0.10	-0.41	3.95	3.16					
6.0	-5.9	-0.20	-0.35	2.77	2.25					
7.0	-6.9	0.00	0.05	2.60	1.61					
8.0	-7.9	0.00	0.23	2.97	1.16					
9.0	-8.9	-0.20	-0.14	-0.58	0.83					
10.0	-9.9	0.00	0.04	1.69	1.12					

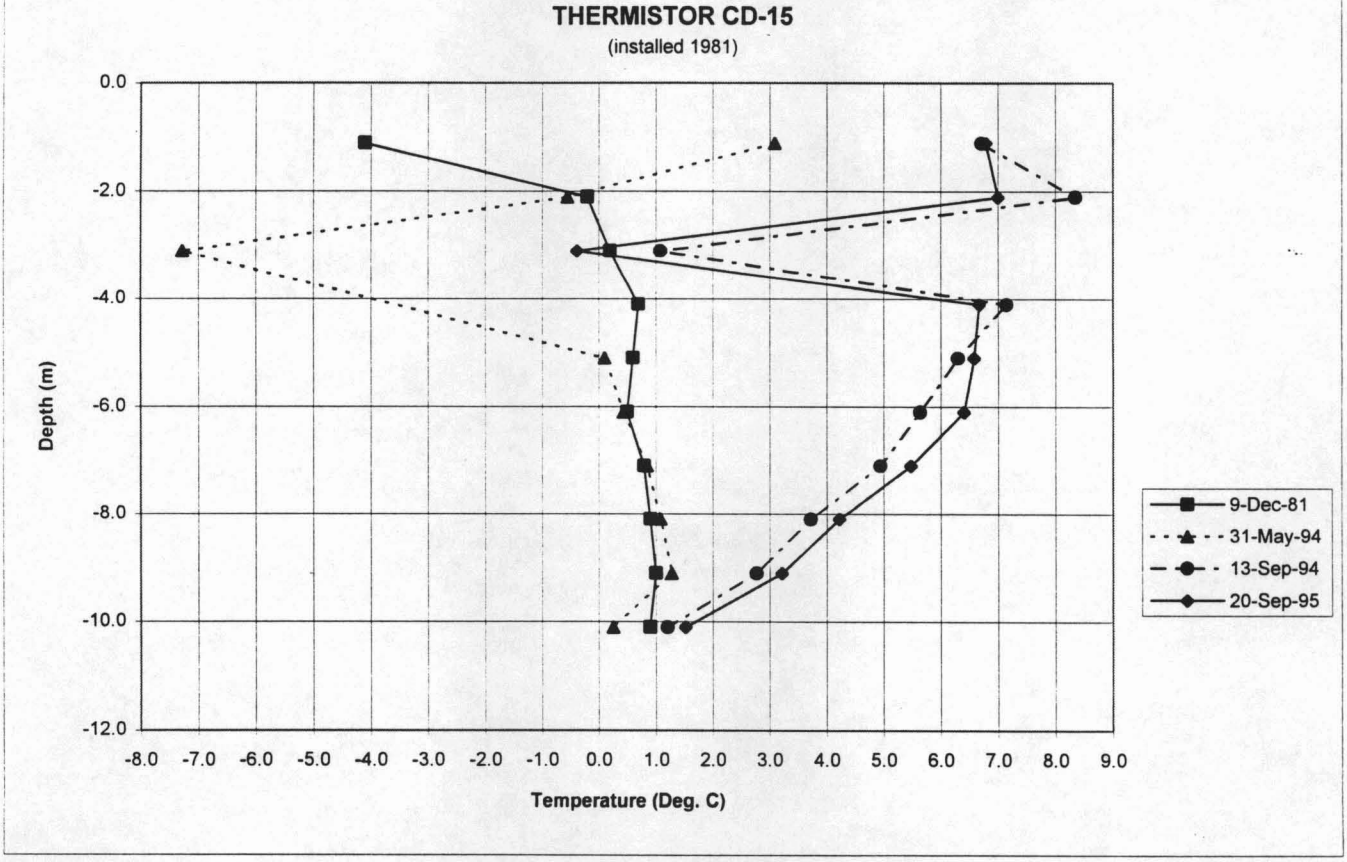


CD-15	**Location:**	Canal Dyke St. 1+530		**Elevation:**	1087.0 m	**Coordinates**	1233.7 mN, 1028.7 mE
				Cantec			
Thermistor	**Date**		**Thermistor**	Controls YSI	**Ice-Bath**		**Surface**
String #26	**Installed:**	1981	**Type:**	44007	**Calibration:**	applied	**Protector:** yes
Depth Correction	0.1						

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 9-Dec-81	Resistivity (kOhms) 31-May-94	Resistivity (kOhms) 13-Sep-94	Resistivity (kOhms) 20-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
1.0	-1.1	20.00	13.84	11.56	11.52					
2.0	-2.1	16.29	16.58	10.64	11.36					
3.0	-3.1	15.99	23.62	15.29	16.47					
4.0	-4.1	15.65		11.34	11.61		* The initial reading (Nov 15/81) is excluded from			
5.0	-5.1	15.71	16.11	11.81	11.65		the data set because post-installation temperature			
6.0	-6.1	15.75	15.80	12.17	11.72		equilibruim may not have been complete.			
7.0	-7.1	15.53	15.49	12.61	12.28					
8.0	-8.1	15.47	15.33	13.42	13.09					
9.0	-9.1	15.41	15.19	14.09	13.78					
10.0	-10.1	15.45	15.96	15.21	14.97					

Depth on String (m)	Actual Depth (m)	Temperature (C) 9-Dec-81	Temperature (C) 31-May-94	Temperature (C) 13-Sep-94	Temperature (C) 20-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-1.1	-4.10	3.09	6.72	6.79					
2.0	-2.1	-0.20	-0.55	8.35	7.01					
3.0	-3.1	0.20	-7.27	1.08	-0.38					
4.0	-4.1	0.70		7.15	6.67					
5.0	-5.1	0.60	0.11	6.31	6.58					
6.0	-6.1	0.50	0.44	5.65	6.41					
7.0	-7.1	0.80	0.85	4.95	5.48					
8.0	-8.1	0.90	1.08	3.73	4.23					
9.0	-9.1	1.00	1.28	2.77	3.22					
10.0	-10.1	0.90	0.26	1.21	1.52					

* The 3 metre depth tip is suspect



Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke

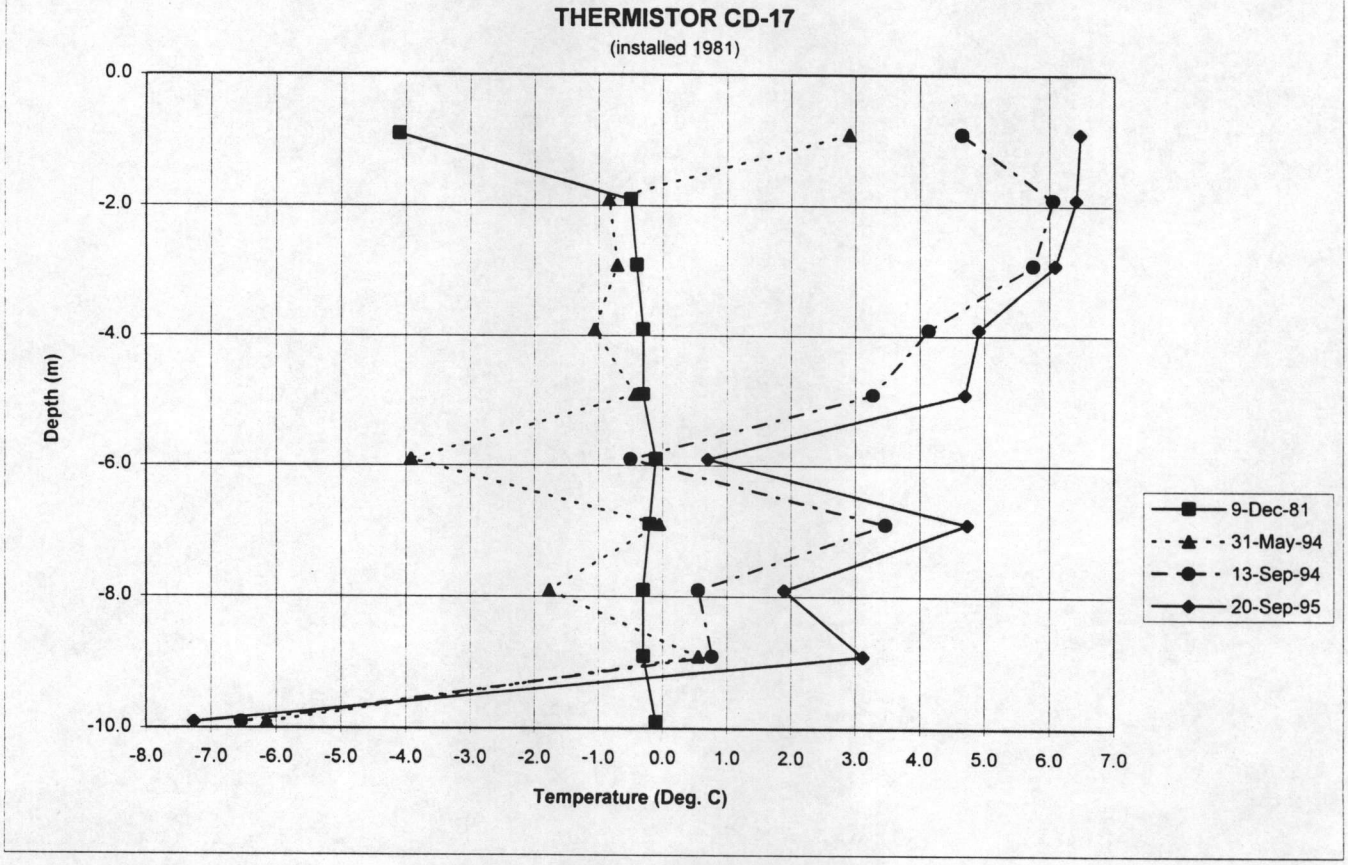
CD-17	Location:	Canal Dyke St. 1+705		Elevation:	1086.9 m	Coordinates	1278.6 mN, 862.7 mE
				Cantec			
Thermistor String #28	Date Installed:	1981.0	Thermistor Type:	Controls YSI 44007	Ice-Bath Calibration:	applied	Surface Protector: yes
Depth Correction	-0.1		NOT OPERATING				

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 9-Dec-81	Resistivity (kOhms) 31-May-94	Resistivity (kOhms) 13-Sep-94	Resistivity (kOhms) 20-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
1.0	-0.9	20.50	14.30	13.10	11.97					
2.0	-1.9	16.64	16.93	11.97	11.76					
3.0	-2.9	16.50	16.76	12.11	11.91					
4.0	-3.9	16.44	17.09	13.14	12.64					
5.0	-4.9	16.43	16.54	13.71	12.77					
6.0	-5.9	16.26	19.80	16.59	15.60					
7.0	-6.9	16.34	16.21	13.57	12.74					
8.0	-7.9	16.38	17.66	15.68	14.65					
9.0	-8.9	16.42	15.72	15.55	13.81					
10.0	-9.9	16.29	22.31	22.78	23.68					

* The initial reading (Nov 15/81) is excluded from the data set because post-installation temperature equilibruim may not have been complete.

Depth on String (m)	Actual Depth (m)	Temperature (C) 9-Dec-81	Temperature (C) 31-May-94	Temperature (C) 13-Sep-94	Temperature (C) 20-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-0.9	-4.10	2.91	4.66	6.48					
2.0	-1.9	-0.50	-0.83	6.06	6.42					
3.0	-2.9	-0.40	-0.71	5.76	6.09					
4.0	-3.9	-0.30	-1.06	4.14	4.92					
5.0	-4.9	-0.30	-0.43	3.28	4.70					
6.0	-5.9	-0.10	-3.92	-0.50	0.71					
7.0	-6.9	-0.20	-0.04	3.47	4.74					
8.0	-7.9	-0.30	-1.76	0.56	1.90					
9.0	-8.9	-0.30	0.56	0.77	3.12					
10.0	-9.9	-0.10	-6.14	-6.53	-7.26					

* The 6 metre and 10 metre depth tips are suspect



Golder Associates

Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke

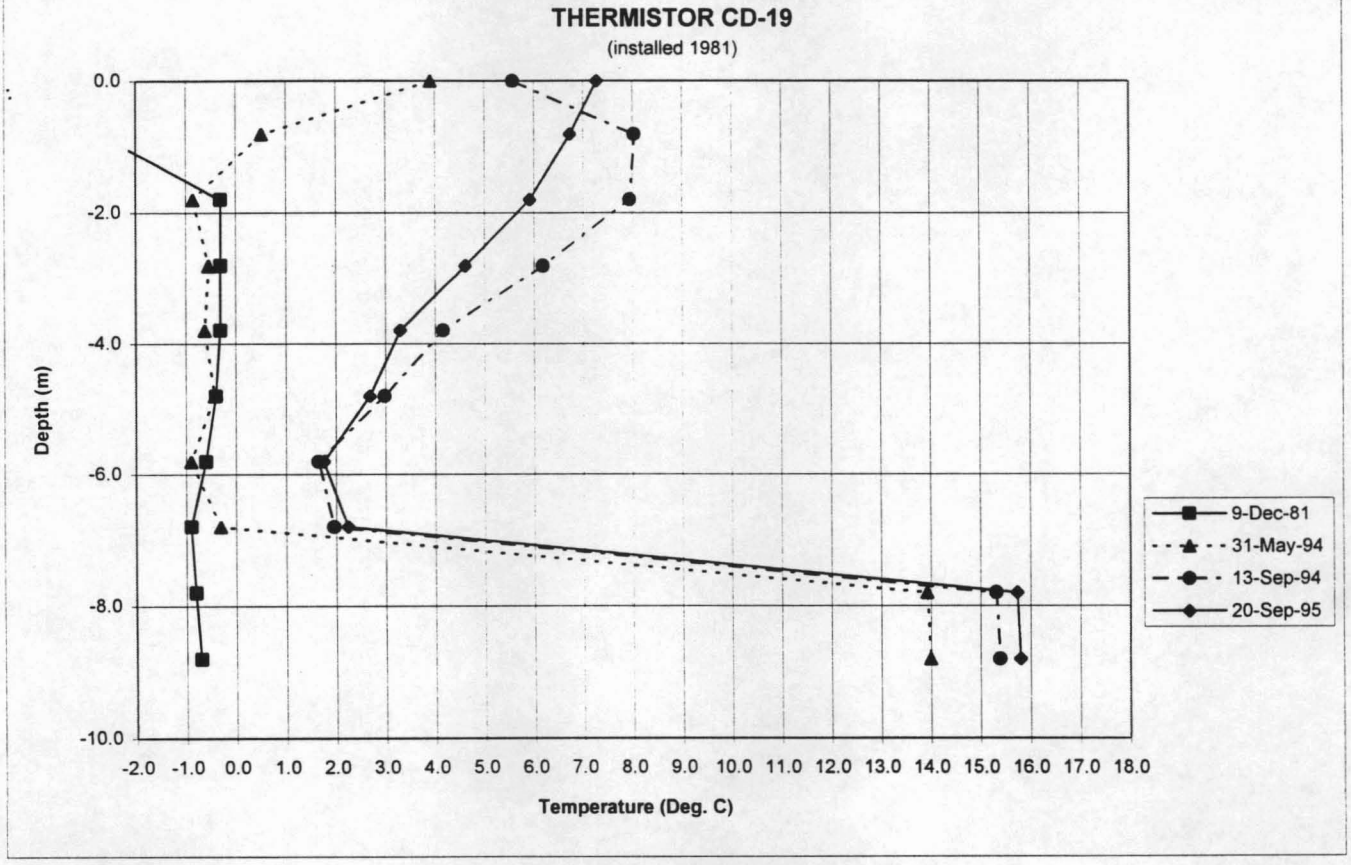
CD-19		Location:	Canal Dyke St.1+900		Elevation: Cantec	1086.3 m	Coordinates	1278.6 mN, 862.7 mE
Thermistor String "A"	Subex. at 4.0 m	Date Installed:	1981	Thermistor Type:	Controls YSI 44007	Ice-Bath Calibration:	yes	Surface Protector: yes
Depth Correction	-0.2							

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 9-Dec-81	Resistivity (kOhms) 31-May-94	Resistivity (kOhms) 13-Sep-94	Resistivity (kOhms) 20-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
0.2	0.0	48.60	13.36	12.30	11.31					
1.0	-0.8	18.73	15.87	10.91	11.63					
2.0	-1.8	16.60	17.08	10.99	12.14					
3.0	-2.8	16.57	16.77	11.96	12.93					
4.0	-3.8	16.52	16.79	13.18	13.76					
5.0	-4.8	16.67	16.69	14.04	14.25					
6.0	-5.8	16.85	17.11	15.02	14.94					
7.0	-6.8	17.04	16.53	14.73	14.52					
8.0	-7.8	16.94	8.21	7.69	7.54					
9.0	-8.8	16.91	8.21	7.69	7.54					

* The initial reading (Nov 15/81) is excluded from the data set because post-installation temperature equilibruim may not have been complete.

Depth on String (m)	Actual Depth (m)	Temperature (C) 9-Dec-81	Temperature (C) 31-May-94	Temperature (C) 13-Sep-94	Temperature (C) 20-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	0.0	-20.03	3.92	5.58	7.29					
2.0	-0.8	-2.70	0.52	8.05	6.74					
3.0	-1.8	-0.30	-0.85	7.96	5.93					
4.0	-2.8	-0.30	-0.54	6.19	4.61					
5.0	-3.8	-0.30	-0.62	4.17	3.31					
6.0	-4.8	-0.40	-0.42	2.98	2.69					
7.0	-5.8	-0.60	-0.90	1.66	1.76					
8.0	-6.8	-0.90	-0.31	1.96	2.25					
9.0	-7.8	-0.80	13.93	15.32	15.74					
10.0	-8.8	-0.70	14.00	15.39	15.81					

* The 8 & 9 metre depth tips are suspect



Anvil Range Mining Corp.

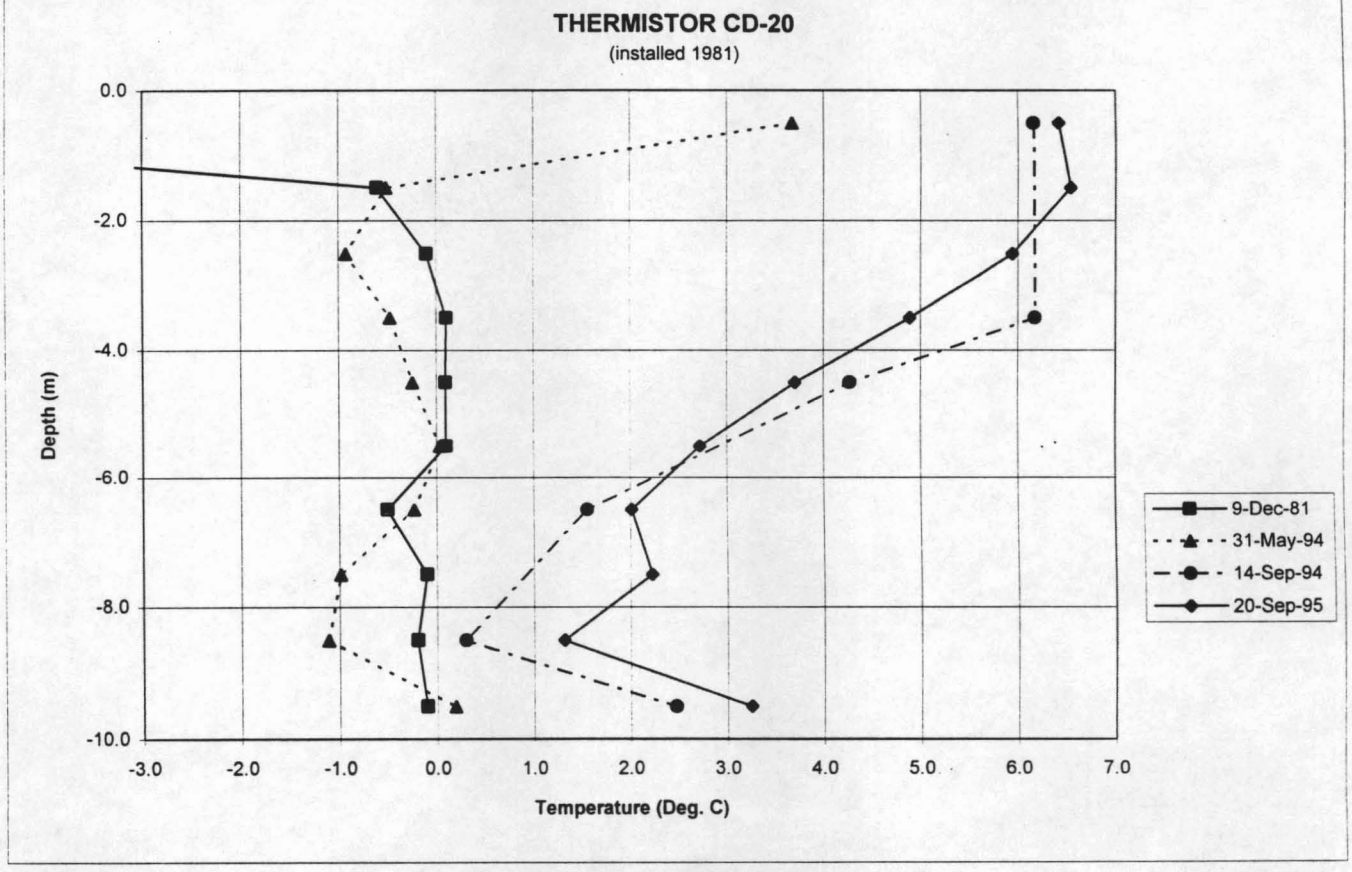
Faro Mine Instrumentation
Canal Dyke

CD-20	**Location:**	Canal Dyke St.2+000		**Elevation:**	1086.5 m	**Coordinates**	1403.0 mN, 601.9 mE		
				Cantec					
Thermistor	**Date**		**Thermistor**	Controls YSI	**Ice-Bath**		**Surface**		
String #20	**Installed:**	1981	**Type:**	44007	**Calibration:**	applied	**Protector:**	yes	
Depth Correction	-0.5								

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 9-Dec-81	Resistivity (kOhms) 31-May-94	Resistivity (kOhms) 14-Sep-94	Resistivity (kOhms) 20-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
1.0	-0.5	25.20	13.54	11.97	11.82					
2.0	-1.5	16.67	16.59		11.65					
3.0	-2.5	16.22	16.92		11.98					
4.0	-3.5	16.12	16.60	11.89	12.67					
5.0	-4.5	16.07	16.35	13.02	13.39					
6.0	-5.5	16.06	16.11		14.06					
7.0	-6.5	16.56	16.33	14.91	14.57					
8.0	-7.5	16.24	16.99		14.43					
9.0	-8.5	16.32	17.10	15.91	15.11					
10.0	-9.5	16.28	16.04	14.29	13.74					

* The initial reading (Nov 15/81) is excluded from the data set because post-installation temperature equilibruim may not have been complete.

Depth on String (m)	Actual Depth (m)	Temperature (C) 9-Dec-81	Temperature (C) 31-May-94	Temperature (C) 14-Sep-94	Temperature (C) 20-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-0.5	-8.30	3.68	6.16	6.42					
2.0	-1.5	-0.60	-0.51		6.54					
3.0	-2.5	-0.10	-0.92		5.95					
4.0	-3.5	0.10	-0.47	6.18	4.89					
5.0	-4.5	0.10	-0.24	4.27	3.71					
6.0	-5.5	0.10	0.04		2.73					
7.0	-6.5	-0.50	-0.23	1.56	2.02					
8.0	-7.5	-0.10	-0.98		2.23					
9.0	-8.5	-0.20	-1.11	0.30	1.32					
10.0	-9.5	-0.10	0.19	2.47	3.26					



Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke

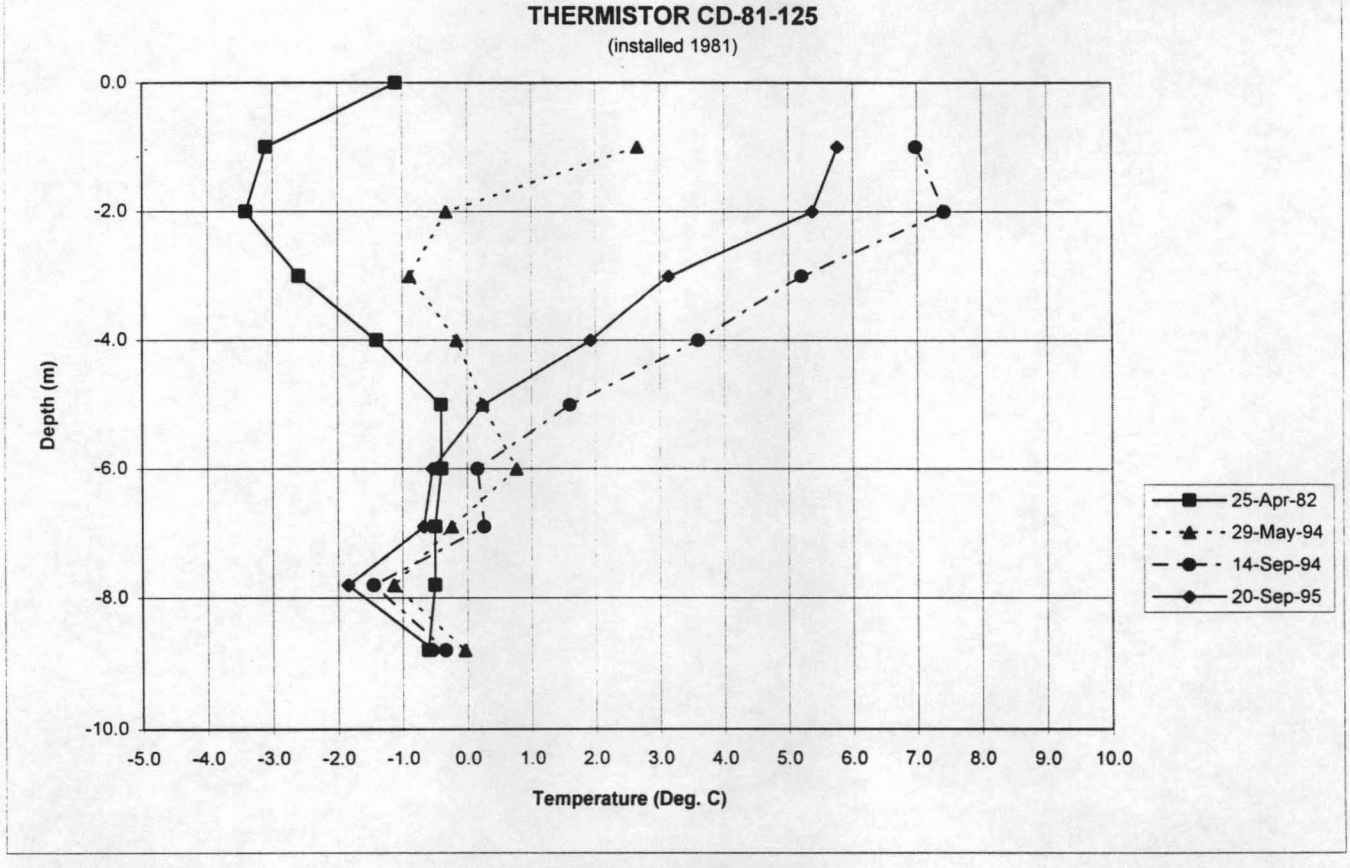
81-125	**Location:**	Canal Dyke St. 2+100		**Elevation:**	not available	**Coordinates**	not available		
				Cantec					
Thermistor	**Date**		**Thermistor**	Controls YSI	**Ice-Bath**		**Surface**		
String T2	**Installed:**	1981	**Type:**	44007	**Calibration:**	no	**Protector:**	yes	
Depth Correction	0								

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 25-Apr-82	Resistivity (kOhms) 29-May-94	Resistivity (kOhms) 14-Sep-94	Resistivity (kOhms) 20-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
0.0	0.0	17.25								
1.0	-1.0	19.16	14.27	11.51	12.22					
2.0	-2.0	19.42	16.56	11.24	12.43					
3.0	-3.0	18.66	17.08	12.56	13.92					
4.0	-4.0	17.49	16.41	13.57	14.76					
5.0	-5.0	16.60	16.06	14.99	16.06					
6.0	-6.0	16.64	15.68	16.17	16.76					
6.9	-6.9	16.70	16.48	16.06	16.85					
7.8	-7.8	16.73	17.28	17.56	17.92					
8.8	-8.8	16.86	16.38	16.63	16.79					

* The initial reading (Nov 8/82) is excluded from the data set because post-installation temperature equilibruim may not have been complete.

Depth on String (m)	Actual Depth (m)	Temperature (C) 25-Apr-82	Temperature (C) 29-May-94	Temperature (C) 14-Sep-94	Temperature (C) 20-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	0.0	-1.10								
2.0	-1.0	-3.10	2.66	6.99	5.77					
3.0	-2.0	-3.40	-0.32	7.42	5.38					
4.0	-3.0	-2.60	-0.88	5.21	3.15					
5.0	-4.0	-1.40	-0.15	3.60	1.93					
6.0	-5.0	-0.40	0.25	1.61	0.25					
7.0	-6.0	-0.40	0.77	0.16	-0.54					
8.0	-6.9	-0.50	-0.24	0.27	-0.67					
9.0	-7.8	-0.50	-1.13	-1.44	-1.84					
10.0	-8.8	-0.60	-0.04	-0.33	-0.52					

* The 8 metre depth tip is suspect.



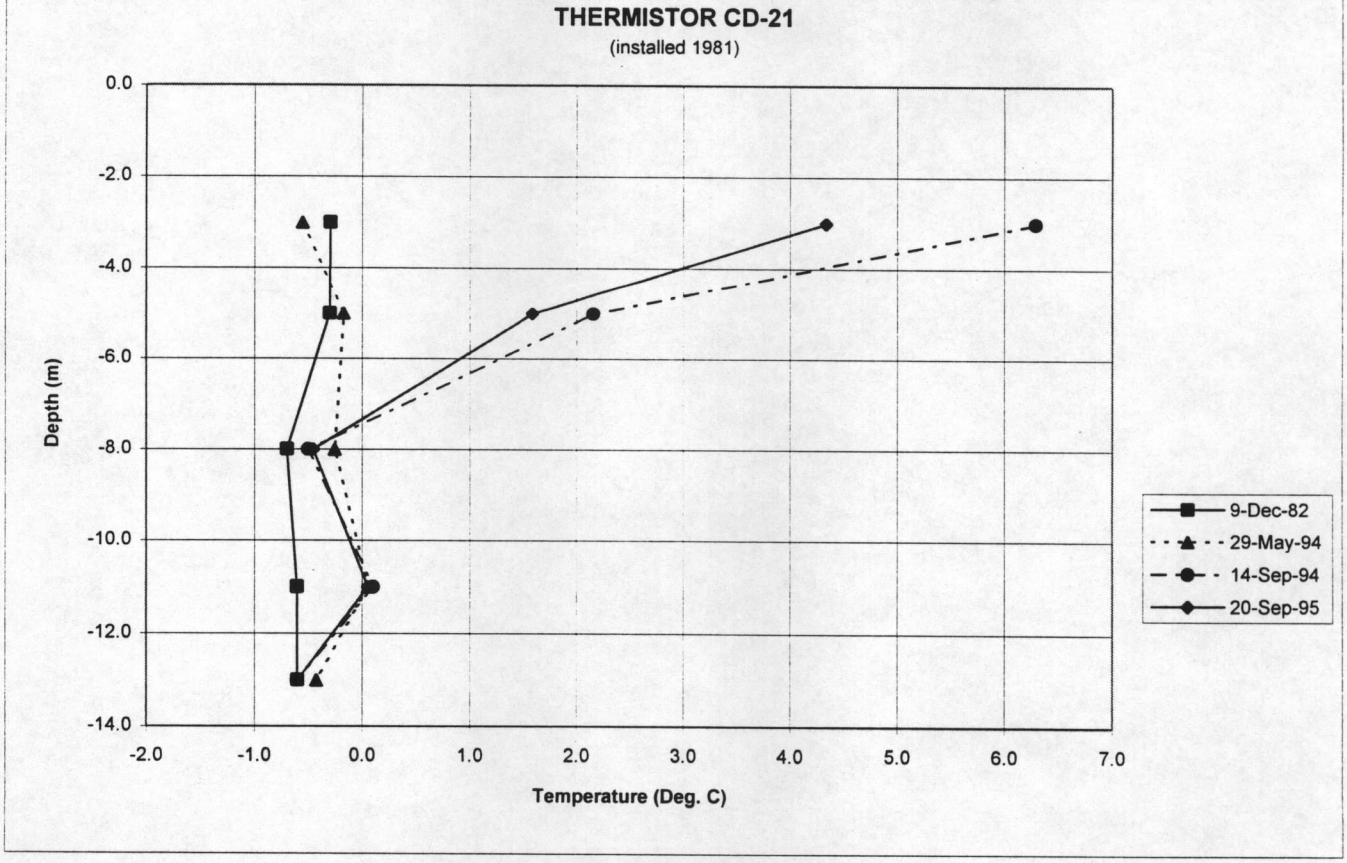
Golder Associates

CD-21	**Location:**	Canal Dyke St.2+100		**Elevation:**	1,085.9 m	**Coordinates**	1455.9 mN 509.5 mE		
Thermistor String #12	**Date Installed:**	1981	**Thermistor Type:**	Cantec Controls YSI 44007	**Ice-Bath Calibration:**	NO	**Surface Protector:**	yes	
Depth Correction	0								

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 9-Dec-82	Resistivity (kOhms) 29-May-94	Resistivity (kOhms) 14-Sep-94	Resistivity (kOhms) 20-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
3.0	-3.0	16.58	16.80	11.91	13.12					
5.0	-5.0	16.56	16.45	14.61	15.04					
8.0	-8.0	16.89	16.51	16.72	16.68					
11.0	-11.0	16.87	16.31	16.27	16.31					
13.0	-13.0	16.84	16.69	16.84	16.84					

* The initial reading (Nov 15/82) is excluded from the data set because post-installation temperature equilibruim may not have been complete.

Depth on String (m)	Actual Depth (m)	Temperature (C) 9-Dec-82	Temperature (C) 29-May-94	Temperature (C) 14-Sep-94	Temperature (C) 20-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-3.0	-0.30	-0.55	6.29	4.34					
2.0	-5.0	-0.30	-0.17	2.16	1.59					
3.0	-8.0	-0.70	-0.25	-0.50	-0.45					
4.0	-11.0	-0.60	0.06	0.10	0.06					
5.0	-13.0	-0.60	-0.42	-0.60	-0.60					



Anvil Range Mining Corp.

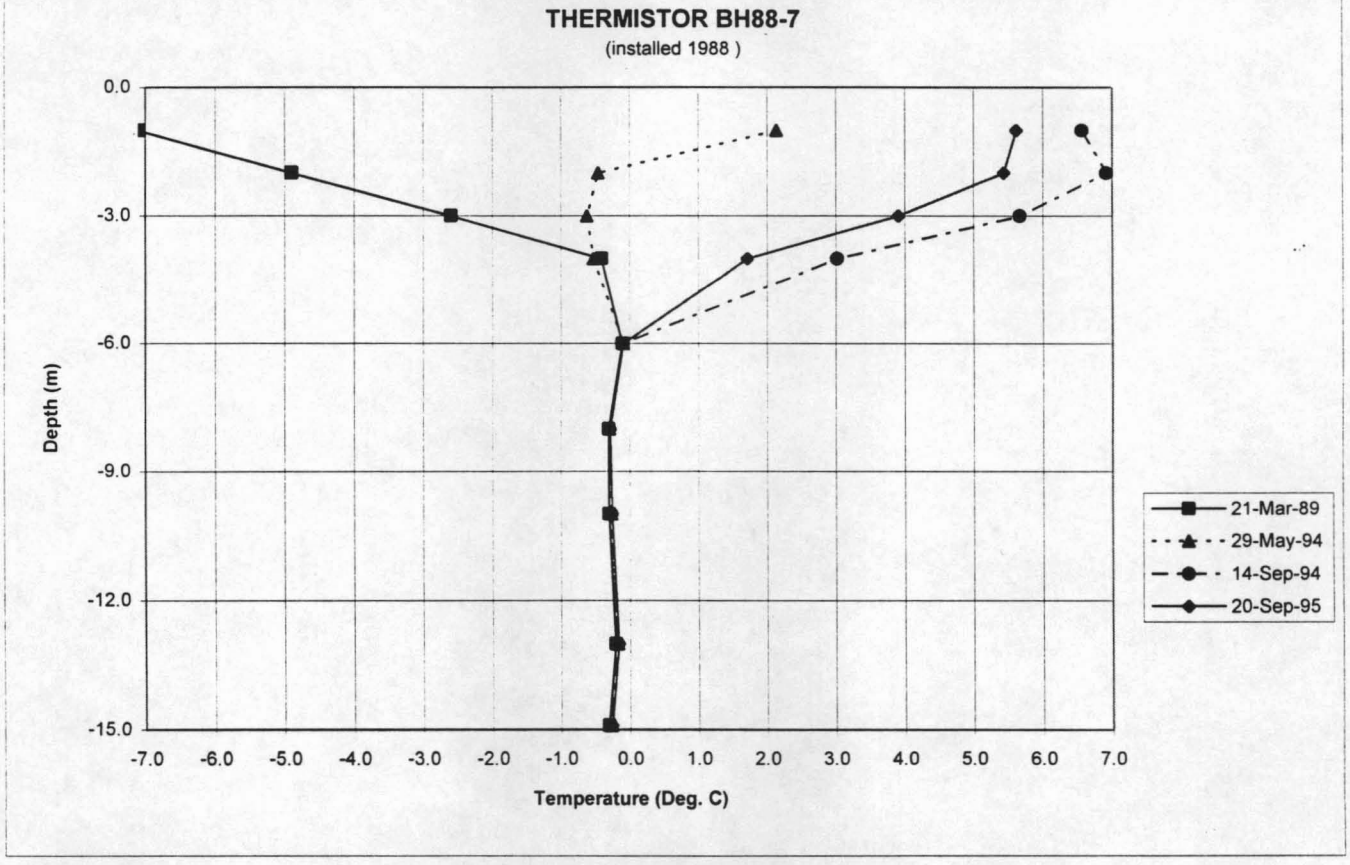
Faro Mine Instrumentation
Canal Dyke

BH88-7	**Location:**	Canal Dyke St.2+115		**Elevation:**	1,085.9 m	**Coordinates**	1455.9 mN 509.5 mE
Thermistor String #	**Date Installed:**	1988	**Thermistor Type:**	Cantec Controls YSI 44007	**Ice-Bath Calibration:**	NO	**Surface Protector:** yes
Depth Correction	0						

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 21-Mar-89	Resistivity (kOhms) 29-May-94	Resistivity (kOhms) 14-Sep-94	Resistivity (kOhms) 20-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
1.0	-1.0	23.60	14.61	11.72	12.28					
2.0	-2.0	21.00	16.67	11.52	12.39					
3.0	-3.0	18.62	16.81	12.25	13.37					
4.0	-4.0	16.62	16.72	13.97	14.92					
6.0	-6.0	16.44	16.43	16.44	16.43					
8.0	-8.0	16.54	16.53	16.53	16.52					
10.0	-10.0	16.58	16.55	16.55	16.54					
13.0	-13.0	16.52	16.49	16.49	16.48					
14.9	-14.9	16.56	16.53	16.54	16.52					

* The initial reading (Oct 1/88) is excluded from the data set because post-installation temperature equilibruim may not have been complete.

Depth on String (m)	Actual Depth (m)	Temperature (C) 21-Mar-89	Temperature (C) 29-May-94	Temperature (C) 14-Sep-94	Temperature (C) 20-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-1.0	-7.10	2.14	6.57	5.62					
2.0	-2.0	-4.90	-0.45	6.92	5.44					
3.0	-3.0	-2.60	-0.61	5.67	3.91					
4.0	-4.0	-0.40	-0.52	3.02	1.72					
6.0	-6.0	-0.10	-0.09	-0.10	-0.09					
8.0	-8.0	-0.30	-0.29	-0.29	-0.27					
10.0	-10.0	-0.30	-0.26	-0.26	-0.25					
13.0	-13.0	-0.20	-0.17	-0.17	-0.16					
14.9	-14.9	-0.30	-0.27	-0.28	-0.25					



Golder Associates

Anvil Range Mining Corp.

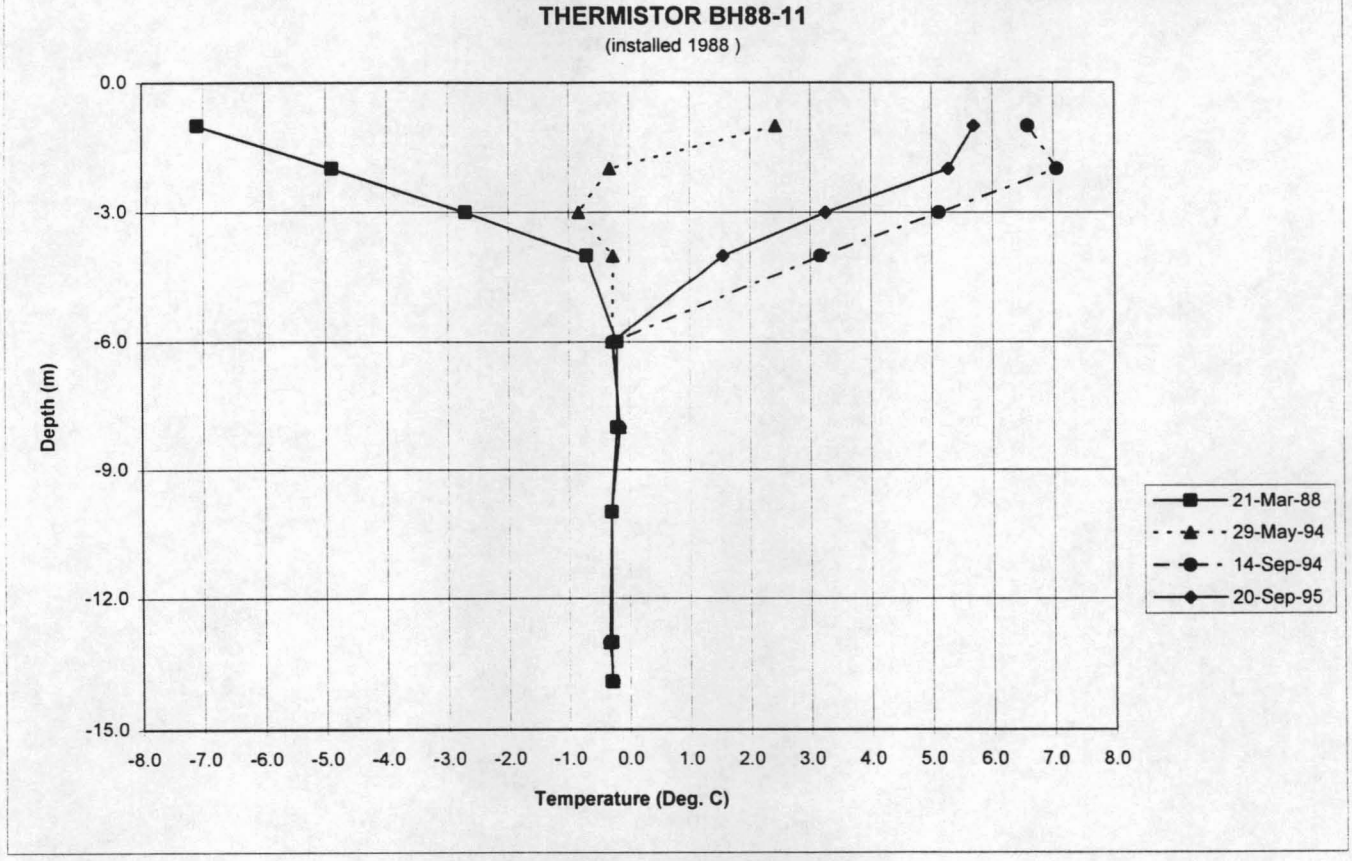
Faro Mine Instrumentation
Canal Dyke

BH88-11	**Location:**	Canal Dyke St.2+160		**Elevation:** Cantec	1086.2	**Coordinates**	1478.8mN, 456.6mE
Thermistor String #	**Date Installed:**	1988	**Thermistor Type:**	Controls YSI 44007	**Ice-Bath Calibration:**	NO	**Surface Protector:** yes
Depth Correction	0						

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 21-Mar-88	Resistivity (kOhms) 29-May-94	Resistivity (kOhms) 14-Sep-94	Resistivity (kOhms) 20-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
1.0	-1.0	23.60	14.40	11.71	12.23					
2.0	-2.0	21.00	16.55	11.44	12.49					
3.0	-3.0	18.76	17.03	12.61	13.84					
4.0	-4.0	16.92	16.54	13.90	15.08					
6.0	-6.0	16.49	16.56	16.55	16.56					
8.0	-8.0	16.51	16.47	16.47	16.46					
10.0	-10.0	16.58	16.58	16.58	16.58					
13.0	-13.0	16.54	16.57	16.57	16.57					
13.9	-13.9	16.55	16.54	16.53	16.53					

* The initial reading (Oct 1/88) is excluded from the data set because post-installation temperature equilibruim may not have been complete.

Depth on String (m)	Actual Depth (m)	Temperature (C) 21-Mar-88	Temperature (C) 29-May-94	Temperature (C) 14-Sep-94	Temperature (C) 20-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-1.0	-7.10	2.43	6.59	5.71					
2.0	-2.0	-4.90	-0.31	7.06	5.28					
3.0	-3.0	-2.70	-0.83	5.13	3.20					
4.0	-4.0	-0.70	-0.26	3.17	1.56					
6.0	-6.0	-0.20	-0.28	-0.27	-0.26					
8.0	-8.0	-0.20	-0.16	-0.16	-0.14					
10.0	-10.0	-0.30	-0.30	-0.30	-0.30					
13.0	-13.0	-0.30	-0.33	-0.33	-0.33					
13.9	-13.9	-0.30	-0.29	-0.28	-0.28					



Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke

CD-24	**Location:**	Canal Dyke St.2+365		**Elevation:**	1,085.8 m	**Coordinates**	1572.1 mN 281.8 mE		
				Cantec					
Thermistor	**Date**		**Thermistor**	Controls YSI	**Ice-Bath**		**Surface**		
String #22	**Installed:**	1981	**Type:**	44007	**Calibration:**	applied	**Protector:**	yes	
Depth Correction	-0.3								

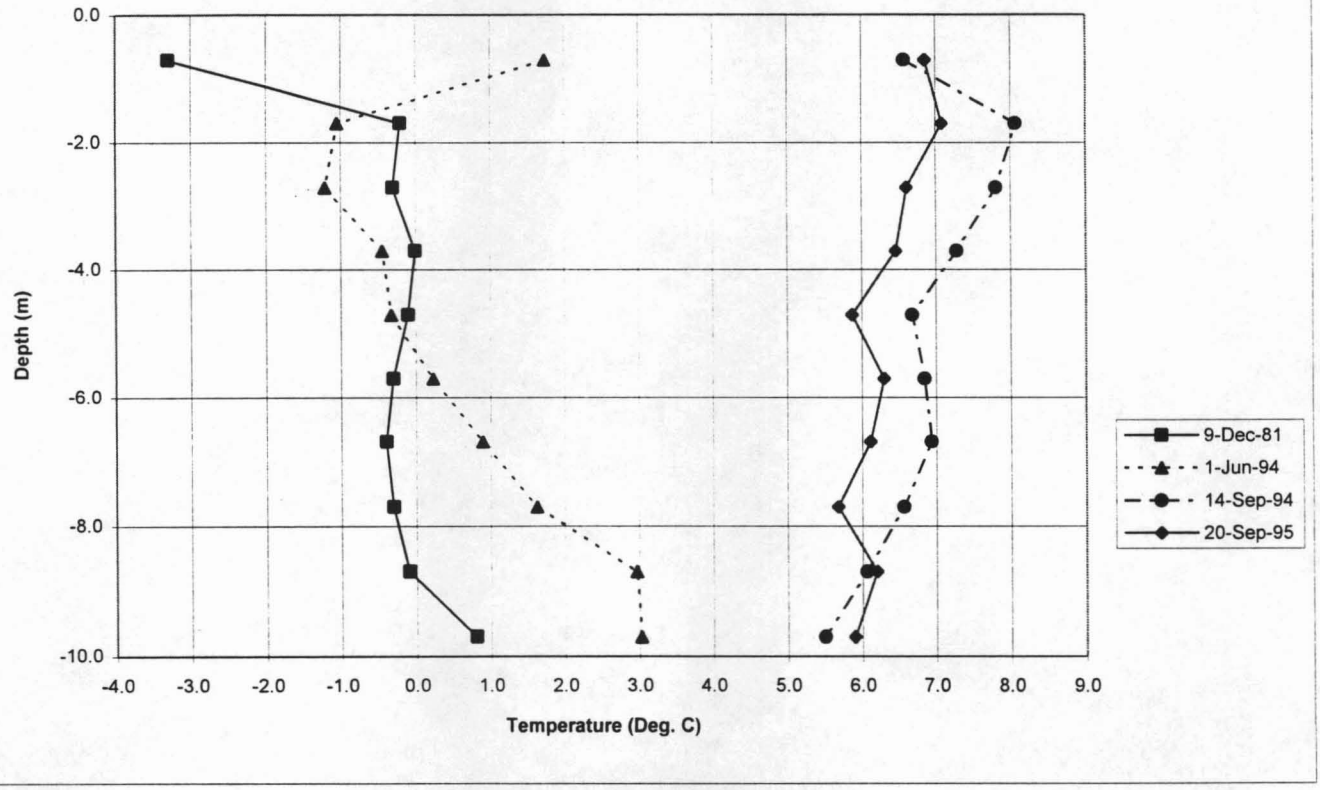
Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 9-Dec-81	Resistivity (kOhms) 1-Jun-94	Resistivity (kOhms) 14-Sep-94	Resistivity (kOhms) 20-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
1.0	-0.7	19.23	14.85	11.67	11.51					
2.0	-1.7	16.30	17.02	10.79	11.32					
3.0	-2.7	16.40	17.18	10.94	11.60					
4.0	-3.7	16.16	16.53	11.23	11.69					
5.0	-4.7	16.25	16.44	11.57	12.04					
6.0	-5.7	16.39	15.95	11.46	11.77					
7.0	-6.7	16.47	15.42	11.41	11.88					
8.0	-7.7	16.45	14.91	11.66	12.18					
9.0	-8.7	16.22	13.89	11.91	11.83					
10.0	-9.7	15.54	13.89	12.28	12.04					

* The initial reading (Nov 15/81) is excluded from the data set because post-installation temperature equilibruim may not have been complete.

Depth on String (m)	Actual Depth (m)	Temperature (C) 9-Dec-81	Temperature (C) 1-Jun-94	Temperature (C) 14-Sep-94	Temperature (C) 20-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-0.7	-3.30	1.74	6.58	6.86					
2.0	-1.7	-0.20	-1.05	8.07	7.09					
3.0	-2.7	-0.30	-1.21	7.81	6.61					
4.0	-3.7	0.00	-0.45	7.28	6.46					
5.0	-4.7	-0.10	-0.33	6.68	5.87					
6.0	-5.7	-0.30	0.23	6.85	6.31					
7.0	-6.7	-0.40	0.90	6.94	6.12					
8.0	-7.7	-0.30	1.63	6.57	5.68					
9.0	-8.7	-0.10	2.97	6.06	6.20					
10.0	-9.7	0.80	3.03	5.50	5.90					

THERMISTOR CD-24

(installed 1981)



Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke

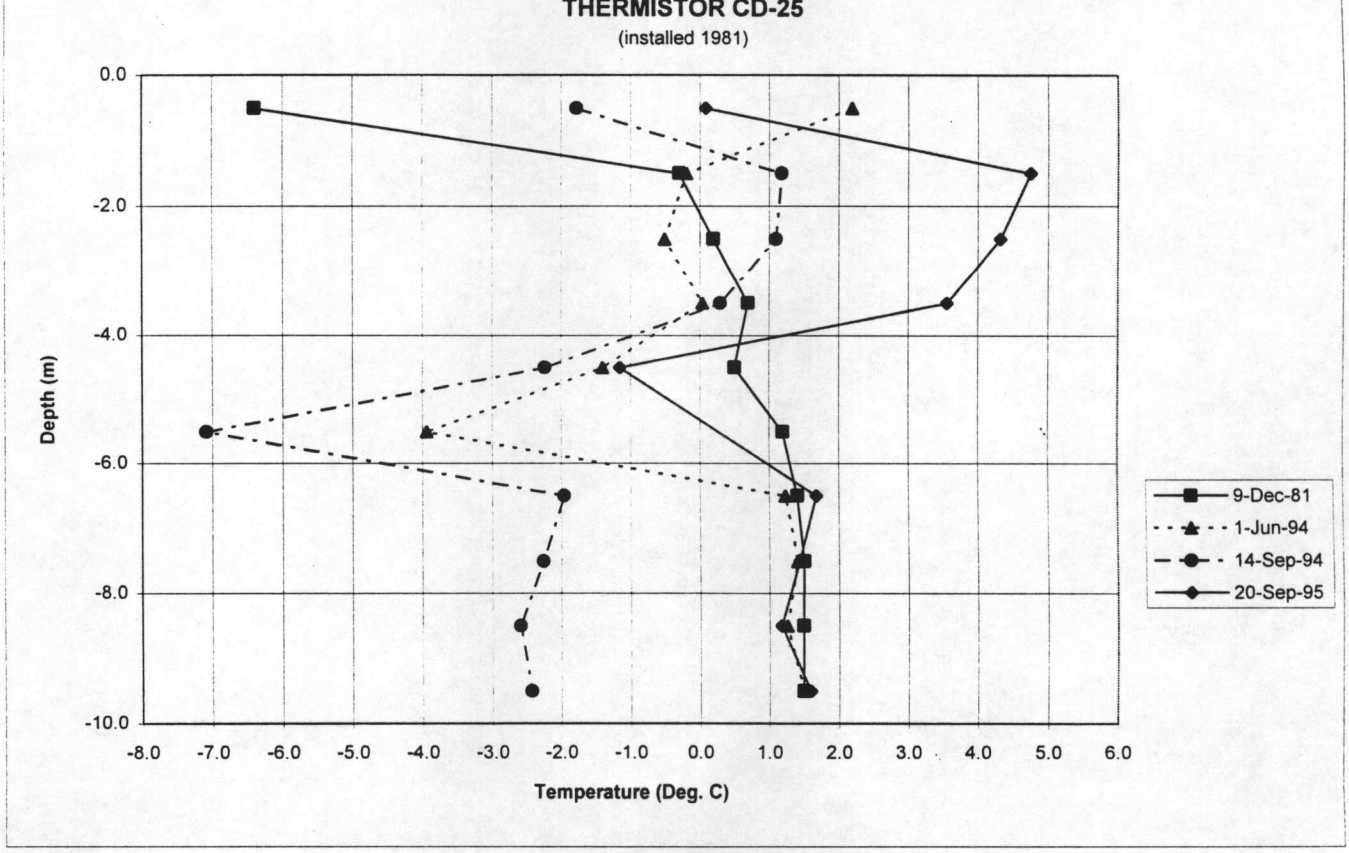
CD-25	Location:	Canal Dyke St. 2+460		Elevation:	1,085.5 m	Coordinates	1614.8 mN, 204.2 mE
				Cantec			
Thermistor String #19	Date Installed:	1981	Thermistor Type:	Controls YSI 44007	Ice-Bath Calibration:	applied	Surface Protector: yes
Depth Correction	-0.5						

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 9-Dec-81	Resistivity (kOhms) 1-Jun-94	Resistivity (kOhms) 14-Sep-94	Resistivity (kOhms) 20-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
1.0	-0.5	22.70	14.55	17.81	16.19					
2.0	-1.5	16.42	16.33	15.23	12.73					
3.0	-2.5	15.98	16.56	15.26	12.98					
4.0	-3.5	15.64	16.17	15.96	13.54					
5.0	-4.5	15.77	17.38	18.15	17.16					
6.0	-5.5	15.21	19.81	23.40						
7.0	-6.5	15.09	15.22	17.92	14.88					
8.0	-7.5	15.00	15.07	18.18	15.05					
9.0	-8.5	14.96	15.14	18.44	15.20					
10.0	-9.5	15.02	15.02	18.36	14.94					

* The initial reading (Nov 15/81) is excluded from the data set because post-installation temperature equilibruim may not have been complete.

Depth on String (m)	Actual Depth (m)	Temperature (C) 9-Dec-81	Temperature (C) 1-Jun-94	Temperature (C) 14-Sep-94	Temperature (C) 20-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-0.5	-6.40	2.20	-1.77	0.09					
2.0	-1.5	-0.30	-0.19	1.18	4.76					
3.0	-2.5	0.20	-0.50	1.10	4.33					
4.0	-3.5	0.70	0.04	0.30	3.56					
5.0	-4.5	0.51	-1.39	-2.23	-1.15					
6.0	-5.5	1.20	-3.94	-7.09						
7.0	-6.5	1.40	1.23	-1.96	1.68					
8.0	-7.5	1.50	1.41	-2.26	1.44					
9.0	-8.5	1.50	1.26	-2.59	1.18					
10.0	-9.5	1.50	1.50	-2.43	1.60					

* The 5.5 metre depth tip is suspect



Golder Associates

Anvil Range Mining Corp.

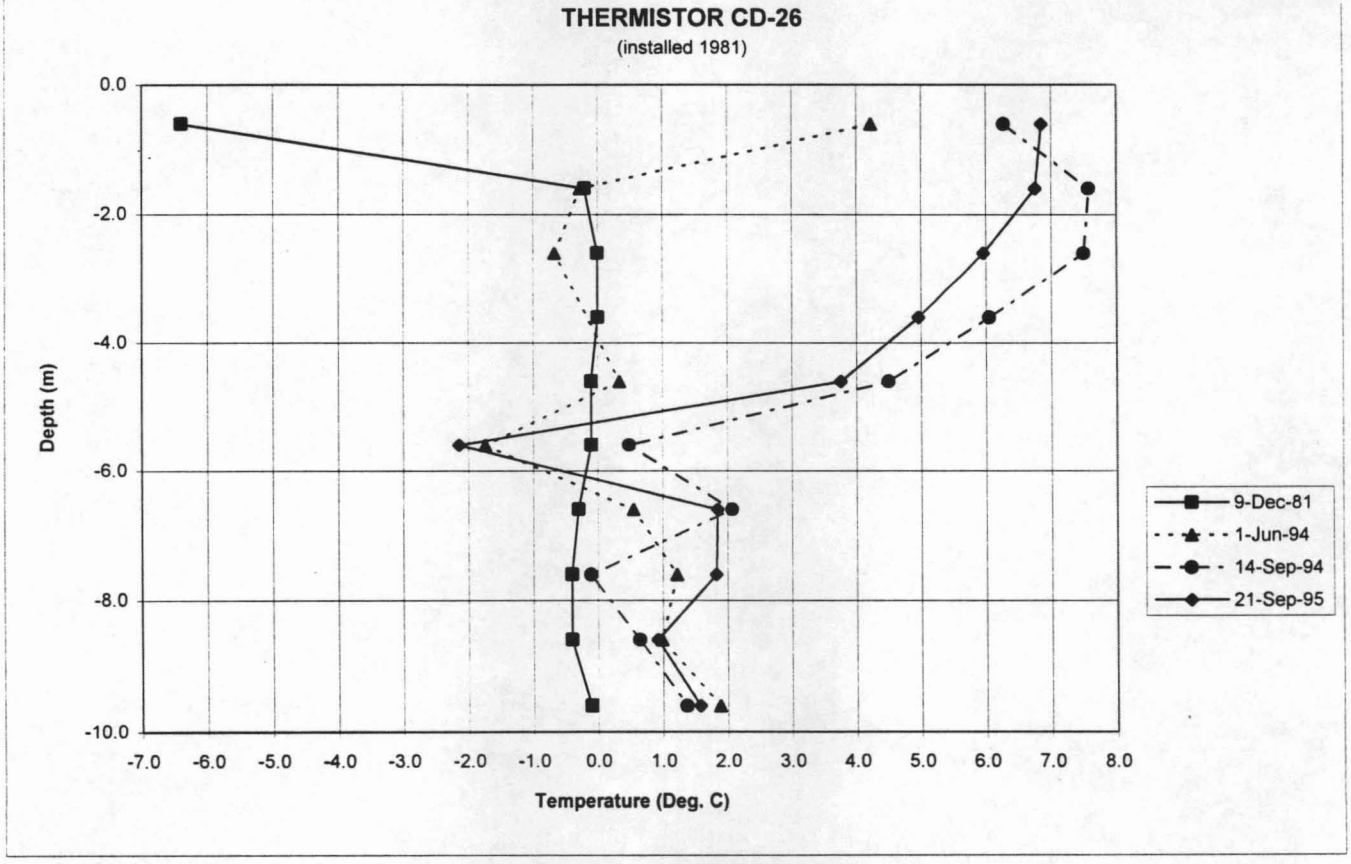
Faro Mine Instrumentation
Canal Dyke

CD-26	Location:	Canal Dyke St.2+600		Elevation:	1,085.5 m	Coordinates	1674.7 mN, 71.7 mE
				Cantec			
Thermistor String #17	Date Installed:	1981	Thermistor Type:	Controls YSI 44007	Ice-Bath Calibration:	applied	Surface Protector: yes
Depth Correction	-0.4						

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 9-Dec-81	Resistivity (kOhms) 1-Jun-94	Resistivity (kOhms) 14-Sep-94	Resistivity (kOhms) 21-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
1.0	-0.6	22.70	13.14	11.87	11.54					
2.0	-1.6	16.32	16.38	11.07	11.52					
3.0	-2.6	16.20	16.76	11.14	12.01					
4.0	-3.6	16.17		11.94	12.60					
5.0	-4.6	16.24	15.88	12.88	13.36					
6.0	-5.6	16.28	17.71	15.80	18.08					
7.0	-6.6	16.43	15.73	14.56	14.73					
8.0	-7.6	16.50	15.19	16.25	14.73					
9.0	-8.6	16.46	15.33	15.60	15.38					
10.0	-9.6	16.24	14.68	15.07	14.91					

* The initial reading (Nov 15/81) is excluded from the data set because post-installation temperature equilibruim may not have been complete.

Depth on String (m)	Actual Depth (m)	Temperature (C) 9-Dec-81	Temperature (C) 1-Jun-94	Temperature (C) 14-Sep-94	Temperature (C) 21-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-0.6	-6.40	4.23	6.28	6.86					
2.0	-1.6	-0.20	-0.27	7.58	6.76					
3.0	-2.6	0.00	-0.67	7.50	5.97					
4.0	-3.6	0.00		6.05	4.96					
5.0	-4.6	-0.10	0.34	4.50	3.77					
6.0	-5.6	-0.10	-1.74	0.49	-2.14					
7.0	-6.6	-0.30	0.56	2.08	1.85					
8.0	-7.6	-0.40	1.22	-0.10	1.83					
9.0	-8.6	-0.40	0.99	0.65	0.93					
10.0	-9.6	-0.10	1.89	1.37	1.58					

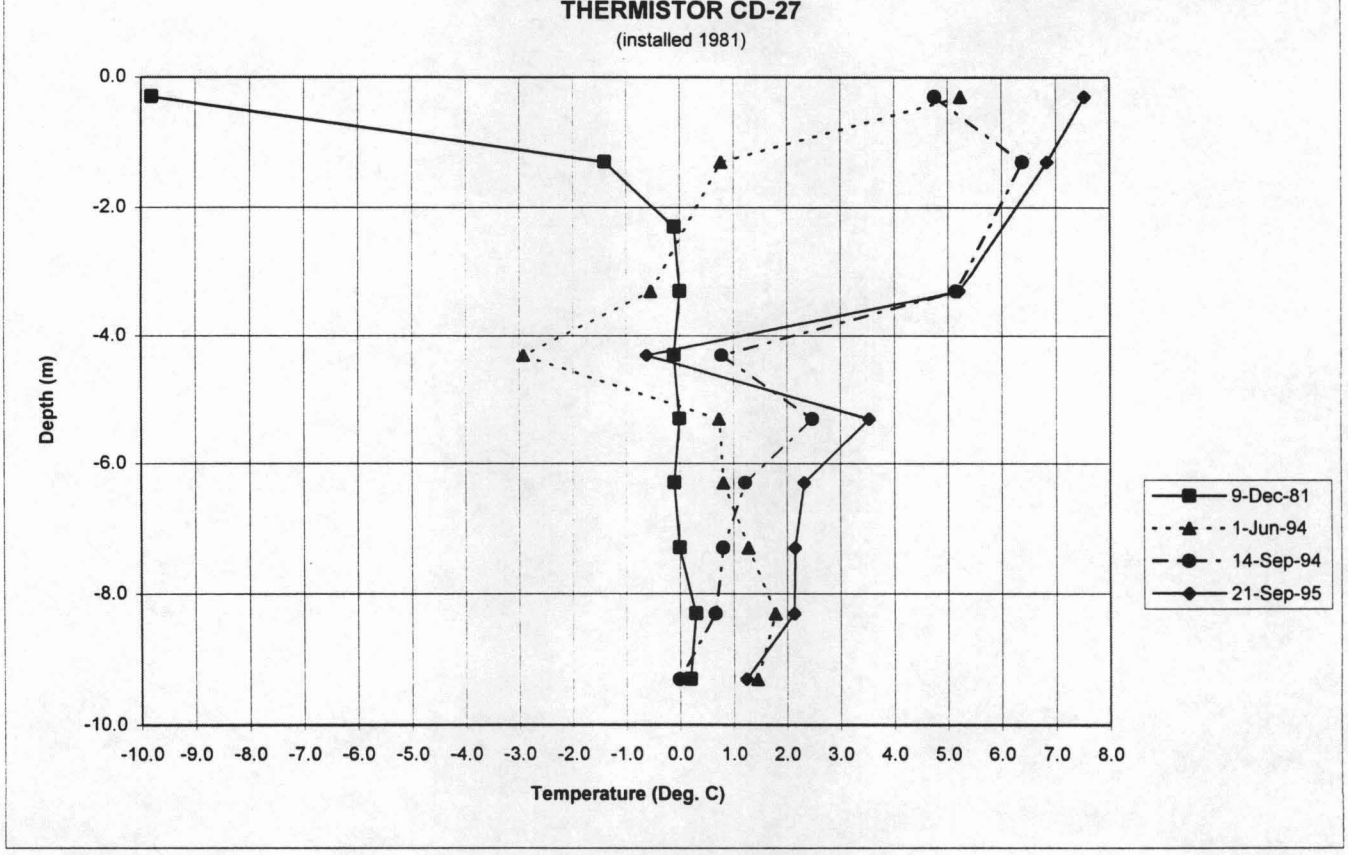


CD-27 -	**Location:**	Canal Dyke St.2+765		**Elevation:**	1,085.1 m	**Coordinates**	1747.2 mN, 64.6 mW		
Thermistor String #18	**Date Installed:**	1981	**Thermistor Type:**	Cantec Controls YSI 44007	**Ice-Bath Calibration:**	applied	**Surface Protector:**	yes	
Depth Correction	-0.7								

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 9-Dec-81	Resistivity (kOhms) 1-Jun-94	Resistivity (kOhms) 14-Sep-94	Resistivity (kOhms) 21-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
1.0	-0.3	27.40	12.55	12.85	11.21					
2.0	-1.3	17.40	15.57	11.76	11.50					
3.0	-2.3	16.22								
4.0	-3.3	16.17	16.62	12.48	12.45		* The initial reading (Nov 15/81) is excluded from			
5.0	-4.3	16.25	18.79	15.53	16.68		the data set because post-installation temperature			
6.0	-5.3	16.21	15.61	14.29	13.55		equilibruim may not have been complete.			
7.0	-6.3	16.24	15.50	15.18	14.36					
8.0	-7.3	16.14	15.12	15.49	14.47					
9.0	-8.3	15.94	14.78	15.64	14.52					
10.0	-9.3	16.02	15.03	16.19	15.19					

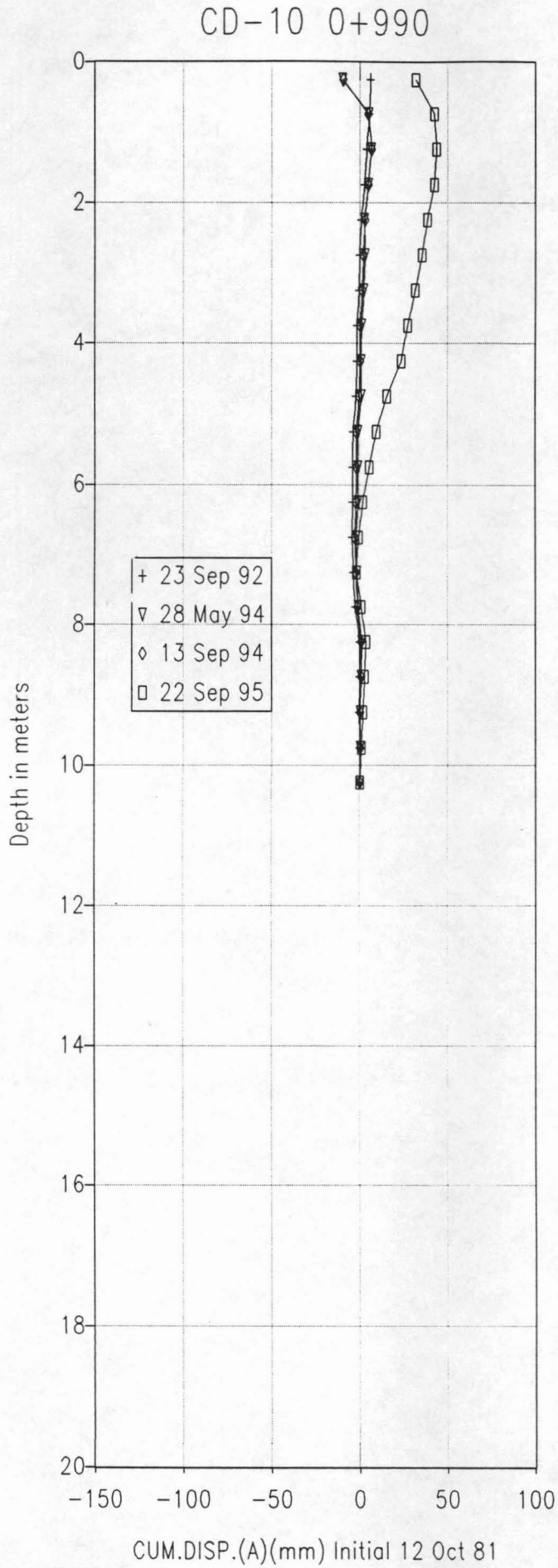
Depth on String (m)	Actual Depth (m)	Temperature (C) 9-Dec-81	Temperature (C) 1-Jun-94	Temperature (C) 14-Sep-94	Temperature (C) 21-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-0.3	-9.80	5.24	4.77	7.54					
2.0	-1.3	-1.40	0.78	6.39	6.85					
3.0	-2.3	-0.10								
4.0	-3.3	0.00	-0.53	5.16	5.21					
5.0	-4.3	-0.10	-2.92	0.79	-0.61					
6.0	-5.3	0.00	0.74	2.48	3.54					
7.0	-6.3	-0.10	0.82	1.23	2.33					
8.0	-7.3	0.00	1.28	0.81	2.15					
9.0	-8.3	0.30	1.78	0.67	2.14					
10.0	-9.3	0.20	1.45	-0.01	1.24					

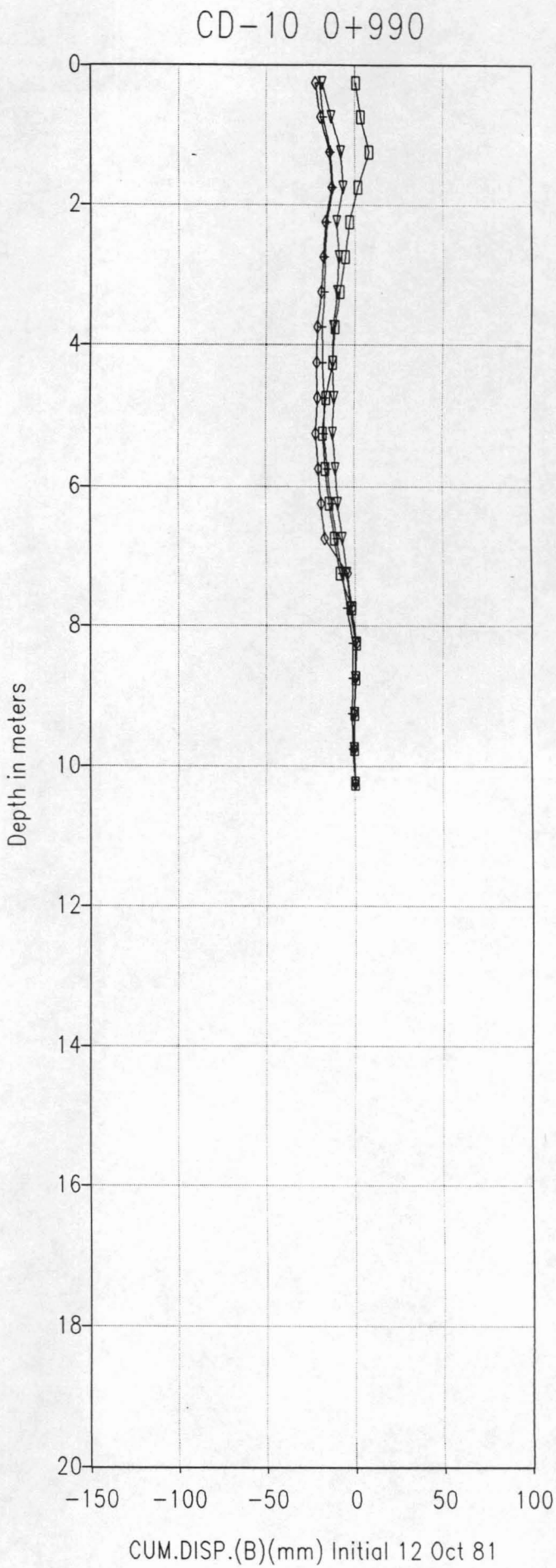
* The 4.3 metre depth tip is suspect



DIVERSION CANAL DYKE

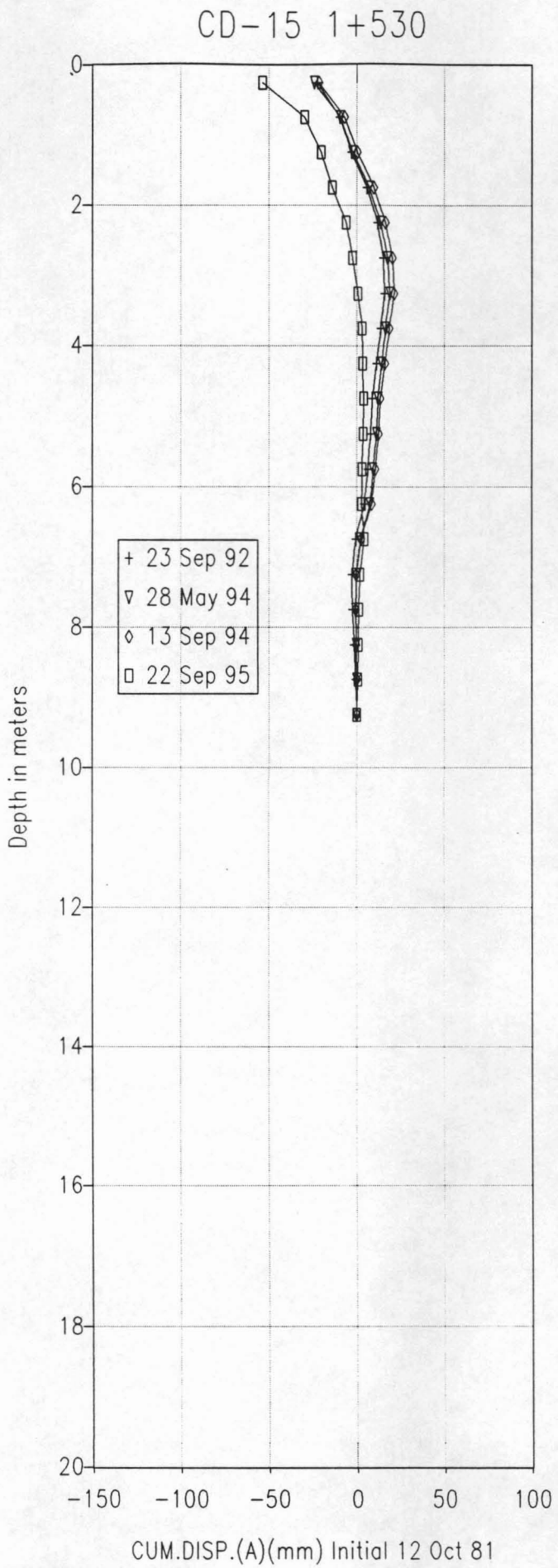
INCLINOMETERS

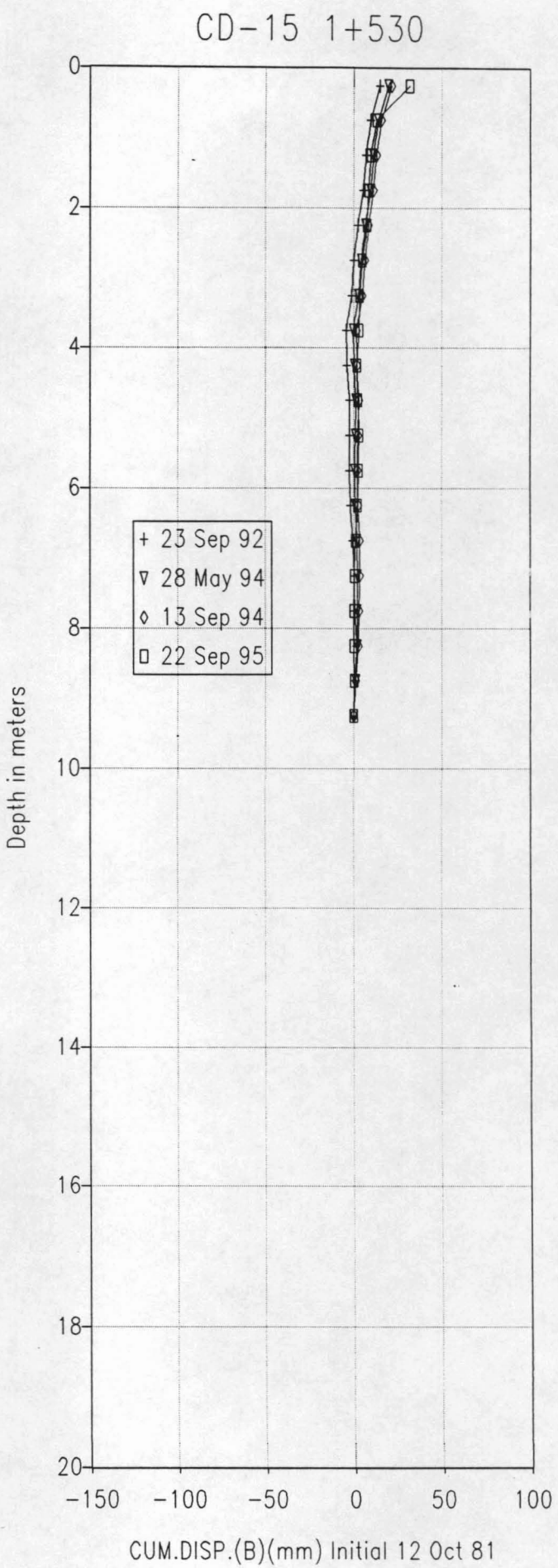

CD-10 0+990
Depth in meters
0
2
4
6
8
10
12
14
16
18
20
+ 23 Sep 92
▽ 28 May 94
◇ 13 Sep 94
□ 22 Sep 95
-150
-100
-50
0
50
100
CUM.DISP.(A)(mm) Initial 12 Oct 81


CD-10 0+990
Depth in meters
0
2
4
6
8
10
12
14
16
18
20
-150
-100
-50
0
50
100
CUM.DISP.(B)(mm) Initial 12 Oct 81

Canal Dyke CD-10 @0+990

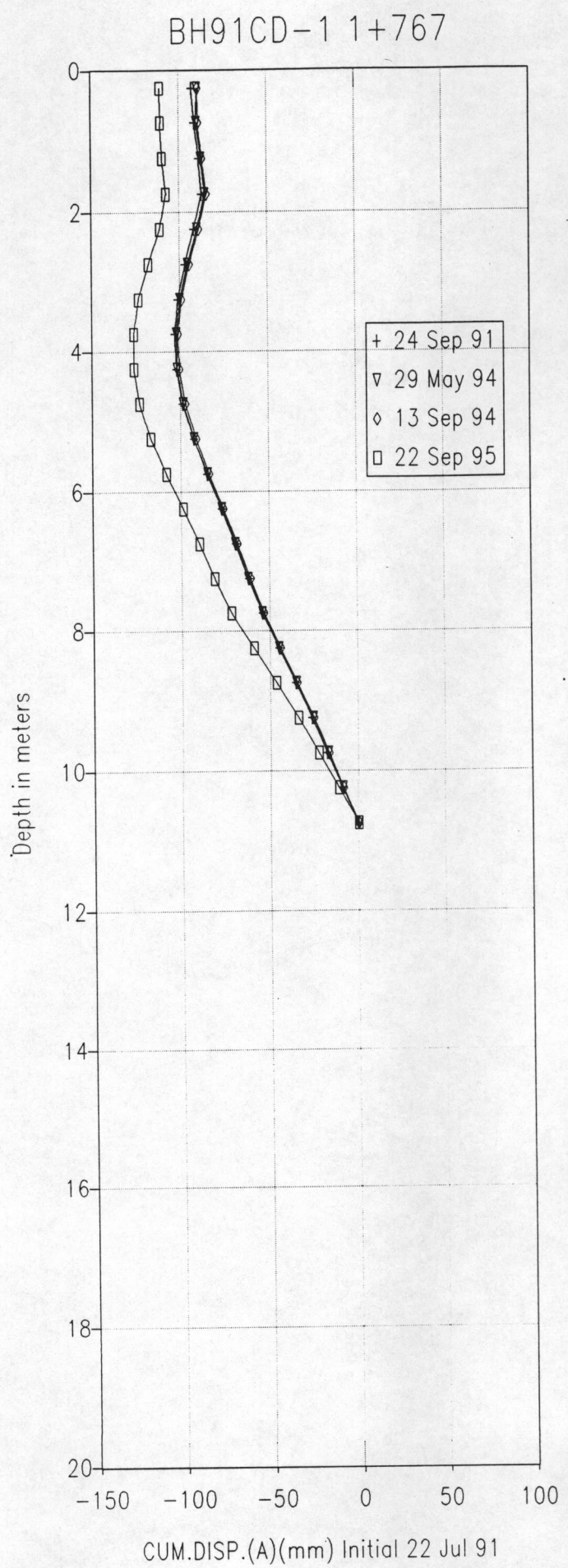
	INITIAL Oct 12 81				Sep 23 1992				May 28 1994				Sep 13 1994				Sep 22 1995			
Depth	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-
0.5	113	0	-61	0	69	-52	-37	43	-178	155	-593	514	-142	150	-440	485	-6	-21	-90	87
1.0	97	0	-41	0	66	-47	-38	44	400	-414	-500	473	382	-396	-474	459	71	-98	-90	88
1.5	73	0	6	0	52	-32	0	8	451	-461	-39	20	453	-451	-44	18	72	-100	70	-69
2.0	60	0	68	0	49	-29	55	-48	390	-402	503	-550	393	-399	519	-547	84	-110	115	-116
2.5	81	0	118	0	54	-35	68	-60	446	-473	612	-647	454	-457	635	-650	98	-124	141	-141
3.0	103	0	152	0	64	-44	81	-75	546	-556	799	-826	543	-546	812	-829	129	-156	182	-182
3.5	127	0	183	0	79	-59	100	-94	687	-700	1008	-1017	690	-693	1011	-1023	159	-184	212	-212
4.0	157	0	212	0	89	-69	108	-101	788	-796	1064	-1102	785	-781	1069	-1092	178	-205	223	-223
4.5	208	0	259	0	116	-96	126	-121	1040	-1047	1227	-1259	1074	-1058	1254	-1278	276	-305	297	-297
5.0	274	0	305	0	155	-136	157	-150	1449	-1463	1541	-1577	1451	-1456	1559	-1583	322	-348	321	-320
5.5	312	0	329	0	165	-149	158	-151	1554	-1569	1555	-1591	1563	-1561	1558	-1582	338	-364	316	-315
6.0	327	0	306	0	174	-153	145	-140	1640	-1650	1451	-1470	1646	-1642	1440	-1477	351	-376	286	-286
6.5	330	0	279	0	177	-156	128	-124	1681	-1693	1269	-1290	1678	-1679	1307	-1297	344	-368	249	-249
7.0	324	0	246	0	169	-148	110	-106	1603	-1612	1096	-1117	1601	-1602	1085	-110	321	-346	212	-221
7.5	300	0	191	0	154	-136	86	-78	1460	-1480	865	-864	1440	-1457	818	-835	262	-286	125	-126
8.0	253	0	110	0	124	-104	43	-35	1159	-1169	383	-416	1152	-1155	402	-431	215	-239	81	-82
8.5	208	0	73	0	114	-94	39	-33	1047	-1059	349	-388	1047	-1050	371	-400	203	-227	75	-76
9.0	202	0	63	0	112	-92	37	-29	1030	-1043	327	-363	1032	-1035	341	-374	200	-224	69	-70
9.5	203	0	65	0	111	-90	34	-27	1012	-1024	318	-346	1018	-1019	320	-352	200	-224	67	-68
10.0	206	0	73	0	113	-93	36	-27	1038	-1050	332	-354	1042	-1046	326	-354	203	-227	72	-73

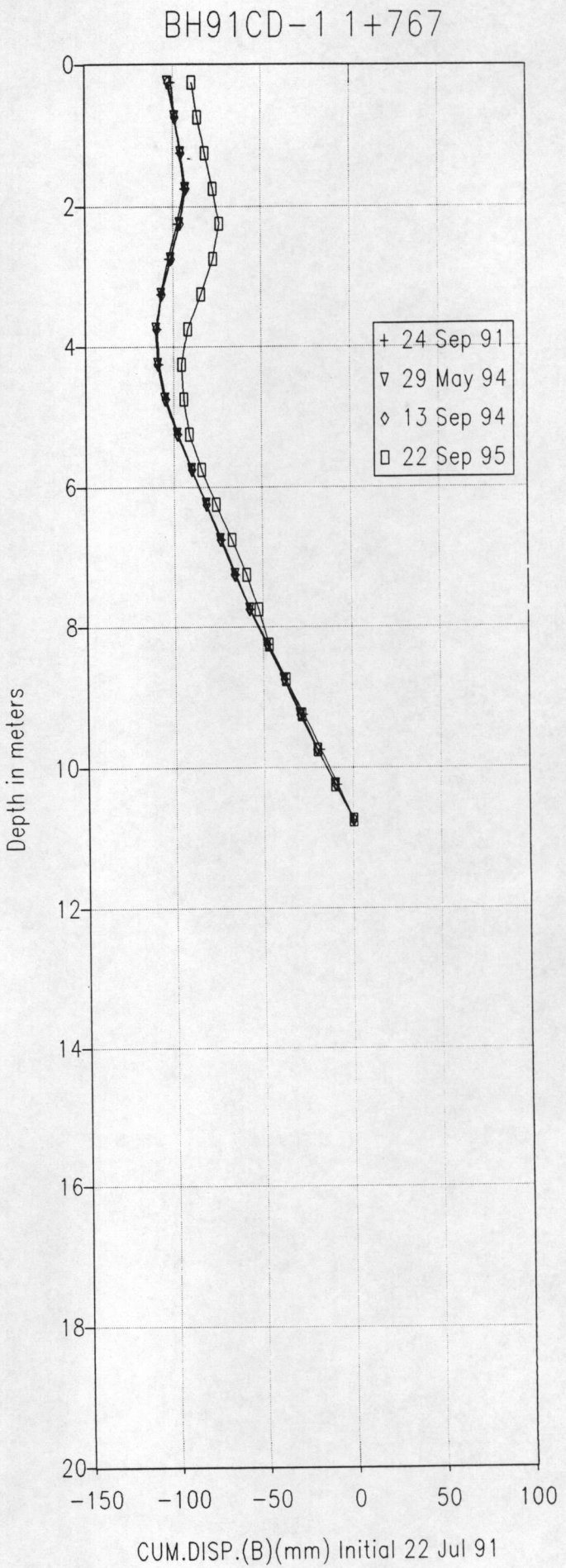

CD-15 1+530
0
2
4
6
8
10
12
14
16
18
20
Depth in meters
+ 23 Sep 92
▽ 28 May 94
◇ 13 Sep 94
□ 22 Sep 95
-150
-100
-50
0
50
100
CUM.DISP.(A)(mm) Initial 12 Oct 81


CD-15 1+530
0
2
4
6
8
10
12
14
16
18
20
Depth in meters
+ 23 Sep 92
▽ 28 May 94
◇ 13 Sep 94
□ 22 Sep 95
-150
-100
-50
0
50
100
CUM.DISP.(B)(mm) Initial 12 Oct 81

Canal Dyke CD-15 @St.1+530

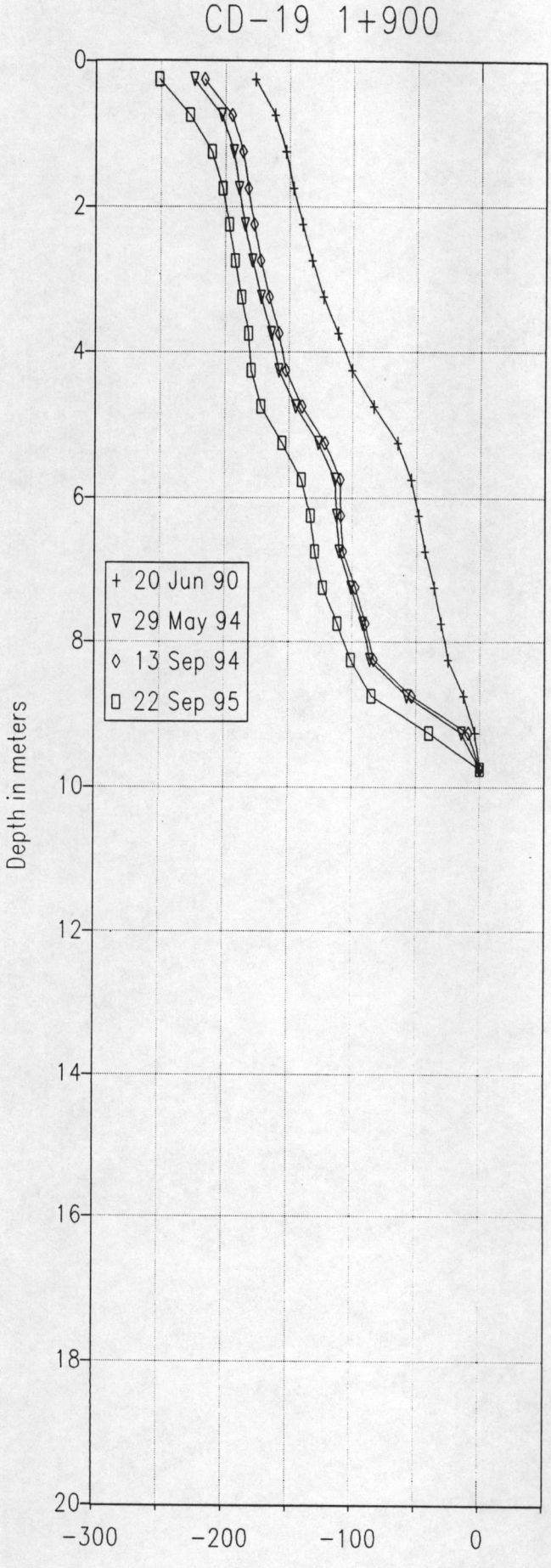
	INITIAL Oct 12 81				Sep 23 1992				May 28 1994				Sep 13 1994				Sep 22 1995			
Depth	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-
0.5	-93	0	1	0	-187	204	153	-152	-2264	2150	1469	-1616	-2200	2148	1485	-1591	330	-381	-208	190
1.0	-116	0	9	0	-112	131	35	-27	-1317	1309	335	-334	-1300	1313	350	-325	214	-240	-49	48
1.5	-131	0	17	0	-91	108	24	-19	-1018	1007	211	-236	-1023	1017	209	-220	193	-218	-38	36
2.0	-143	0	25	0	-106	123	24	-18	-1191	1180	186	-220	-1180	1175	222	-223	225	-250	-43	42
2.5	-159	0	31	0	-101	119	33	-27	-1130	1118	292	-322	-1131	1129	282	-302	196	-221	-59	58
3.0	-171	0	33	0	-93	111	32	-26	-1052	1041	269	-300	-1049	1046	267	-279	184	-209	-47	46
3.5	-167	0	31	0	-76	98	24	-19	-910	891	222	-238	-888	879	231	-232	127	-154	-56	56
4.0	-116	0	52	0	-38	55	45	-37	-470	459	395	-417	-435	448	407	-419	36	-62	-81	79
4.5	-47	0	69	0	-3	22	36	-31	-136	122	314	-337	-118	114	335	-337	-22	-4	-61	59
5.0	16	0	66	0	29	-12	28	-22	192	-202	261	-291	206	-207	263	-271	-78	52	-54	52
5.5	63	0	60	0	44	-27	33	-28	350	-369	317	-333	360	-367	324	-330	-102	76	-73	71
6.0	83	0	67	0	59	-41	36	-30	491	-504	322	-360	503	-507	346	-360	-136	110	-68	67
6.5	119	0	63	0	78	-61	30	-26	690	-702	285	-323	708	-710	303	-311	-201	175	-58	57
7.0	202	0	44	0	135	-117	20	-12	1264	-1285	158	-189	1321	-1304	165	-185	-331	286	-29	27
7.5	285	0	24	0	162	-144	11	-5	1548	-1560	82	-119	1563	-1564	106	-119	-330	305	-26	25
8.0	313	0	20	0	163	-145	12	-5	1568	-1582	88	-119	1574	-1577	103	-128	-325	300	-25	23
8.5	309	0	26	0	159	-141	12	-6	1529	-1540	112	-137	1532	-1534	137	-148	-315	290	-37	36
9.0	299	0	40	0	154	-136	26	-20	1468	-1480	243	-271	1471	-1474	277	-274	-310	285	-68	67
9.5	291	0	62	0	152	-134	39	-32	1449	-1461	357	-386	1458	-1459	375	-390				

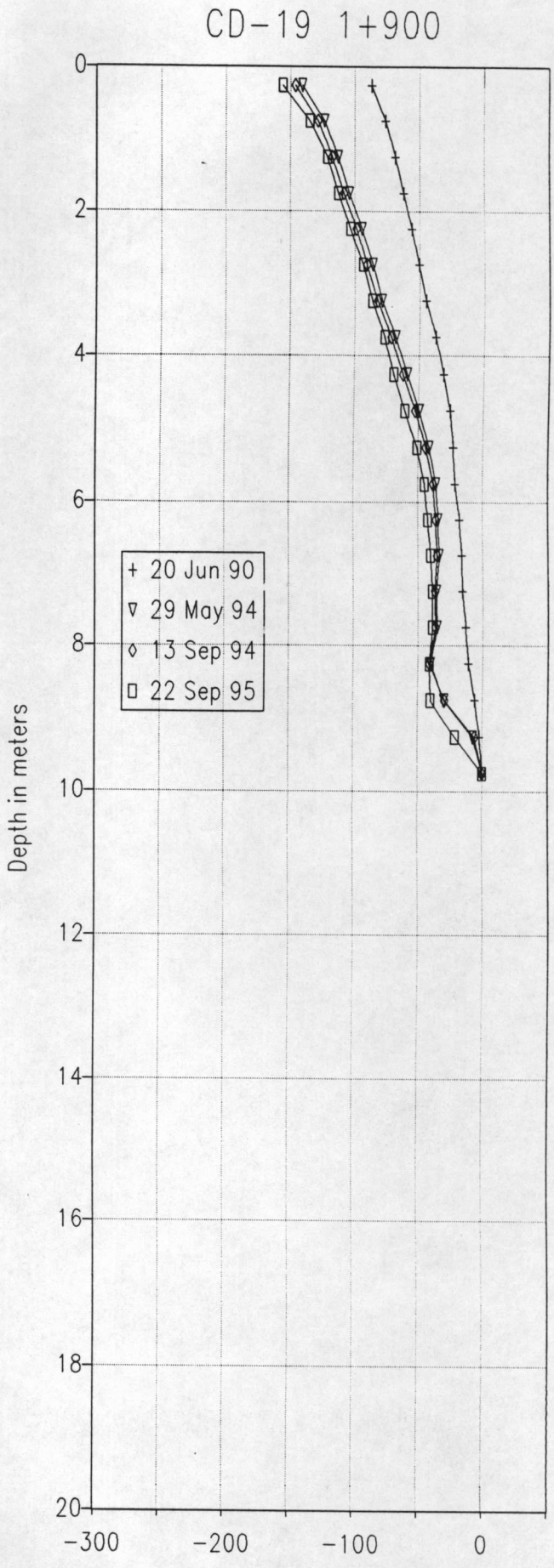

BH91CD-1 1+767
Depth in meters
0
2
4
6
8
10
12
14
16
18
20
+ 24 Sep 91
▽ 29 May 94
◇ 13 Sep 94
□ 22 Sep 95
-150
-100
-50
0
50
100
CUM.DISP.(A)(mm) Initial 22 Jul 91


BH91CD-1 1+767
Depth in meters
0
2
4
6
8
10
12
14
16
18
20
+ 24 Sep 91
▽ 29 May 94
◇ 13 Sep 94
□ 22 Sep 95
-150
-100
-50
0
50
100
CUM.DISP.(B)(mm) Initial 22 Jul 91

Canal Dyke BH91CD1 @St.1+767

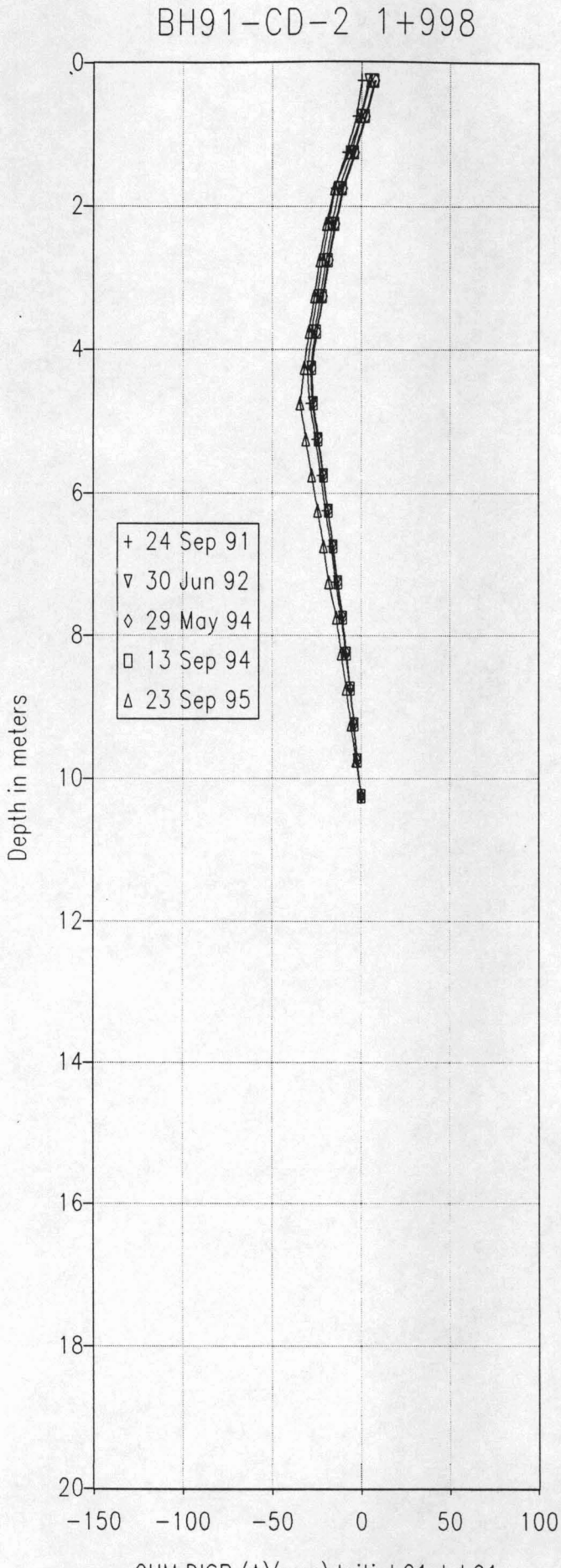
	INITIAL July 22 91				Sep 24 1991				May 29 1994				Sep 13 1994				Sep 22 1995			
Depth	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-
0.5	22	-3	13	5	17	1	-4	1	144	-151	-165	140	130	-131	-152	155	17	-42	-32	31
1.0	24	-7	12	10	18	1	-10	8	160	-169	-219	177	151	-154	-205	182	10	-35	-42	41
1.5	20	-12	15	15	13	5	-17	13	39	-54	-183	147	47	-54	-163	154	-12	-13	-33	31
2.0	20	-1	15	2	12	6	-6	3	-20	5	-84	48	-19	10	-73	66	-23	-11	40	-31
2.5	17	59	18	-54	10	8	54	-57	13	-22	517	-537	7	-13	512	-540	4	-28	116	-117
3.0	17	68	17	-64	10	8	64	-67	20	-29	634	-668	22	-25	652	-672	7	-32	138	-139
3.5	18	55	16	-51	11	7	56	-56	39	-46	608	-610	33	-35	607	-605	8	-33	113	-114
4.0	20	28	14	-25	14	3	28	-30	63	-72	344	-348	67	-70	350	-354	9	-34	44	-46
4.5	22	-1	12	4	16	2	-2	0	87	-93	-7	1	92	-91	-3	-4	3	-28	-22	20
5.0	20	-24	14	24	15	5	-25	23	58	-63	-258	234	56	-55	-279	257	-11	-14	-69	69
5.5	17	-50	16	54	11	6	-53	51	20	-35	-537	523	22	-32	-534	520	-21	-3	-119	118
6.0	17	-62	16	65	11	7	-65	62	21	-29	-669	635	24	-27	-670	637	-21	-4	-135	136
6.5	17	-67	16	70	11	7	-71	67	23	-31	-704	670	30	-30	-686	677	-22	-2	-142	142
7.0	17	-66	16	69	11	7	-70	67	20	-27	-675	645	26	-25	-660	648	-22	-3	-133	113
7.5	15	-58	18	61	10	9	-63	59	0	-6	-635	596	4	-4	-630	599	-26	2	-118	118
8.0	17	-65	16	65	12	7	-65	63	17	-24	-667	639	24	-24	-664	647	-12	-13	-156	156
8.5	32	-96	0	99	27	-9	-100	99	162	-179	-986	969	171	-181	-989	983	9	-33	-211	210
9.0	40	-107	-7	110	35	-16	-110	107	245	-255	-1077	1047	260	-263	-1068	1060	21	-45	-214	213
9.5	46	-111	-13	114	43	-24	-115	111	300	-316	-1090	1057	311	-316	-1074	1057	29	-54	-216	215
10.0	50	-108	-16	110	46	-27	-111	108	343	-365	-1125	1091	365	-370	-1118	1097	38	-63	-226	225
10.5	51	-109	-17	111	46	-27	-113	108	384	-397	-1176	1135	394	-398	-1152	1144	39	-64	-234	233
11.0	52	-113	-18	115	46	-27	-113	108	384	-397	-1150	1175	388	-399	-1155	1162				

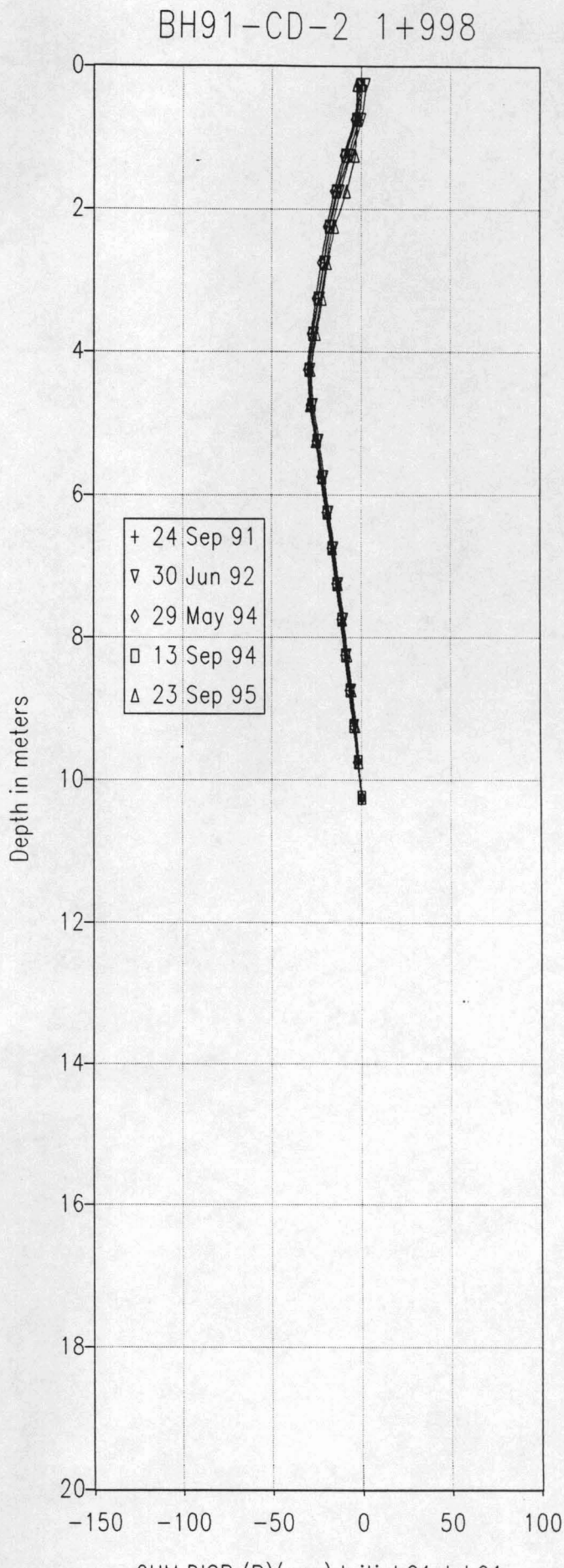

CD-19 1+900
Depth in meters
0
2
4
6
8
10
12
14
16
18
20
+ 20 Jun 90
▽ 29 May 94
◇ 13 Sep 94
□ 22 Sep 95
-300
-200
-100
0
CUM.DISP.(A)(mm) Initial 12 Nov 81


CD-19 1+900
Depth in meters
0
2
4
6
8
10
12
14
16
18
20
+ 20 Jun 90
▽ 29 May 94
◇ 13 Sep 94
□ 22 Sep 95
-300
-200
-100
0
CUM.DISP.(B)(mm) Initial 12 Nov 81

Canal Dyke CD-19 @St.1+900

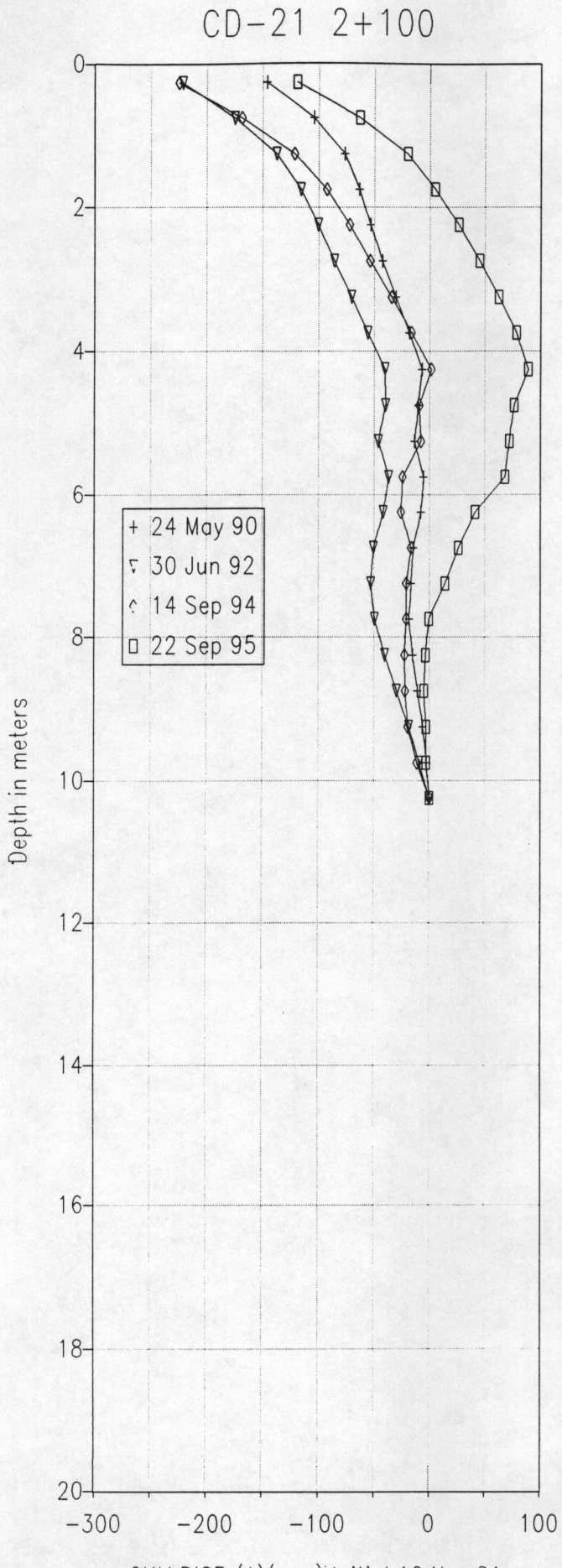
	Initial Nov 12 1981				Jun 20 90				May 29 1994				Sep 13 1994				Sep 22 1995			
Depth	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-
0.5	-408	0	34	0	-288	299	-47	42	-3283	3265	-855	835	-3250	3239	-882	874	-671	646	-191	191
1.0	-420	0	20	0	-282	293	-45	39	-3183	3164	-773	764	-3147	3137	-783	790	-606	582	-148	147
1.5	-423	0	-12	0	-248	259	-46	42	-2587	2571	-582	576	-2565	2547	-608	596	-508	484	-136	136
2.0	-415	0	-53	0	-231	242	-61	54	-2287	2274	-698	680	-2276	2266	-726	707	-466	443	-156	156
2.5	-403	0	-62	0	-232	243	-65	61	-2262	2250	-816	796	-2253	2248	-818	787	-460	436	-168	168
3.0	-398	0	-68	0	-232	243	-64	59	-2279	2265	-756	746	-2256	2252	-757	735	-465	442	-146	144
3.5	-403	0	-74	0	-242	252	-68	63	-2360	2349	-755	740	-2342	2340	-783	776	-484	459	-176	177
4.0	-418	0	-81	0	-260	271	-81	75	-2515	2505	-931	910	-2484	2485	-942	917	-495	471	-198	196
4.5	-462	0	-123	0	-281	291	-97	92	-2604	2591	-1094	1065	-2581	2578	-1111	1079	-554	529	-253	254
5.0	-463	0	-164	0	-312	322	-111	106	-2986	2965	-1293	1277	-2967	2962	-1312	1299	-641	617	-270	271
5.5	-467	0	-172	0	-320	331	-102	95	-3235	3225	-1286	1252	-3210	3204	-1294	1266	-659	635	-261	260
6.0	-493	0	-203	0	-294	305	-112	108	-3131	3112	-1294	1283	-3089	3079	-1317	1315	-601	575	-272	273
6.5	-515	0	-248	0	-282	293	-143	139	-2637	2620	-1330	1305	-2600	2586	-1345	1324	-530	506	-277	277
7.0	-485	0	-255	0	-263	275	-140	133	-2542	2522	-1327	1325	-2524	2509	-1327	1336	-527	503	-258	261
7.5	-452	0	-248	0	-255	266	-128	124	-2725	2728	-1161	1114	-2736	2744	-1174	1137	-598	573	-239	244
8.0	-468	0	-242	0	-258	269	-135	131	-2817	2791	-1222	1243	-2772	2735	-1221	1247	-567	543	-236	235
8.5	-450	0	-254	0	-247	258	-141	136	-2527	2537	-1041	986	-2560	2567	-1051	1009	-611	586	-267	264
9.0	-439	0	-260	0	-275	286	-158	153	-3638	3622	-1831	1844	-3705	3681	-1888	1898	-904	876	-453	457
9.5	-441	0	-263	0	-258	270	-154	147	-4364	4337	-2427	2430	-4444	4391	-2460	2509	-855	837	-460	461
10.0	-445	0	-248	0	-236	249	-137	132	-2974	2937	-1616	1585	-2674	2683	-1572	1488	0	0	0	0

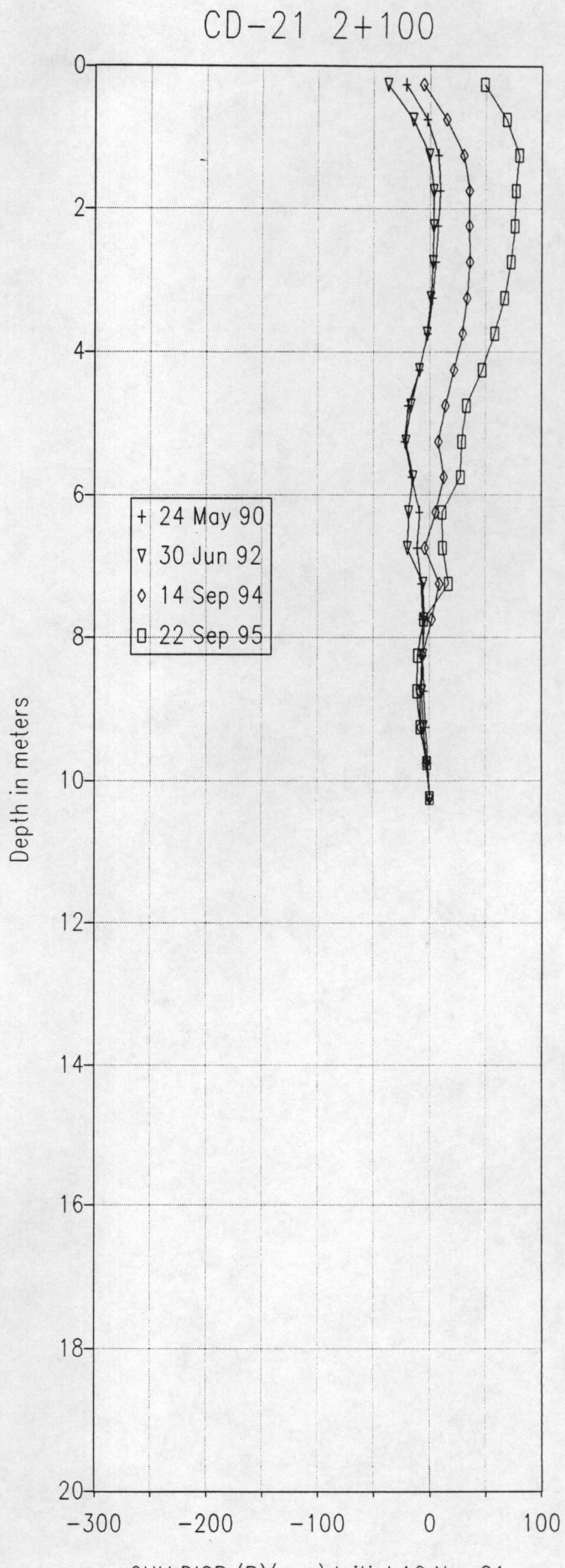

BH91-CD-2 1+998
Depth in meters
0
2
4
6
8
10
12
14
16
18
20
+ 24 Sep 91
▽ 30 Jun 92
◇ 29 May 94
□ 13 Sep 94
△ 23 Sep 95
−150
−100
−50
0
50
100
CUM.DISP.(A)(mm) Initial 21 Jul 91


BH91-CD-2 1+998
Depth in meters
0
2
4
6
8
10
12
14
16
18
20
+ 24 Sep 91
▽ 30 Jun 92
◇ 29 May 94
□ 13 Sep 94
△ 23 Sep 95
−150
−100
−50
0
50
100
CUM.DISP.(B)(mm) Initial 21 Jul 91

Backslope BH91CD2 @St.1+998

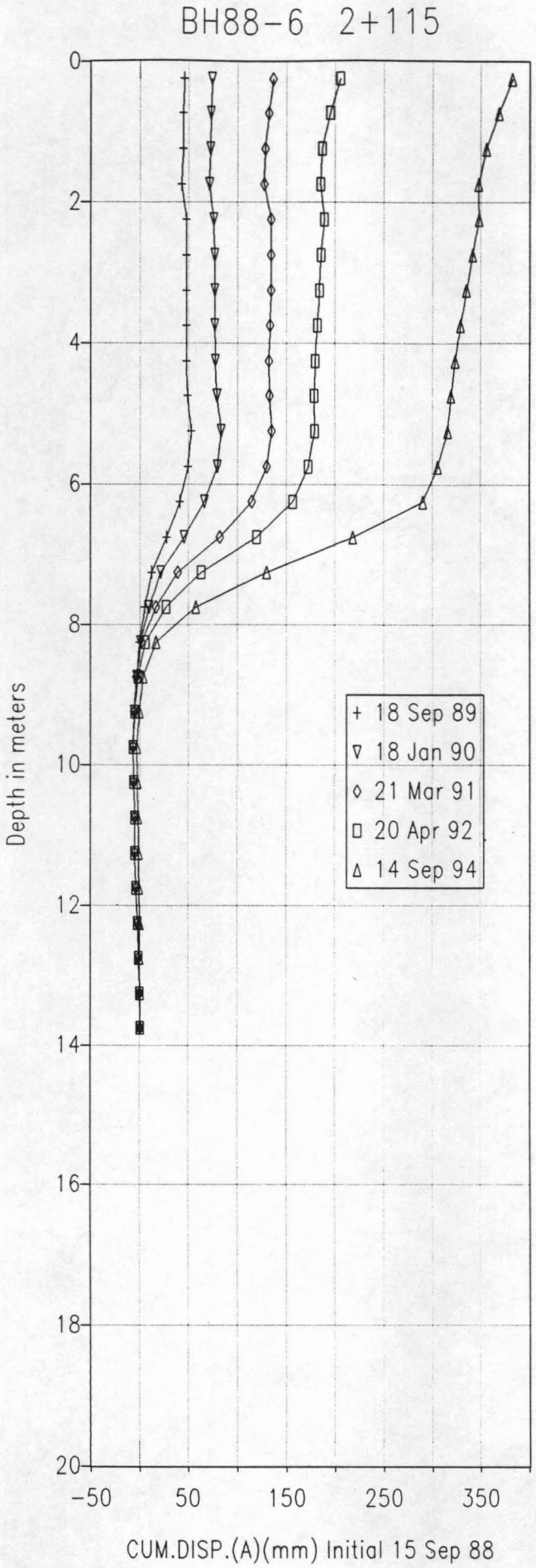
	INITIAL July 21 91				Sep 24 1991				Jun 30 1992				May 29 1994				Sep 13 1994				Sep 23 1995			
Depth	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-
0.5	96	-62	-71	62	98	-76	-61	58	107	-89	-60	66	1063	-1067	-640	619	1050	-1065	-630	628	187	-210	-126	125
1.0	100	-47	-74	48	98	-76	-51	50	103	-85	-44	52	993	-1000	-497	487	983	-1002	-491	490	166	-190	-76	75
1.5	97	-15	-72	18	95	-74	-17	18	92	-74	-10	18	851	-858	-160	158	845	-863	-141	156	146	-169	-2	2
2.0	82	6	-56	-6	80	-58	5	-10	81	-62	8	0	717	-718	17	-35	706	-721	23	-29	124	-149	0	-1
2.5	77	-13	-52	13	75	-54	-13	11	74	-57	-7	13	664	-669	-124	118	656	-672	-124	130	115	-140	-28	26
3.0	75	-17	-49	17	73	-52	-19	16	72	-54	-14	20	638	-642	-181	163	630	-645	-180	161	107	-131	-34	33
3.5	73	-16	-47	16	70	-49	-17	14	70	-51	-12	19	613	-619	-171	154	605	-620	-170	147	108	-132	-29	29
4.0	72	-16	-47	16	70	-49	-18	15	69	-51	-12	19	607	-612	-182	167	600	-161	-181	172	102	-127	-33	32
4.5	68	-20	-43	19	66	-45	-22	18	65	-47	-17	23	573	-578	-219	191	567	-584	-215	194	87	-111	-43	44
5.0	44	-32	-19	34	42	-21	-33	33	42	-24	-28	37	348	-354	-338	334	329	-347	-340	337	26	-51	-78	76
5.5	32	-38	-7	38	30	-9	-40	37	29	-11	-35	42	205	-209	-404	374	198	-213	-397	367	17	-42	-77	77
6.0	29	-35	-5	35	27	-6	-37	34	26	-8	-32	39	176	-183	-362	333	169	-185	-354	333	13	-38	-67	66
6.5	27	-31	-2	31	25	-4	-33	29	24	-5	-27	34	149	-156	-322	296	142	-158	-316	296	10	-35	-62	62
7.0	26	-29	-2	29	24	-3	-31	28	23	-5	-26	32	142	-150	-309	278	135	-153	-302	279	10	-34	-57	56
7.5	25	-28	0	27	22	-1	-29	25	22	-3	-24	30	126	-130	-292	261	118	-134	-286	255	4	-27	-55	56
8.0	29	-30	-4	29	25	-5	-31	28	25	-7	-26	33	154	-161	-311	285	154	-169	-307	292	21	-48	-66	62
8.5	32	-29	-7	28	28	-8	-31	26	28	-10	-25	31	193	-199	-299	271	185	-201	-290	277	18	-43	-53	52
9.0	30	-27	-4	26	27	-7	-28	24	27	-8	-23	29	172	-177	-278	261	165	-183	-274	257	17	-42	-53	53
9.5	31	-27	-5	26	28	-9	-28	24	29	-10	-23	28	191	-195	-290	266	184	-201	-284	259	24	-49	-53	52
10.0	35	-28	-9	27	31	-13	-29	25	32	-13	-23	29	222	-226	-303	265	215	-233	-300	282	29	-54	-56	56
10.5	39	-33	-12	31	33	-15	-33	30	34	-15	-28	33	246	-250	-334	319	240	-258	-297	310				

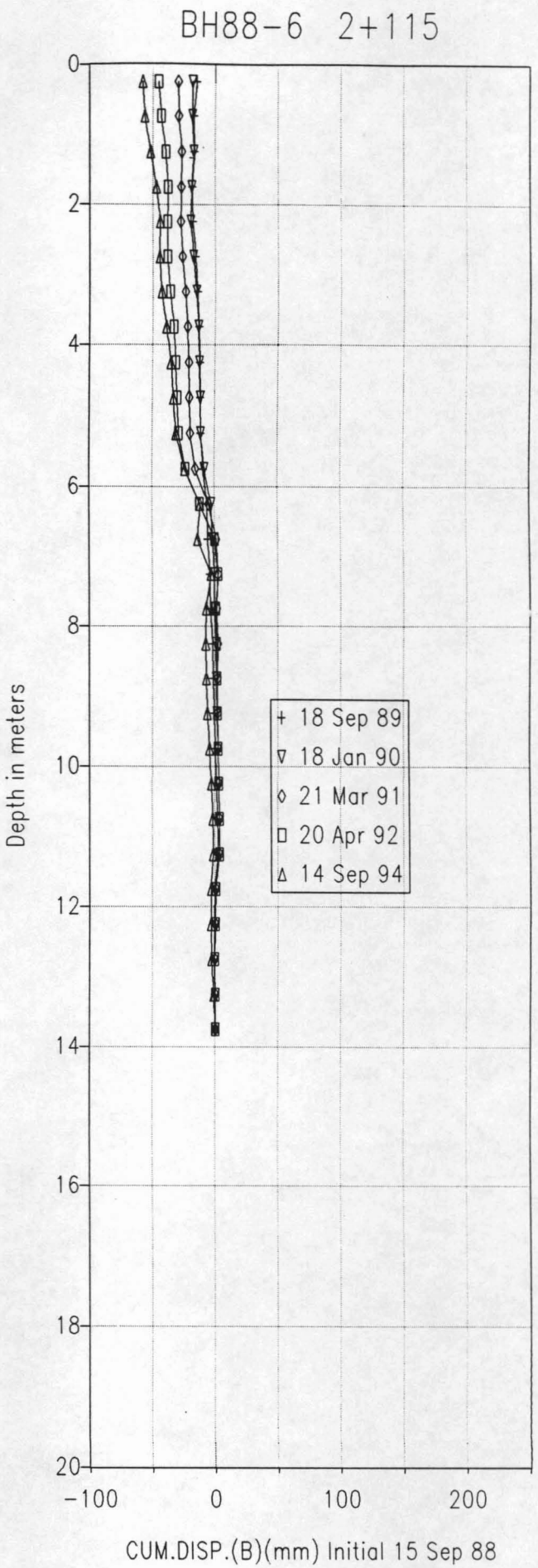

CD-21 2+100
Depth in meters
0
2
4
6
8
10
12
14
16
18
20
+ 24 May 90
30 Jun 92
14 Sep 94
22 Sep 95
-300
-200
-100
0
100
CUM.DISP.(A)(mm) Initial 12 Nov 81


CD-21 2+100
Depth in meters
0
2
4
6
8
10
12
14
16
18
20
+ 24 May 90
30 Jun 92
14 Sep 94
22 Sep 95
-300
-200
-100
0
100
CUM.DISP.(B)(mm) Initial 12 Nov 81

Canal Dyke CD-21 @2+100

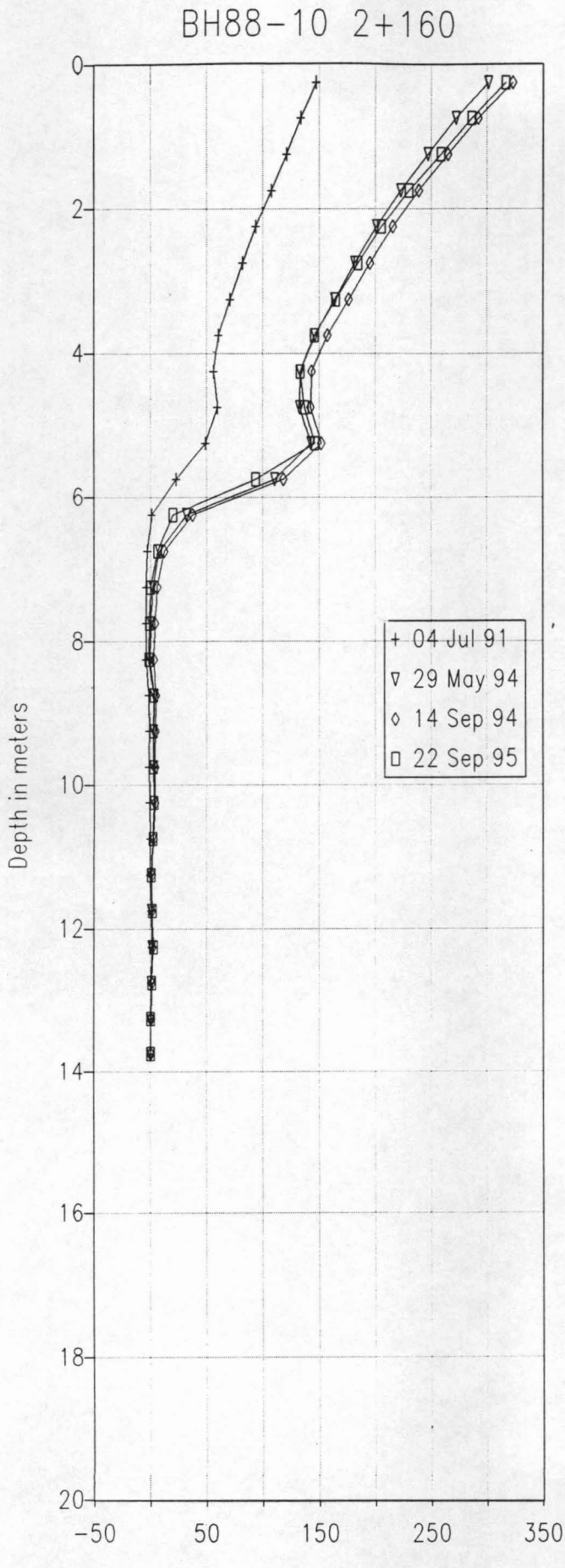
	INITIAL Nov 12 81				May 24 1990				Jun 30 1992				Sep 14 1994				Sep 22 1995			
Depth	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-
0.5	-67	0	-62	0	-239	250	-131	122	-260	273	-139	146	3157	-3169	1339	-1361	-646	613	-250	268
1.0	-43	0	-50	0	-154	164	-77	71	-199	216	-93	101	2539	-2558	1007	-1018	-486	458	-157	168
1.5	-31	0	-10	0	-77	87	-15	10	-117	132	-24	26	1601	-1614	295	-303	-296	269	17	-20
2.0	-31	0	55	0	-62	71	33	-38	-84	102	32	-27	1166	-1184	-283	268	-253	228	69	-66
2.5	-34	0	123	0	-66	76	69	-73	-81	99	64	-61	1100	-1116	-588	572	-236	209	160	-157
3.0	-30	0	173	0	-70	79	99	-104	-84	101	99	-95	1098	-1117	-1008	995	-219	194	230	-227
3.5	-22	0	221	0	-66	76	130	-135	-76	94	131	-124	992	-1007	-1289	1273	-195	167	308	-305
4.0	-29	0	270	0	-68	77	169	-174	-84	100	171	-167	1041	-1068	-1736	1740	-149	121	384	-383
4.5	-40	0	344	0	1	8	219	-226	-12	30	212	-208	334	-349	-2136	2106	67	-98	485	-480
5.0	-43	0	431	0	-1	9	227	-233	19	-1	242	-235	-301	269	-2470	2454	-9	-17	479	-476
5.5	-31	0	471	0	-51	61	202	-207	-52	72	205	-200	664	-662	-2120	2110	-73	-49	483	-469
6.0	-35	0	502	0	0	12	214	-220	16	2	275	-268	-121	91	-2878	2856	222	-259	673	-666
6.5	-44	0	512	0	16	-9	263	-271	28	-12	263	-257	-761	579	-3012	3079	73	-140	510	-501
7.0	-39	0	515	0	-5	16	235	-241	-1	11	188	-185	38	7	-1916	1918	72	-87	461	-465
7.5	-20	0	519	0	5	6	250	-257	-18	37	259	-252	-124	78	-2925	2964	103	-151	755	-727
8.0	5	0	522	0	-9	18	256	-262	-35	52	269	-264	84	-105	-3028	3028	25	-45	575	-573
8.5	34	0	492	0	-1	11	239	-244	-28	46	252	-246	148	-163	-2539	2542	33	-60	500	-497
9.0	53	0	469	0	7	3	225	-230	-16	43	232	-227	122	-146	-2326	2326	18	-46	443	-436
9.5	69	0	459	0	23	-13	217	-223	3	26	217	-213	-66	66	-2072	2064	56	-83	404	-401
10.0	80	0	451	0	34	-23	216	-221	5	14	216	-211	-163	138	-2115	2106	40	-67	429	-427

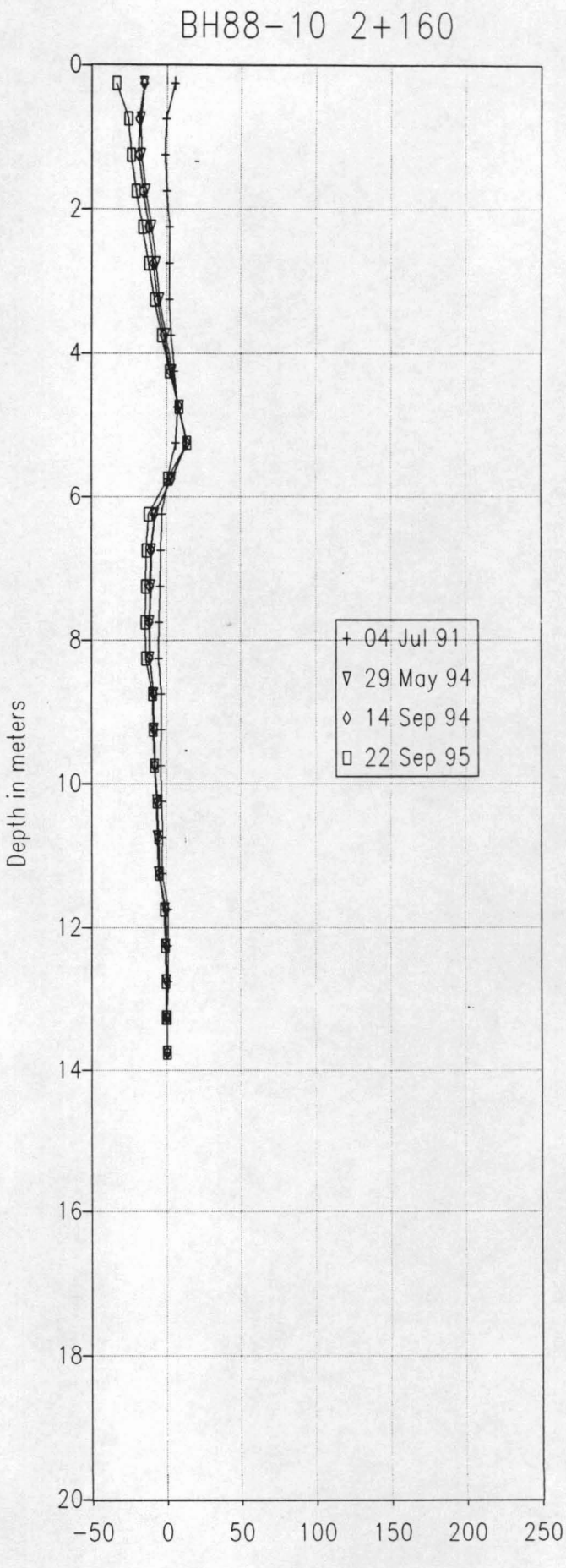

BH88-6 2+115
Depth in meters
0
2
4
6
8
10
12
14
16
18
20
-50
50
150
250
350
+ 18 Sep 89
▽ 18 Jan 90
◇ 21 Mar 91
□ 20 Apr 92
△ 14 Sep 94
CUM.DISP.(A)(mm) Initial 15 Sep 88


BH88-6 2+115
Depth in meters
0
2
4
6
8
10
12
14
16
18
20
-100
0
100
200
+ 18 Sep 89
▽ 18 Jan 90
◇ 21 Mar 91
□ 20 Apr 92
△ 14 Sep 94
CUM.DISP.(B)(mm) Initial 15 Sep 88

Canal Dyke BH88-6 @St.2+115

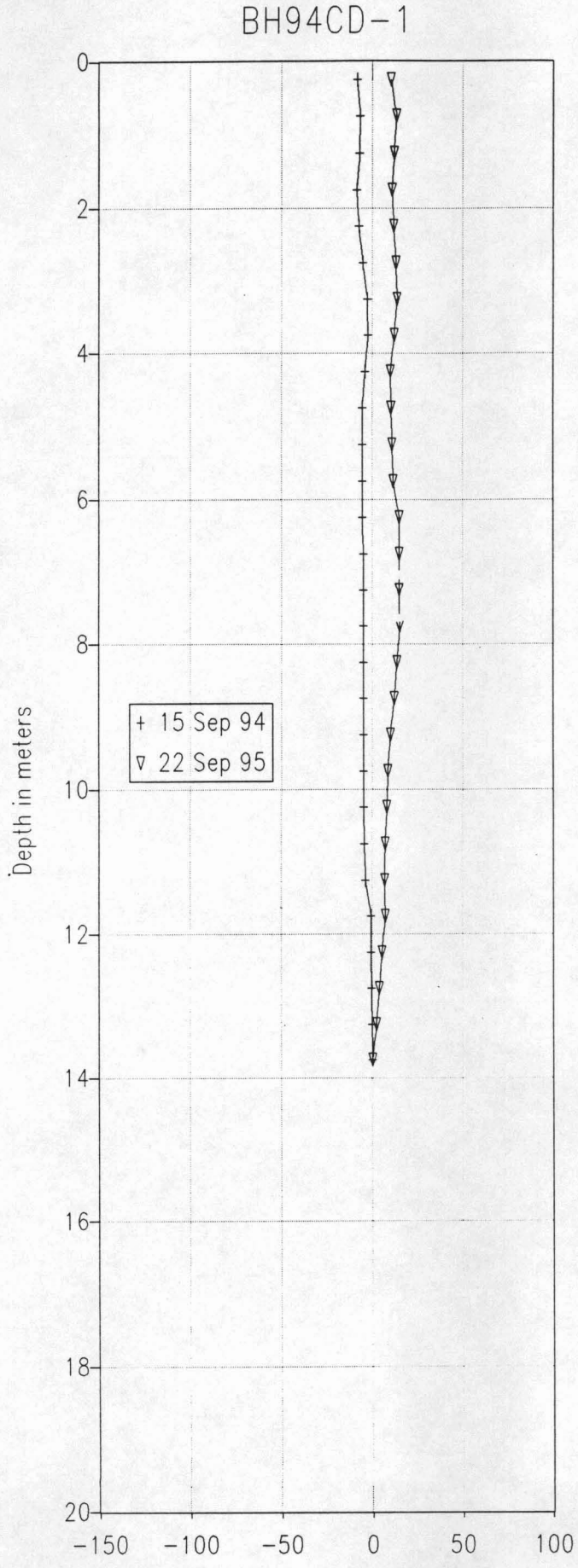
	Initial Sep 15 1988				Sept 18 1989				Jan 18 1990				Mar 21 1991				Apr 20 1992				Sep 14 94			
Depth	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-
0.5	-268	0	-62	0	-123	133	-24	20	-123	133	-33	30	-108	118	-36	32	-74	92	-39	44	-655	640	-417	380
1.0	-271	0	-35	0	-130	139	-21	16	-129	139	-28	20	-109	119	-33	28	-86	102	-37	39	-706	692	-427	388
1.5	-239	0	-1	0	-107	115	6	-10	-109	119	6	-11	-110	120	0	-5	-104	120	-8	7	-801	786	-256	218
2.0	-188	0	2	0	-114	123	-3	0	-111	121	3	-8	-125	134	0	-5	-103	119	6	0	-974	967	-133	117
2.5	-414	0	-79	0	-204	212	-52	49	-207	216	-53	51	-202	211	-48	43	-184	200	-38	43	-1746	1731	-381	365
3.0	-478	0	-124	0	-234	243	-73	69	-236	245	-77	71	-233	244	-77	72	-222	238	-69	77	-2079	2062	-729	712
3.5	-523	0	-156	0	-257	265	-86	81	-257	266	-89	83	-251	261	-90	85	-242	258	-91	92	-2326	2312	-980	958
4.0	-550	0	-178	0	-271	279	-96	91	-272	281	-97	92	-266	275	-97	92	-256	274	-98	99	-2480	2466	-1081	1044
4.5	-570	0	-198	0	-286	295	-103	98	-288	297	-104	99	-282	292	-104	98	-272	289	-103	106	-2632	2618	-1127	1085
5.0	-611	0	-217	0	-320	329	-112	108	-324	334	-114	108	-313	323	-118	108	-298	316	-113	118	-2898	2883	-1198	1179
5.5	-772	0	-167	0	-366	374	-97	92	-362	371	-101	95	-356	365	-109	100	-345	363	-109	112	-3369	3352	-1230	1187
6.0	-792	0	-171	0	-352	359	-102	99	-326	334	-116	113	-316	323	-140	137	-308	326	-143	143	-3196	3196	-1556	1347
6.5	-830	0	-173	0	-344	352	-92	87	-308	317	-95	87	-248	256	-123	111	-223	237	-145	148	-2381	2313	-2465	2512
7.0	-828	0	-170	0	-333	342	-94	90	-287	297	-92	87	-193	204	-95	87	-120	137	-95	98	265	-247	-1389	1377
7.5	-831	0	-186	0	-376	384	-99	94	-351	361	-96	91	-299	306	-92	83	-228	245	-85	87	-522	534	-778	735
8.0	-801	0	-210	0	-370	377	-115	110	-354	362	-114	109	-324	332	-113	106	-286	304	-106	106	-1954	1943	-1027	1011
8.5	-657	0	-244	0	-308	318	-127	124	-304	314	-126	123	-297	308	-127	116	-280	300	-122	125	-2621	2618	-1246	1228
9.0	-576	0	-252	0	-271	280	-132	126	-270	279	-131	125	-271	279	-131	121	-261	280	-129	130	-2688	2682	-1331	1282
9.5	-479	0	-262	0	-231	239	-139	133	-230	239	-137	132	-230	241	-136	127	-224	241	-134	130	-2280	2267	-1395	1376
10.0	-476	0	-298	0	-237	245	-155	150	-236	246	-156	149	-236	246	-156	149	-236	246	-156	149	-2407	2396	-1582	1552
10.5	-479	0	-318	0	-238	247	-165	160	-238	248	-164	157	-238	248	-164	157	-238	248	-164	157	-2428	2420	-1655	1613
11.0	-503	0	-326	0	-249	258	-166	162	-249	258	-166	161	-249	258	-166	161	-249	258	-166	161	-2554	2542	-1654	1644
11.5	-507	0	-245	0	-254	263	-115	105	-254	264	-112	104	-254	264	-112	104	-254	264	-112	104	-2559	2558	-1161	1092
12.0	-548	0	-184	0	-276	285	-94	87	-276	285	-92	85	-276	285	-92	85	-276	285	-92	85	-2771	2770	-950	914
12.5	-590	0	-145	0	-296	305	-75	69	-296	305	-73	69	-296	305	-73	69	-296	305	-73	69	-2956	2958	-777	722
13.0	-628	0	-137	0	-316	324	-73	69	-315	324	-73	68	-315	324	-73	68	-315	324	-73	68	-3169	3169	-769	751
13.5	-654	0	-142	0	-325	334	-76	69	-325	334	-74	68	-325	334	-74	68	-325	334	-74	68	-3254	3244	-796	759

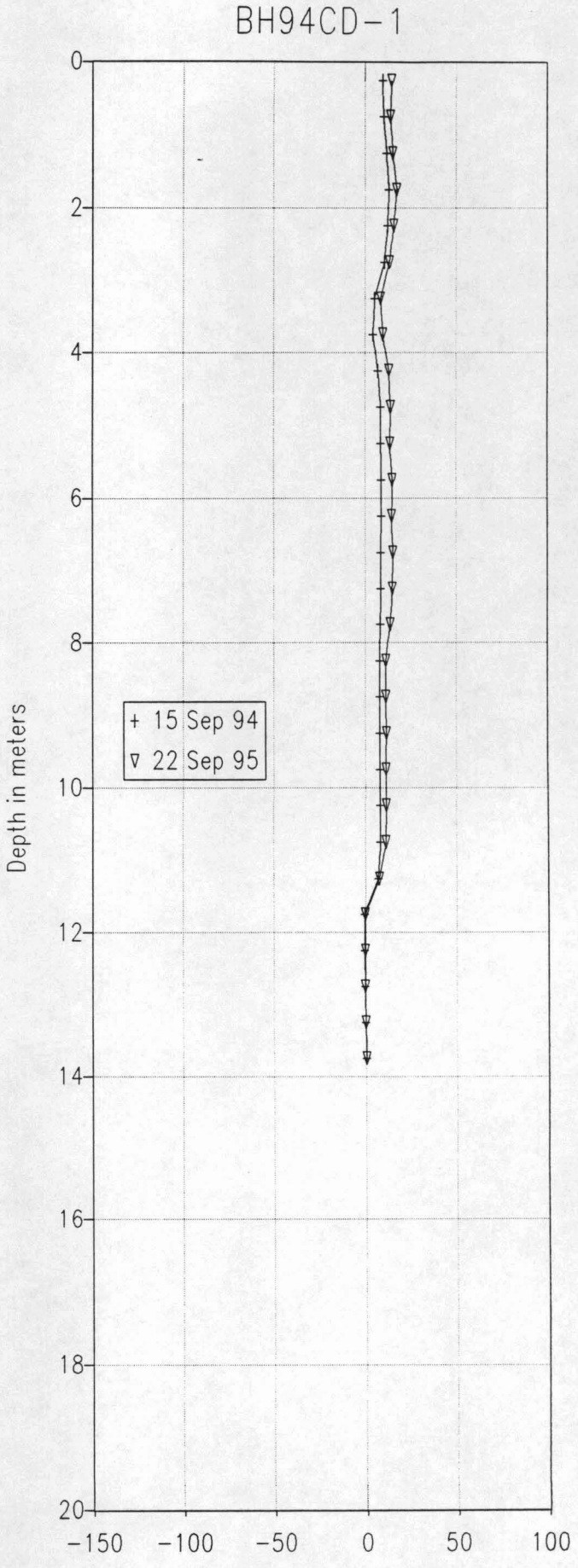

BH88-10 2+160
Depth in meters
0
2
4
6
8
10
12
14
16
18
20
-50
50
150
250
350
+ 04 Jul 91
▽ 29 May 94
◇ 14 Sep 94
□ 22 Sep 95
CUM.DISP.(A)(mm) Initial 15 Sep 88


BH88-10 2+160
Depth in meters
0
2
4
6
8
10
12
14
16
18
20
-50
0
50
100
150
200
250
+ 04 Jul 91
▽ 29 May 94
◇ 14 Sep 94
□ 22 Sep 95
CUM.DISP.(B)(mm) Initial 15 Sep 88

Canal Dyke BH88-10 St.2+160

	Initial 15-Sep-88				4-Jul-91				29-May-94				14-Sep-94				22-Sep-95			
Depth	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-
0.5	-44	0	106	0	56	-37	79	-84	1218	-1231	619	-636	1304	-1333	671	-708	258	-273	44	-13
1.0	-104	0	66	0	19	-1	35	-38	733	-741	310	-328	826	-850	316	-364	156	-181	47	-43
1.5	-117	0	50	0	19	-1	17	-22	627	-638	98	-109	716	-729	94	-131	157	-182	19	-16
2.0	-69	0	42	0	45	-27	10	-16	748	-759	-9	-30	812	-826	-9	-51	169	-193	1	1
2.5	-51	0	38	0	41	-23	17	-22	704	-710	29	-50	752	-762	3	-52	143	-168	0	2
3.0	-63	0	15	0	32	-14	4	-8	573	-585	-60	35	634	-649	-95	45	124	-150	-25	27
3.5	-63	0	-4	0	29	-11	-9	5	554	-564	-224	201	612	-625	-243	198	110	-136	-50	52
4.0	-53	0	-20	0	4	13	-23	18	386	-397	-332	313	430	-445	-354	315	63	-89	-76	77
4.5	-39	0	-40	0	-28	46	-33	28	-170	163	-442	432	-136	120	-476	449	-90	64	-104	105
5.0	-33	0	-46	0	47	-28	-20	16	-683	657	-505	505	-678	659	-521	513	-138	118	-91	108
5.5	-79	0	-56	0	99	-82	-3	0	1223	-1238	239	-224	1316	-1333	240	-230	421	-481	69	-80
6.0	-154	0	-86	0	42	-24	-25	19	3131	-3138	139	-149	3268	-3290	140	-162	570	-593	43	-43
6.5	-171	0	-74	0	-56	74	-36	30	363	-354	-265	249	388	-410	-271	232	-45	20	-55	57
7.0	-196	0	-78	0	-84	102	-40	34	-695	686	-388	352	-665	659	-385	353	-145	119	-75	78
7.5	-218	0	-68	0	-101	119	-34	29	-1006	997	-324	295	-1010	998	-330	293	-222	198	-62	65
8.0	-236	0	-53	0	-110	127	-27	21	-1152	1140	-286	245	-1146	1134	-290	255	-245	220	-57	59
8.5	-255	0	-55	0	-131	149	-40	35	-1460	1455	-402	391	-1370	1361	-425	409	-308	284	-98	103
9.0	-314	0	-91	0	-149	166	-48	42	-1557	1547	-488	455	-1548	1536	-497	449	-324	299	-94	96
9.5	-312	0	-85	0	-146	164	-44	39	-1550	1539	-463	436	-1538	1529	-471	429	-324	299	-91	93
10.0	-311	0	-81	0	-149	167	-46	41	-1574	1563	-478	447	-1571	1555	-492	464	-330	304	-99	101
10.5	-344	0	-93	0	-160	178	-50	45	-1621	1614	-502	463	-1606	1593	-511	482	-336	312	-101	103
11.0	-351	0	-88	0	-167	185	-46	40	-1701	1691	-479	459	-1685	1678	-483	464	-351	319	-93	95
11.5	-361	0	-7	0	-176	195	-26	21	-1793	1789	-284	276	-1803	1793	-267	249	-382	362	-38	42
12.0	-401	0	-28	0	-194	213	-16	11	-2030	2024	-167	143	-2029	2025	-167	128	-421	397	-33	36
12.5	-414	0	-13	0	-195	213	-9	4	-2063	2046	-93	78	-2045	2027	-104	56	-413	387	-17	18
13.0	-408	0	-6	0	-192	211	-1	-3	-2025	2021	-25	20	-2019	2014	-27	-7	-413	388	-5	7
13.5	-411	0	1	0	-196	214	-2	-3	-2042	2033	-28	13	-2035	2027	-50	24	-422	396	-8	10
14.0	-428	0	7	0	-204	222	1	-7	-2128	2125	35	-38	-2121	2116	-15	-27				


BH94CD-1
Depth in meters
+ 15 Sep 94
▽ 22 Sep 95
0
2
4
6
8
10
12
14
16
18
20
−150
−100
−50
0
50
100
CUM.DISP.(A)(mm) Initial 15 Jun 94


BH94CD-1
Depth in meters
+ 15 Sep 94
▽ 22 Sep 95
0
2
4
6
8
10
12
14
16
18
20
−150
−100
−50
0
50
100
CUM.DISP.(B)(mm) Initial 15 Jun 94

Canal Dyke BH94CD-1

	15-Jun-94 INITIAL				15-Sep-94				22-Sep-95			
Depth	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-
0.5	-160	168	77	-99	-248	240	32	-75	-73	48	24	-25
1.0	-249	255	63	-85	-233	225	-14	-21	-53	28	1	-4
1.5	-220	228	43	-69	-159	151	-31	-9	-45	19	-10	9
2.0	-131	138	64	-82	-201	192	85	-121	-48	22	29	-31
2.5	-49	55	114	-136	-157	150	208	-229	-36	11	46	-47
3.0	5	2	95	-115	-127	118	354	-386	-19	-7	68	-72
3.5	47	-41	78	-109	20	-29	139	-158	11	-37	4	-8
4.0	62	-57	27	-57	142	-156	-107	81	20	-46	-25	23
4.5	74	-70	-15	-14	138	-145	-94	75	0	-26	-10	8
5.0	89	-81	-32	9	75	-85	-36	9	-4	-21	2	4
5.5	69	-60	-4	-16	58	-69	-5	-8	-4	-21	-11	9
6.0	-136	148	-35	-1	-146	138	-40	-4	-74	48	-2	0
6.5	-362	370	-65	42	-397	388	-65	26	-86	61	-18	15
7.0	-316	324	-6	0	-321	312	-9	-8	-77	51	1	-3
7.5	-372	381	154	-160	-381	370	166	-180	-92	67	44	-46
8.0	-461	470	374	-400	-467	456	380	-413	-90	65	99	-100
8.5	-402	405	620	-635	-414	404	622	-640	-78	53	127	-127
9.0	-362	369	630	-654	-367	359	626	-655	-64	38	126	-126
9.5	-279	289	644	-662	-290	278	640	-672	-57	31	131	-132
10.0	-316	325	676	-704	-332	320	674	-705	-69	44	139	-140
10.5	-394	404	710	-731	-413	402	702	-743	-83	58	145	-145
11	-431	452	760	-779	-433	441	758	-791	-90	63	182	-183
11.5	-525	523	1095	-1117	-568	524	1094	-1110	-96	71	223	-223
12	-552	562	1093	-1110	-567	564	1082	-1110	-107	81	219	-220
12.5	-627	636	1087	-1112	-648	638	1076	-1114	-123	98	218	-219
13	-710	721	1072	-1088	-734	724	1056	-1078	-141	115	213	-214
13.5	-777	787	1072	-1093	-802	791	1057	-1079	-148	122	215	-216

SPOIL PILE

THERMISTORS

Anvil Range Mining Corp.

Faro Mine Instrumentation
Spoil Pile

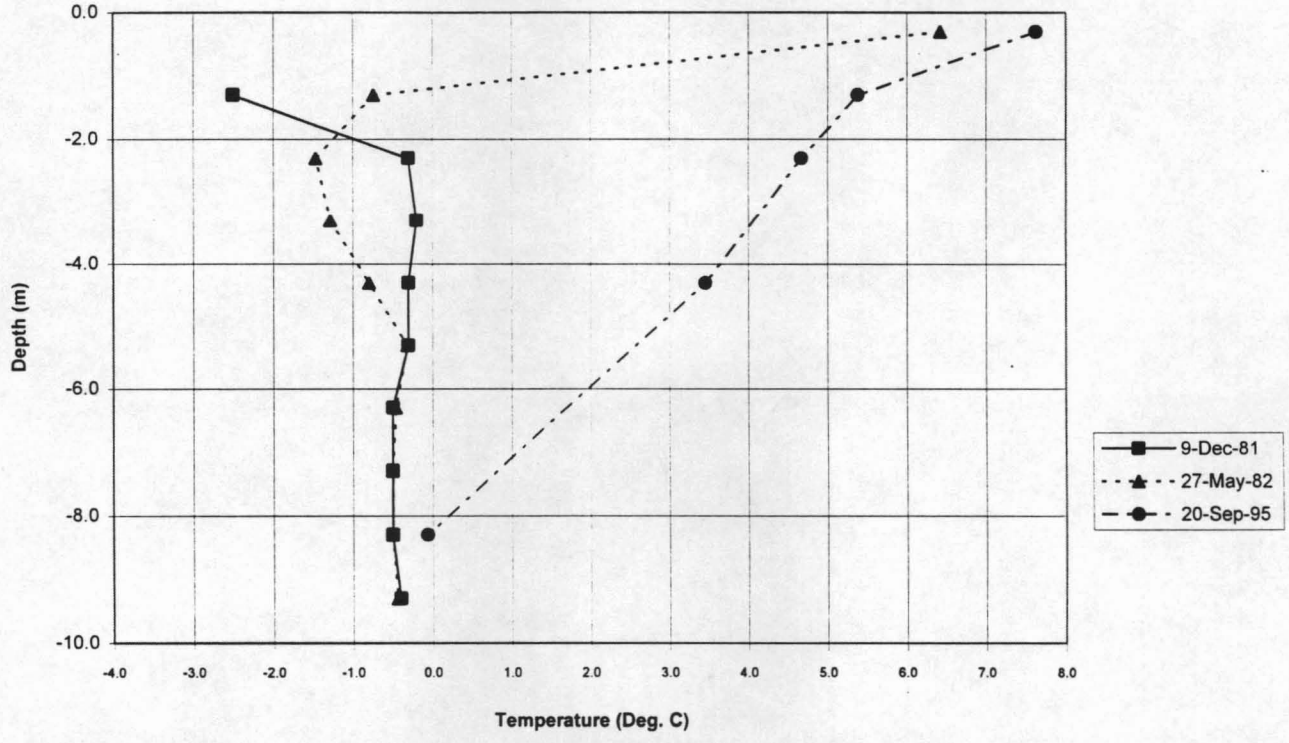
SP-2		**Location:**	N. of canal dyke St.1+530	**Elevation:**	1093.1 m Cantec	**Coordinates:**	1274.1 mN & 1055.7 mE			
Thermistor String #21		**Date Installed:**	1981	**Thermistor Type:**	Controls YSI 44007	**Ice-Bath Calibration:**	applied		**Surface Protector:**	yes
Depth Correction	0.3									

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 9-Dec-81	Resistivity (kOhms) 27-May-82	Resistivity (kOhms) 20-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
0.0	-0.3		11.74	11.07						
1.0	-1.3	18.44	16.84	12.37						
2.0	-2.3	16.45	17.46	12.80						
3.0	-3.3	16.34	17.27							
4.0	-4.3	16.45	16.87	13.60						
5.0	-5.3	16.40	16.41							
6.0	-6.3	16.60	16.57							
7.0	-7.3	16.62	16.62							
8.0	-8.3	16.62	16.62	16.25						
9.0	-9.3	16.50	16.53							

* The initial reading (Nov 15/81) is excluded from the data set because post-installation temperature equilibruim may not have been complete.

Depth on String (m)	Actual Depth (m)	Temperature (C) 9-Dec-81	Temperature (C) 27-May-82	Temperature (C) 20-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
0.0	-0.3		6.43	7.63						
1.0	-1.3	-2.50	-0.74	5.39						
2.0	-2.3	-0.30	-1.46	4.68						
3.0	-3.3	-0.20	-1.28							
4.0	-4.3	-0.30	-0.79	3.46						
5.0	-5.3	-0.30	-0.31							
6.0	-6.3	-0.50	-0.46							
7.0	-7.3	-0.50	-0.50							
8.0	-8.3	-0.50	-0.50	-0.06						
9.0	-9.3	-0.40	-0.44							

THERMISTOR SP-2
(installed 1981)



Golder Associates

Anvil Range Mining Corp.

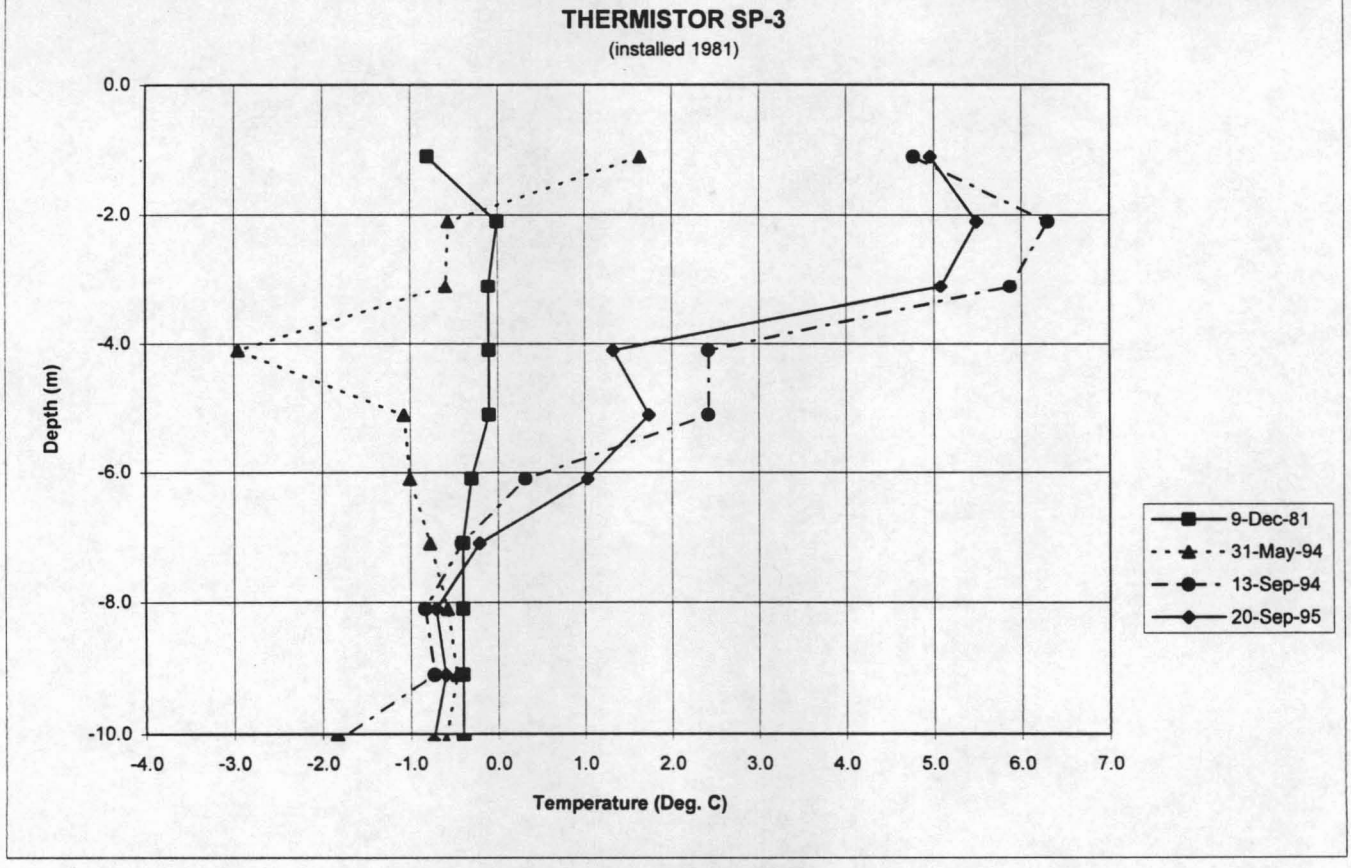
Faro Mine Instrumentation
Spoil Pile

SP-3	Location:	N. of canal dyke St.1+900	Elevation:	1083.5 m Cantec	Coordinates:	1394.4 mN & 704.5 mE		
Thermistor String#25	Date Installed:	1981	Thermistor Type:	Controls YSI 44007	Ice-Bath Calibration:	applied	Surface Protector:	yes
Depth Correction	0.1							

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 9-Dec-81	Resistivity (kOhms) 31-May-94	Resistivity (kOhms) 13-Sep-94	Resistivity (kOhms) 20-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
1.0	-1.1	16.85	14.88	12.72	12.60					
2.0	-2.1	16.20	16.67	11.81	12.29					
3.0	-3.1	16.25	16.66	12.04	12.52					
4.0	-4.1	16.27	18.85	14.32	15.13					
5.0	-5.1	16.27	17.10	14.32	14.82					
6.0	-6.1	16.39	16.99	15.88	15.31					
7.0	-7.1	16.49	16.81	16.50	16.33					
8.0	-8.1	16.54	16.69	16.91	16.80					
9.0	-9.1	16.54	16.60	16.82	16.71					
10.0	-10.1	16.48	16.65	17.74	16.77					

* The initial reading (Nov 15/81) is excluded from the data set because post-installation temperature equilibruim may not have been complete.

Depth on String (m)	Actual Depth (m)	Temperature (C) 9-Dec-81	Temperature (C) 31-May-94	Temperature (C) 13-Sep-94	Temperature (C) 20-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-1.1	-0.80	1.64	4.77	4.96					
2.0	-2.1	0.00	-0.56	6.31	5.50					
3.0	-3.1	-0.10	-0.59	5.87	5.08					
4.0	-4.1	-0.10	-2.95	2.42	1.33					
5.0	-5.1	-0.10	-1.07	2.42	1.74					
6.0	-6.1	-0.30	-1.00	0.32	1.04					
7.0	-7.1	-0.40	-0.77	-0.41	-0.21					
8.0	-8.1	-0.40	-0.57	-0.83	-0.70					
9.0	-9.1	-0.40	-0.47	-0.73	-0.60					
10.0	-10.1	-0.40	-0.60	-1.83	-0.74					



Golder Associates

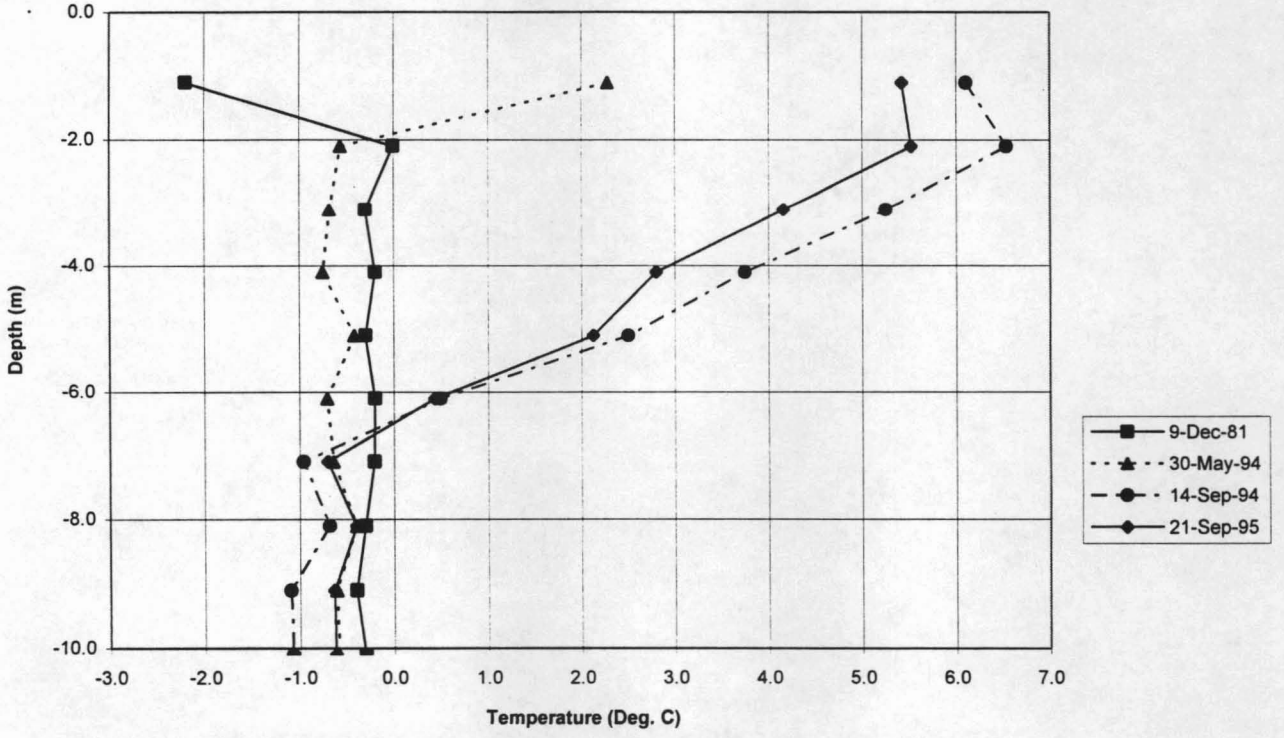
SP-5		**Location:**	N. of canal dyke St.2+950	**Elevation:**	1079.2 m	**Coordinates:**	1898.2 mN & 183.1 mW		
Thermistor String #24		**Date Installed:**	1981	**Thermistor Type:**	Cantec Controls YSI 44007	**Ice-Bath Calibration:**	applied	**Surface Protector:**	yes
Depth Correction	0.1								

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 9-Dec-81	Resistivity (kOhms) 30-May-94	Resistivity (kOhms) 14-Sep-94	Resistivity (kOhms) 21-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
1.0	-1.1	18.19	14.47	11.96	12.37					
2.0	-2.1	16.21	16.68	11.68	12.28					
3.0	-3.1	16.38	16.70	12.39	13.08					
4.0	-4.1	16.32	16.79	13.37	14.02					
5.0	-5.1	16.38	16.48	14.21	14.48					
6.0	-6.1	16.33	16.76	15.76	15.81					
7.0	-7.1	16.36	16.73	17.00	16.78					
8.0	-8.1	16.40	16.48	16.72	16.48					
9.0	-9.1	16.54	16.72	17.14	16.74					
10.0	-10.1	16.40	16.64	17.06	16.67					

* The initial reading (Nov 15/81) is excluded from the data set because post-installation temperature equilibruim may not have been complete.

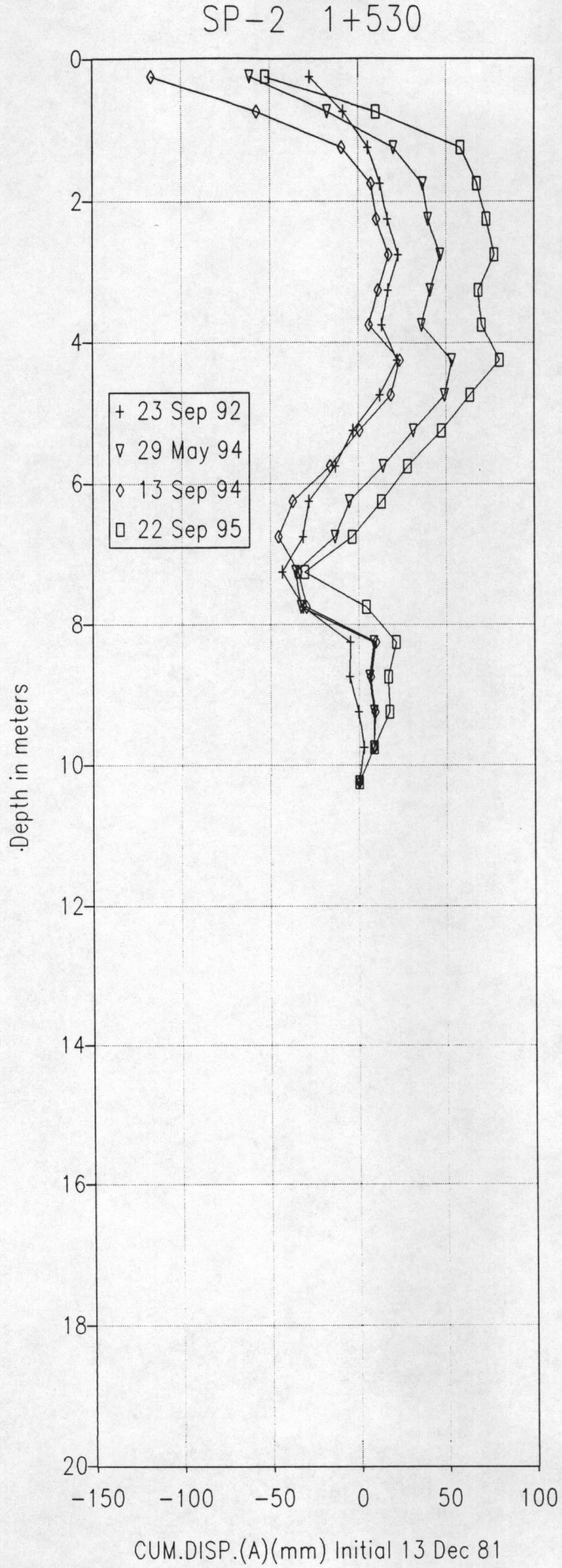
Depth on String (m)	Actual Depth (m)	Temperature (C) 9-Dec-81	Temperature (C) 30-May-94	Temperature (C) 14-Sep-94	Temperature (C) 21-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-1.1	-2.20	2.28	6.11	5.43					
2.0	-2.1	0.00	-0.56	6.54	5.52					
3.0	-3.1	-0.30	-0.68	5.25	4.16					
4.0	-4.1	-0.20	-0.75	3.75	2.80					
5.0	-5.1	-0.30	-0.42	2.51	2.13					
6.0	-6.1	-0.20	-0.71	0.50	0.44					
7.0	-7.1	-0.20	-0.64	-0.95	-0.70					
8.0	-8.1	-0.30	-0.40	-0.68	-0.40					
9.0	-9.1	-0.40	-0.61	-1.09	-0.63					
10.0	-10.1	-0.30	-0.59	-1.07	-0.62					

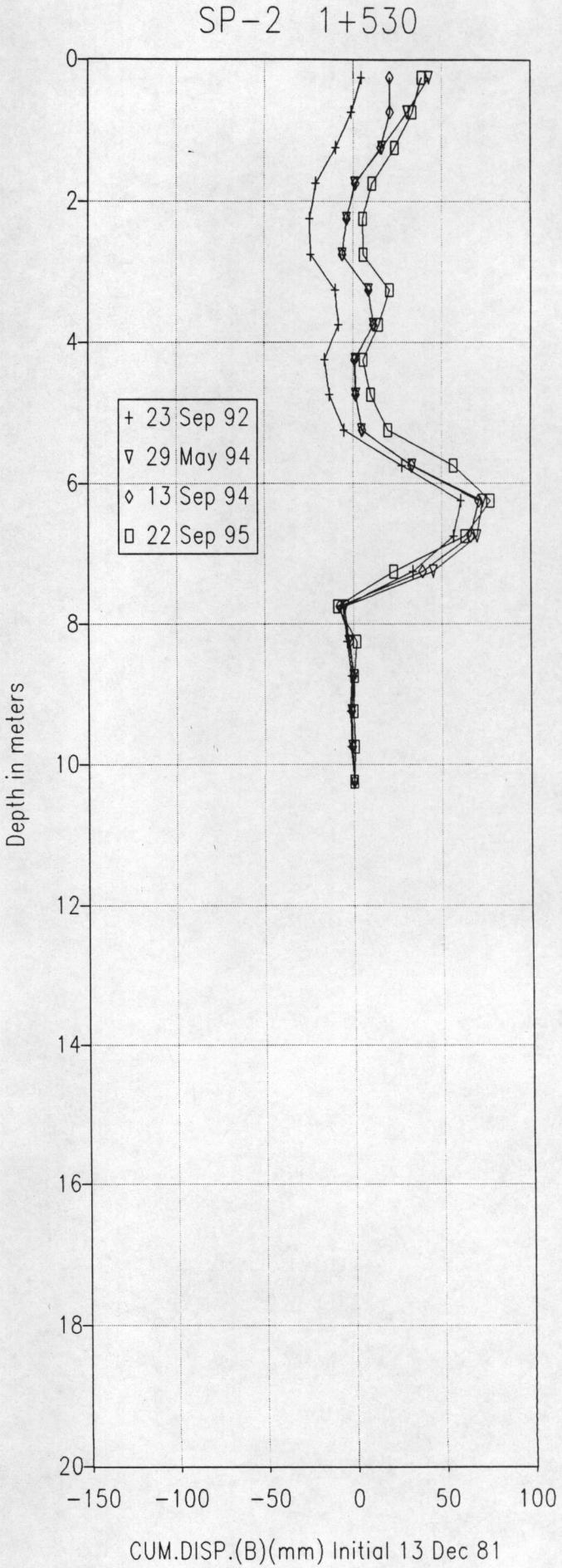
THERMISTOR SP-5
(installed 1981)



SPOIL PILE

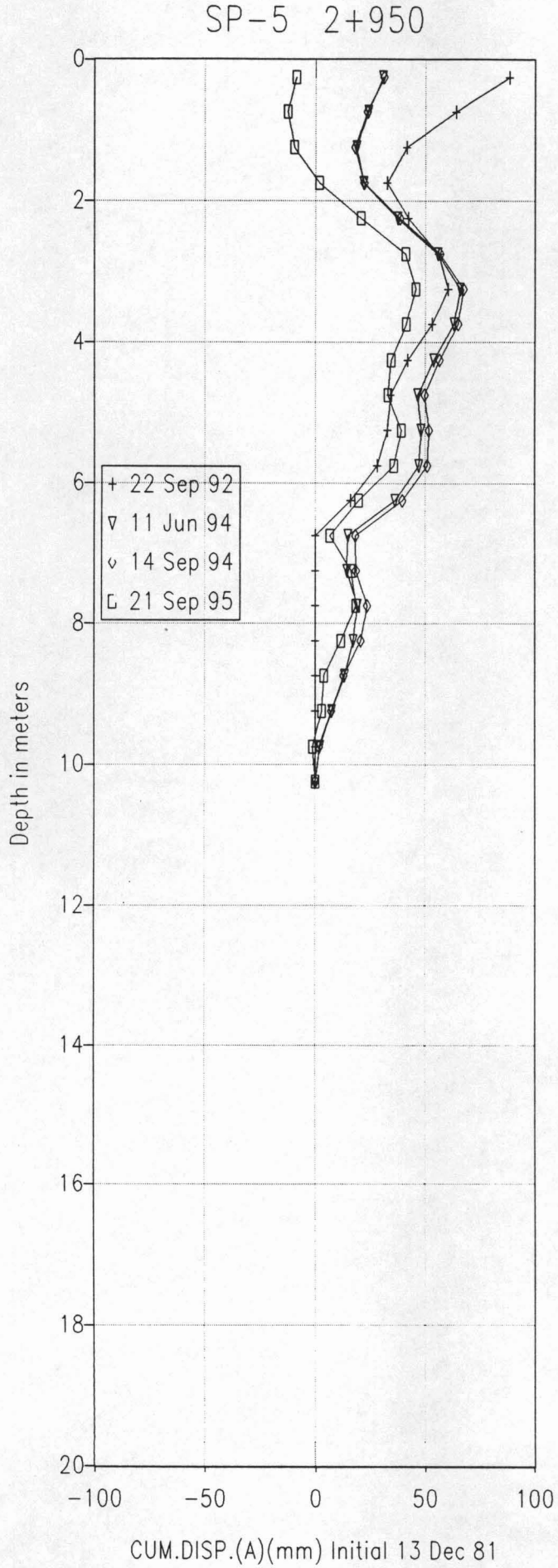
INCLINOMETERS

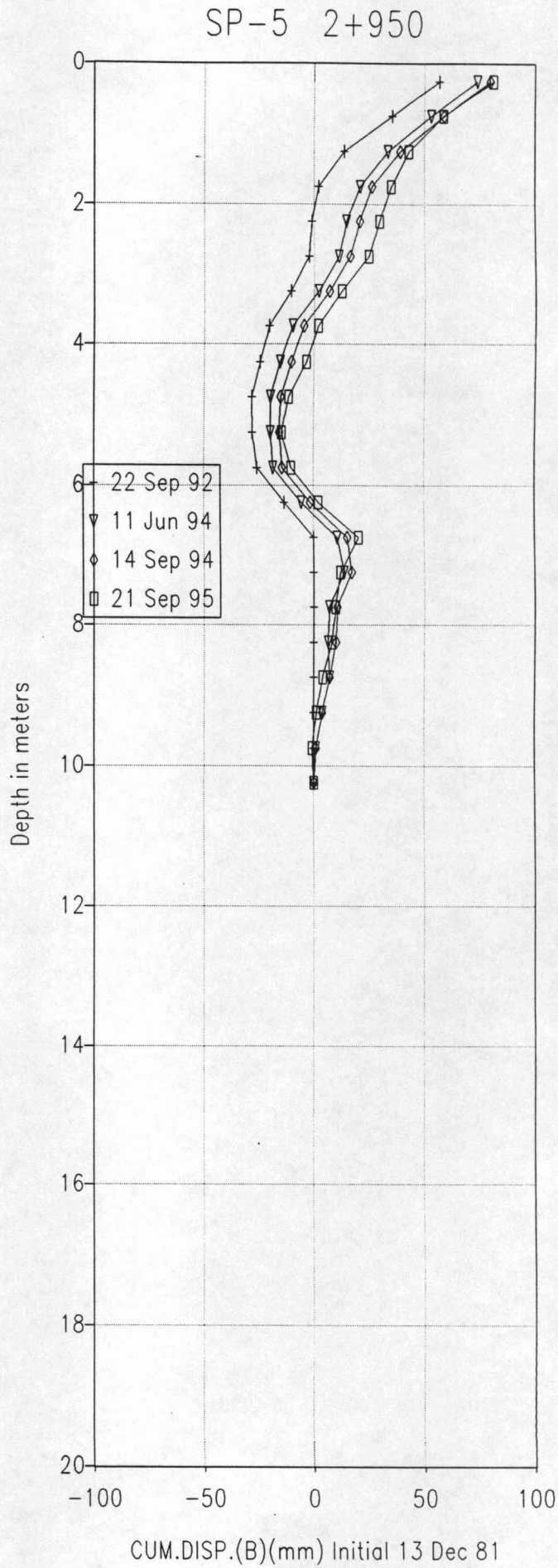

SP-2 1+530
0
2
4
6
8
10
12
14
16
18
20
+ 23 Sep 92
▽ 29 May 94
◇ 13 Sep 94
□ 22 Sep 95
Depth in meters
-150
-100
-50
0
50
100
CUM.DISP.(A)(mm) Initial 13 Dec 81


SP-2 1+530
0
2
4
6
8
10
12
14
16
18
20
+ 23 Sep 92
▽ 29 May 94
◇ 13 Sep 94
□ 22 Sep 95
Depth in meters
-150
-100
-50
0
50
100
CUM.DISP.(B)(mm) Initial 13 Dec 81

Backslope SP2 @St.1+530

	INITIAL Dec 13 1981				Sep 23 1982				May 29 1994				Sep 13 1994				Sep 22 1995			
Depth	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-
0.5	225	0	87	0	6	-26	76	-70	-1085	1056	1074	-1051	-1854	1833	438	-440	-412	390	139	-139
1.0	230	0	81	0	54	-36	88	-81	-752	720	1119	-1109	-1263	1255	660	-656	-265	241	182	-181
1.5	166	0	65	0	58	-41	91	-86	2	-11	1076	-1081	-13	12	1038	-1036	59	-86	189	-192
2.0	93	0	99	0	33	-15	69	-63	298	-318	718	-740	308	-319	737	-747	25	-49	149	-150
2.5	78	0	143	0	19	-1	71	-67	23	-49	825	-838	31	-49	813	-842	44	-23	142	-142
3.0	62	0	177	0	69	-50	20	-17	596	-606	139	-163	611	-615	136	-152	137	-171	24	-32
3.5	57	0	189	0	55	-38	89	-81	503	-557	793	-804	510	-576	810	-808	23	-50	250	-250
4.0	67	0	191	0	-2	20	137	-132	-546	523	1463	-1483	-555	533	1476	-1489	-49	20	278	-280
4.5	77	0	187	0	99	-79	83	-79	595	-609	917	-922	636	-648	906	-901	235	-258	141	-145
5.0	80	0	167	0	124	-108	46	-38	1281	-1312	676	-648	1284	-1307	670	-644	224	-266	74	-67
5.5	92	0	178	0	83	-109	-71	77	1304	-1328	-553	503	1256	-1342	-514	496	272	-298	-192	192
6.0	101	0	199	0	118	-135	-76	60	1484	-1460	-996	978	1478	-1652	-938	840	227	-273	-19	-1
6.5	112	0	204	0	73	-70	122	-125	935	-982	1146	-1188	944	-994	1212	-1275	259	-294	347	-355
7.0	115	0	209	0	118	-117	216	-224	1713	-1686	2285	-2310	1721	1697	2344	-2465	377	-397	603	-615
7.5	98	0	209	0	5	26	302	-301	347	-344	3534	-3540	96	-446	3364	-3427	-349	153	502	-557
8.0	82	0	175	0	-80	103	79	-73	-1690	1623	838	-698	-1634	1510	606	-560	-103	74	65	-67
8.5	82	0	177	0	54	-29	80	-74	515	-547	758	-757	566	-582	798	-798	116	-141	190	-190
9.0	96	0	170	0	36	-13	91	-86	353	-367	904	-904	344	-353	897	-894	78	-103	174	-174
9.5	122	0	162	0	57	-34	81	-76	595	-622	794	-798	638	-650	784	-793	198	-222	155	-155
10.0	155	0	151	0	104	-78	71	-67	1192	-1206	713	-714	1197	-1203	716	-728	222	-255	167	-151


SP-5 2+950
Depth in meters
0
2
4
6
8
10
12
14
16
18
20
22 Sep 92
11 Jun 94
14 Sep 94
21 Sep 95
-100
-50
0
50
100
CUM.DISP.(A)(mm) Initial 13 Dec 81


SP-5 2+950
Depth in meters
0
2
4
6
8
10
12
14
16
18
20
22 Sep 92
11 Jun 94
14 Sep 94
21 Sep 95
-100
-50
0
50
100
CUM.DISP.(B)(mm) Initial 13 Dec 81

Backslope SP5 @St.2+950

	INITIAL Dec 13 1981				Sep 22 1992				Jun 11 1994				Sep 14 1994				Sep 21 1995			
Depth	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-
0.5	91	0	-61	0	164	-173	72	-80	797	-758	746	-740	819	-831	736	-744	98	-159	152	-174
1.0	88	0	-65	0	162	-152	83	-70	709	-699	639	-668	730	-717	666	-679	-14	-132	35	-150
1.5	114	0	-65	0	104	-100	26	-25	413	-405	290	-316	355	-377	317	-315	-31	-35	-5	-35
2.0	171	0	-57	0	41	-31	-16	9	81	-78	37	-14	39	-45	-29	-2	-31	7	-5	4
2.5	183	0	-58	0	27	-18	-24	20	-6	5	-132	95	-10	4	-89	56	-34	10	-10	10
3.0	190	0	-76	0	77	-70	0	-4	446	-448	64	-89	419	-422	86	-103	133	-157	47	-50
3.5	186	0	-106	0	136	-124	-2	3	1075	-1080	54	-66	1041	-1043	50	-62	217	-241	1	-2
4.0	173	0	-124	0	148	-136	-42	42	1316	-1318	-355	333	1288	-1293	-352	337	231	-254	-72	69
4.5	171	0	-128	0	130	-118	-46	46	1223	-1226	-437	407	1192	-1204	-411	397	174	-197	-50	48
5.0	197	0	-30	0	110	-101	-17	15	912	-912	-154	137	880	-888	-135	116	113	-157	-9	-10
5.5	189	0	-6	0	123	-113	-14	14	993	-990	-85	87	983	-986	-83	93	211	-234	-51	48
6.0	199	0	25	0	164	-155	-50	47	1538	-1546	-542	505	1563	-1560	-529	506	350	-371	-98	98
6.5	193	0	12	0	183	-172	-62	60	2024	-2029	-752	742	2028	-2040	-784	760	306	-339	-175	165
7.0	167	0	-22	0	0	0	0	0	839	-890	-294	252	797	-842	-241	183	58	-82	62	-61
7.5	149	0	-39	0	0	0	0	0	496	-497	144	-160	496	-498	134	-147	117	-141	-19	16
8.0	135	0	-59	0	0	0	0	0	774	-779	-292	255	812	-818	-279	264	191	-214	-43	43
8.5	117	0	-46	0	0	0	0	0	959	-860	-109	84	975	-983	-106	70	183	-205	-5	4
9.0	107	0	-30	0	0	0	0	0	832	-827	17	-43	811	-813	8	-42	106	-129	-1	-1
9.5	73	0	-29	0	0	0	0	0	630	-632	-12	9	632	-642	-18	3	101	-125	-12	10
10.0	56	0	-30	0	0	0	0	0	400	-392	-102	90	368	-385	-115	78	34	-57	-37	36

LIST OF OPERATIONAL INSTRUMENT 1995

Reference Number	Reference Line Chainage	Instrument
BH88-3	South Abutment	Shallow pneumatic piezometer Deep pneumatic piezometer
BH91-ID3	South Abutment	Shallow pneumatic piezometer Deep pneumatic piezometer
BH91-ID4	0+500	Shallow pneumatic piezometer Deep pneumatic piezometer
BH91-ID5	0+600	Shallow pneumatic piezometer Deep pneumatic piezometer
BH91-ID6	0+600	Shallow pneumatic piezometer Deep pneumatic piezometer
BH91-ID7	0+720	Pneumatic piezometer

INTERMEDIATE DAM

PIEZOMETERS

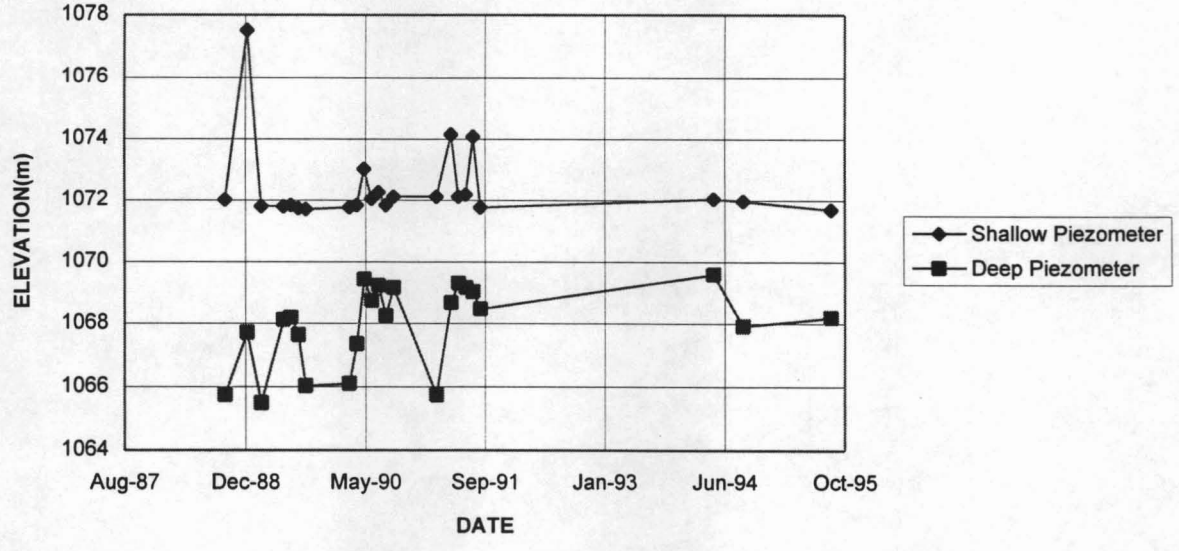
Anvil Range Mining Corp.

Faro Mine Instrumentation
Intermediate Dam

BH88-3	Location: Intermediate Dam South Abutment	Ground Elevation:	Coordinates:
	Date Installed: 1988	Shallow Tip Elevation: 1071.70	Surface Protector: yes
		Deep Tip Elevation: 1065.40	

Date	Reading (psi)		Piezometric Elevation (m)		Pond El.(m)
	Shallow	Deep	Shallow	Deep	
Oct-88	0.46	0.5	1072.02	1065.75	
Dec-88					
Jan-89	8.30	3.3	1077.51	1067.71	
Mar-89	0.14	0.14	1071.80	1065.50	1071.50
Jun-89	0.14	3.9	1071.80	1068.13	
Jul-89	0.20	4	1071.84	1068.20	1071.75
Aug-89	0.06	3.2	1071.74	1067.64	1071.55
Sep-89	0.01	0.9	1071.71	1066.03	1071.55
Jan-90					
Mar-90	0.10	1	1071.77	1066.10	1076.50
Apr-90	0.20	2.8	1071.84	1067.36	1076.50
May-90	1.90	5.79	1073.03	1069.45	1076.50
Jun-90	0.50	4.79	1072.05	1068.75	1076.50
Jul-90	0.80	5.49	1072.26	1069.24	1076.50
Aug-90	0.20	4.09	1071.84	1068.26	1076.50
Sep-90	0.60	5.39	1072.12	1069.17	1076.50
Feb-91					
Mar-91	0.60	0.49	1072.12	1065.74	1076.50
May-91	3.50	4.69	1074.15	1068.68	1076.50
Jun-91	0.60	5.59	1072.12	1069.31	1076.50
Jul-91	0.70	5.39	1072.19	1069.17	1074.50
Aug-91	3.40	5.19	1074.08	1069.03	1074.50
Sep-91	0.10	4.4	1071.77	1068.48	1074.50
May-94	0.50	6	1072.05	1069.6	1080.0
Sep-94	0.40	3.6	1071.98	1067.92	1080.0
Sep-95	0.00	4	1071.7	1068.2	1080.0

PNEUMATIC PIEZOMETER BH88-3



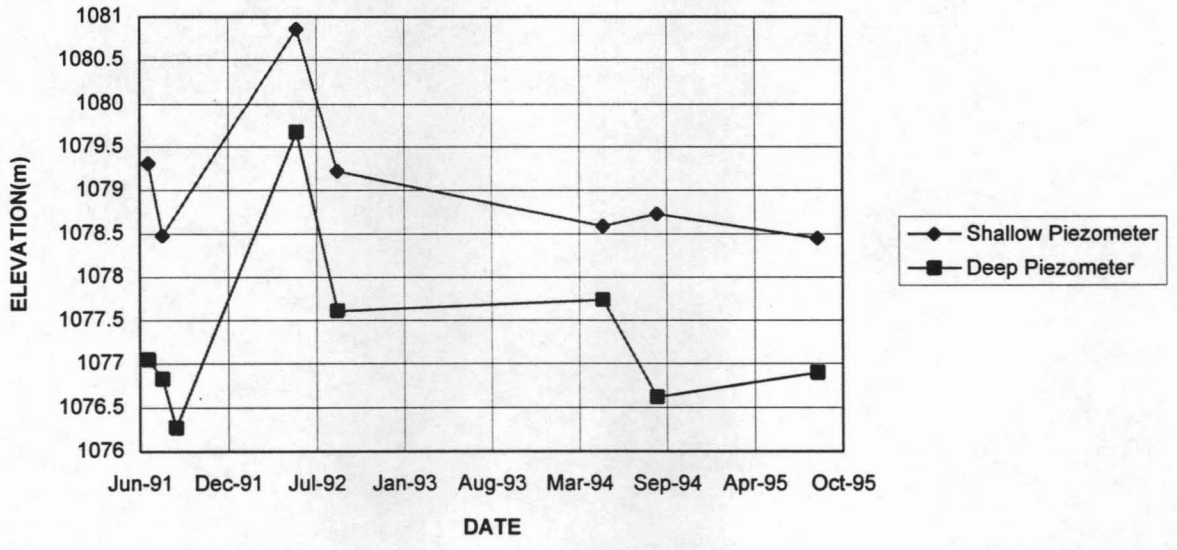
Anvil Range Mining Corp.

Faro Mine Instrumentation
Intermediate Dam

BH91-ID3 Stn 0+810	**Location:** Intermediate Dam South Abutment	**Ground Elevation:** 1085.45	**Coordinates:**
	Date Installed: 1991	**Shallow Tip Elevation:** 1078.45 **Deep Tip Elevation:** 1070.25	**Surface Protector:** yes

Date	Reading (psi)		Piezometric Elevation (m)		Pond El.(m)
	Shallow	Deep	Shallow	Deep	
Jul-91	1.23	9.71	1079.31	1077.05	~1074.5
Aug-91	0.04	9.40	1078.48	1076.83	~1074.5
Sep-91		8.60		1076.27	~1074.5
Feb-92					
Apr-92					
Jun-92	3.44	13.46	1080.86	1079.67	1080.0
Sep-92	1.10	10.51	1079.22	1077.61	1080.0
May-94	0.20	10.70	1078.59	1077.74	1080.0
Sep-94	0.40	9.10	1078.73	1076.62	1080.0
Sep-95	0.00	9.50	1078.45	1076.9	1080.0

PNEUMATIC PIEZOMETER BH91-ID3



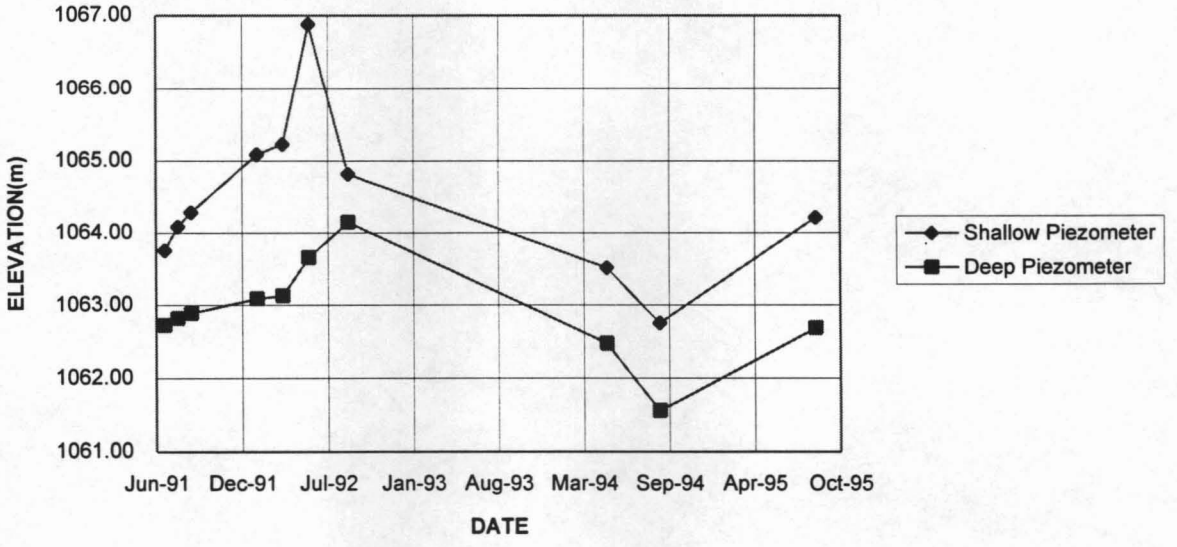
Anvil Range Mining Corp.

Faro Mine Instrumentation
Intermediate Dam

BH91-ID4	Location: Intermediate Dam @St.0+567	Ground Elevation: 1064.10	Coordinates:
	Date Installed: 1991	Shallow Tip Elevation: 1056.52	Surface Protector: yes
		Deep Tip Elevation: 1049.38	

Date	Reading (psi)		Piezometric Elevation (m)		Pond El.(m)
	Shallow	Deep	Shallow	Deep	
Jul-91	10.34	19.06	1063.76	1062.72	~1074.5
Aug-91	10.81	19.20	1064.09	1062.82	~1074.5
Sep-91	11.10	19.30	1064.29	1062.89	~1074.5
Feb-92	12.24	19.59	1065.09	1063.09	1080.0
Apr-92	12.44	19.64	1065.23	1063.13	1080.0
Jun-92	14.80	20.40	1066.88	1063.66	1080.0
Sep-92	11.86	21.10	1064.82	1064.15	1080.0
May-94	10.00	18.70	1063.52	1062.47	1080.0
Sep-94	8.90	17.40	1062.75	1061.56	1080.0
Sep-95	11.00	19.00	1064.22	1062.68	1080.0

PNEUMATIC PIEZOMETER BH91-ID3

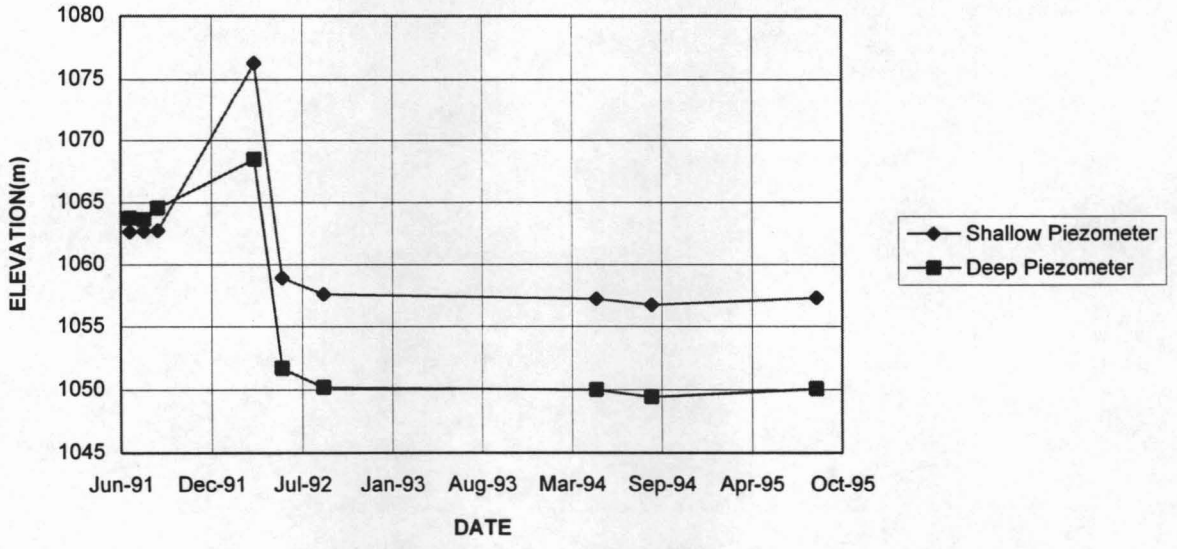


BH91-ID5	**Location:** Intermediate Dam @ St.0+625	**Ground Elevation:** 1064.00	**Coordinates:**
	Date Installed: 1991	**Shallow Tip Elevation:** 1056.60 **Deep Tip Elevation:** 1049.38	**Surface Protector:** yes

Date	Reading (psi)		Piezometric Elevation (m)		Pond El.(m)
	Shallow	Deep	Shallow	Deep	
Jul-91	8.67	20.54	1062.67	1063.76	~1074.5
Aug-91	8.76	20.36	1062.73	1063.63	~1074.5
Sep-91	8.80	21.70	1062.76	1064.57	~1074.5
Feb-92					
Apr-92	28.10	27.30	1076.27	1068.49	1080.0
Jun-92	3.30	3.30	1058.91	1051.69	1080.0
Sep-92	1.46	1.20	1057.62	1050.22	1080.0
May-94	0.90	0.90	1057.23	1050.01	1080.0
Sep-94	0.20	0.10	1056.74	1049.45	1080.0
Sep-95	1.00	1.00	1057.3	1050.08	1080.0

Note: Both tips have leaking leads as of June, 1992.

PNEUMATIC PIEZOMETER BH91-ID5



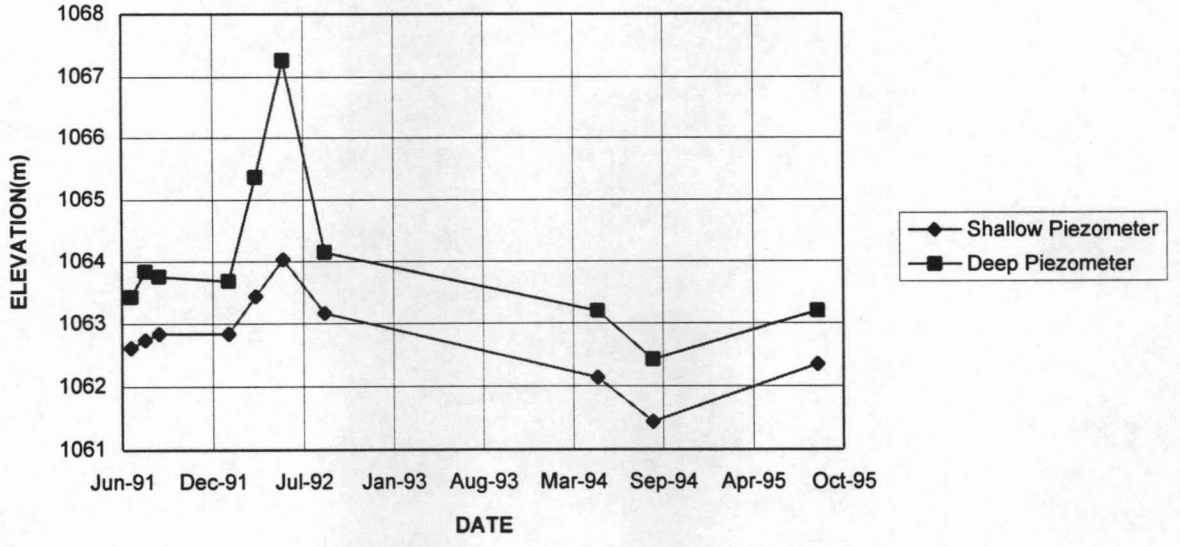
Anvil Range Mining Corp.

Faro Mine Instrumentation
Intermediate Dam

BH91-ID6	Location: Intermediate Dam @St.0+630	Ground Elevation:	1064.20	Coordinates:
	Date Installed: 1991	Shallow Tip Elevation:	1057.10	Surface Protector: yes
		Deep Tip Elevation:	1049.20	

Date	Reading (psi)		Piezometric Elevation (m)		Pond El.(m)
	Shallow	Deep	Shallow	Deep	
Jul-91	7.89	20.33	1062.62	1063.43	~1074.5
Aug-91	8.06	20.91	1062.74	1063.84	~1074.5
Sep-91	8.20	20.80	1062.84	1063.76	~1074.5
Feb-92	8.20	20.70	1062.84	1063.69	1080.0
Apr-92	9.06	23.10	1063.44	1065.37	1080.0
Jun-92	9.91	25.80	1064.04	1067.26	1080.0
Sep-92	8.67	21.36	1063.17	1064.15	1080.0
May-94	7.20	20.00	1062.14	1063.2	1080.0
Sep-94	6.20	18.90	1061.44	1062.43	1080.0
Sep-95	7.50	20.00	1062.35	1063.2	1080.0

PNEUMATIC PIEZOMETER BH91-ID6



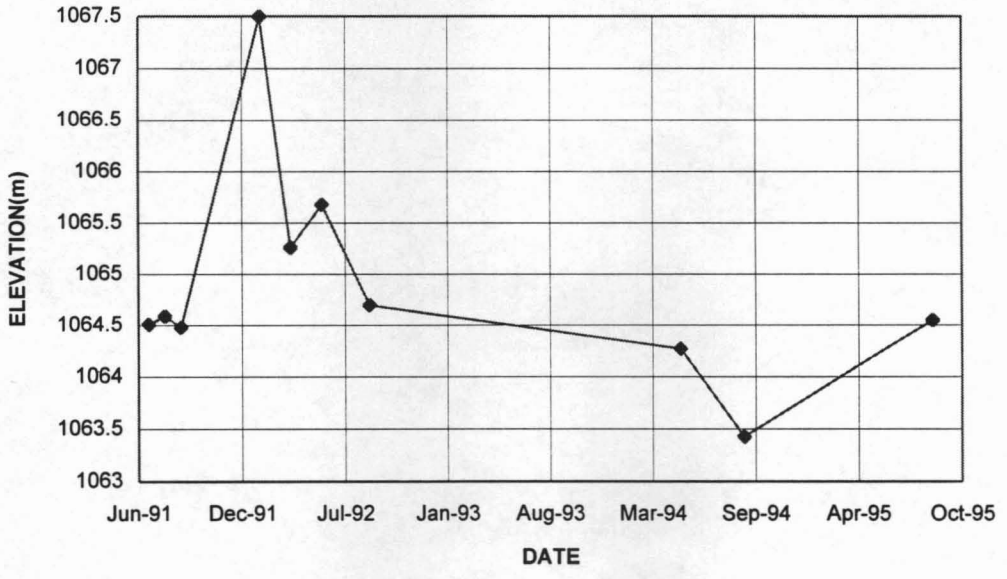
Anvil Range Mining Corp.

Faro Mine Instrumentation
Intermediate Dam

BH91-ID7	**Location:** Intermediate Dam @St.0+759	**Ground Elevation:** 1065.75	**Coordinates:**
	Date Installed: 1991	**Tip Elevation:** 1058.25	**Surface Protector:** yes

Date	Reading (psi)	Piezometric Elevation (m)	Pond El.(m)
Jul-91	8.94	1064.51	~1074.5
Aug-91	9.06	1064.59	~1074.5
Sep-91	8.90	1064.48	~1074.5
Feb-92	13.21	1067.50	1080.0
Apr-92	10.01	1065.26	1080.0
Jun-92	10.61	1065.68	1080.0
Sep-92	9.21	1064.70	1080.0
May-94	8.60	1064.27	1080.0
Sep-94	7.40	1063.43	1080.0
Sep-95	9.00	1064.55	1080.0

PNEUMATIC PIEZOMETER BH91-ID7



LIST OF OPERATIONAL INSTRUMENTS 1995

Reference Number	Reference Line Chainage	Instrument
CVDC-4	0+215	Shallow hydraulic piezometer plugged Deep hydraulic piezometer
CVDC-7	0+450	Shallow hydraulic piezometer Deep hydraulic piezometer
BH94 CVDC-1	0+215	Hydraulic piezometer
CVDC-9	0+565	Shallow hydraulic piezometer Deep hydraulic piezometer
CVDC-11	0+645	Pneumatic piezometer Thermistor o.k.
CVDP-1	0+450 20m u/s of CL.	Pneumatic piezometer
CVDP-2	0+450 5m u/s of CL.	Pneumatic piezometer
CVDP-3	0+450 7m d/s of CL.	Pneumatic piezometer
CVDP-5	0+210 9m u/s of CL.	Pneumatic piezometer
CVDP-6	0+210 5m d/s of CL.	Pneumatic piezometer
CVDT-4	0+630	Thermistor
BH88-4	0+450	Thermistor
CVDC-6	0+340	Thermistor
BH88-5	0+295	Thermistor

CROSS VALLEY DAM

PIEZOMETERS

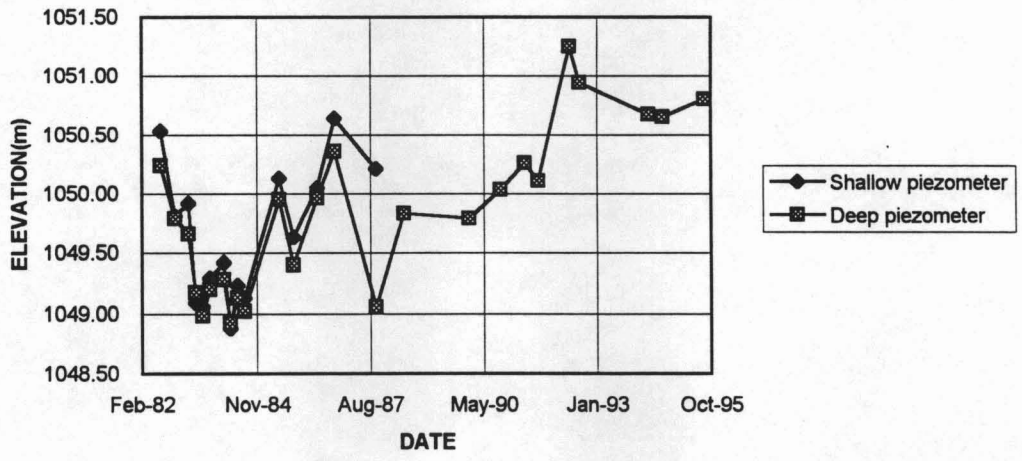
Anvil Range Mining Corp.

Faro Mine Instrumentation
CROSS VALLEY DAM

CVDC-4	Location:	Cross Valley Dam St.0+215	Ground Elevation:	1065.5	Coordinates:	
	Date Installed:	1981	Shallow Tip Elev:	1040.2	Surface Protector:	yes
			Deep tip Elevation:	1032		
			Shallow stick-up:	0.13m/0.28m		
			Deep stick-up:	0.0/0.07/0.10		

Date	Water level from top of pipe		Piezometric Elevation(m)		Pond El.(m)
	Shallow	Deep	Shallow	Deep	
Aug-82	15.10	15.26	1050.53	1050.24	
Dec-82	15.82	15.71	1049.81	1049.79	
Apr-83	15.71	15.84	1049.92	1049.66	1061.63
Jun-83	16.54	16.33	1049.09	1049.17	1058.18
Aug-83	16.57	16.52	1049.06	1048.98	
Oct-83	16.34	16.30	1049.29	1049.20	
Dec-83					
Feb-84	16.21	16.22	1049.42	1049.28	
Mar-84					1062.90
Apr-84	16.75	16.58	1048.88	1048.92	
Jun-84	16.40	16.37	1049.23	1049.13	1059.10
Aug-84	16.50	16.48	1049.13	1049.02	
Oct-84					
Jun-85	15.50	15.55	1050.13	1049.95	1063.50
Oct-85	16.00	16.10	1049.63	1049.40	
May-86	15.58	15.54	1050.05	1049.96	1063.00
Oct-86	14.99	15.14	1050.64	1050.36	1063.20
Oct-87	15.42	16.45	1050.21	1049.05	
Jun-88	dry	15.67		1049.83	
Oct-88					
Sep-89					
Jan-90		15.78		1049.79	
Oct-90		15.54		1050.03	
Dec-90					
May-91		15.31		1050.26	
Sep-91		15.46		1050.11	
Jun-92		14.32		1051.25	
Sep-92		14.63		1050.94	
May-94		14.93		1050.67	
Sep-94		14.95		1050.65	
Sep-95		14.80		1050.80	

HYDRAULIC PIEZOMETER CVDC-4



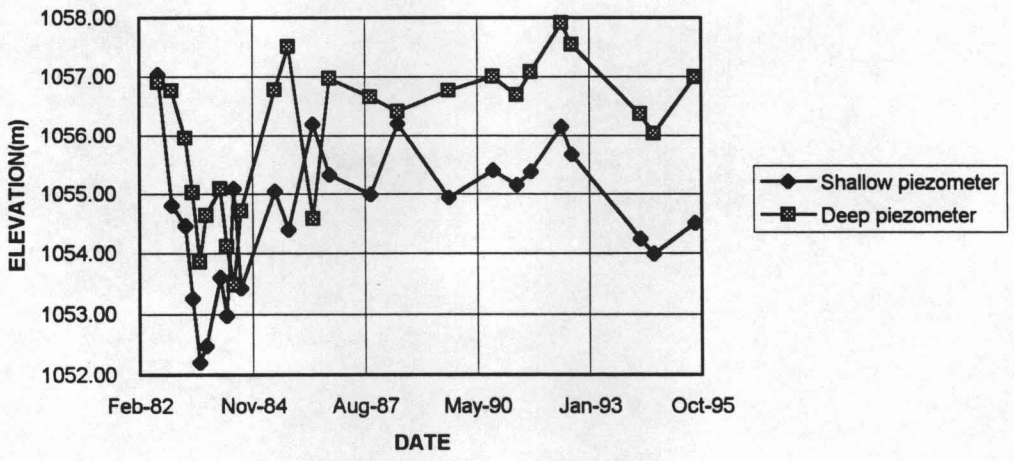
Anvil Range Mining Corp.

Faro Mine Instrumentation
CROSS VALLEY DAM

CVDC-9	Location:	Cross Valley Dam St.0+565	Ground Elevation:	1065.6	Coordinates:	
	Date Installed:	1981	Shallow Tip Elev:	1040	Surface Protector:	yes
			Deep tip Elevation:	1033		
			Shallow stick-up:	0.24/0.30/0.32m		
			Deep stick-up:	0.16/0.23/0.25m		

Date	Water level from top of pipe		Piezometric Elevation(m)		Pond El.(m)
	Shallow	Deep	Shallow	Deep	
Aug-82	8.80	8.85	1057.04	1056.91	
Dec-82	11.04	9.00	1054.80	1056.76	
Apr-83	11.38	9.81	1054.46	1055.95	1061.63
Jun-83	12.58	10.74	1053.26	1055.02	1058.18
Aug-83	13.63	11.90	1052.21	1053.86	
Oct-83	13.36	11.13	1052.48	1054.63	
Dec-83					
Feb-84	12.24	10.67	1053.60	1055.09	
Mar-84					1062.90
Apr-84	12.87	11.65	1052.97	1054.11	
Jun-84	10.75	12.28	1055.09	1053.48	1059.10
Aug-84	12.41	11.05	1053.43	1054.71	
Oct-84					
Jun-85	10.80	8.98	1055.04	1056.78	1063.50
Oct-85	11.45	8.25	1054.39	1057.51	
May-86	9.65	11.18	1056.19	1054.58	1063.00
Oct-86	10.51	8.79	1055.33	1056.97	1063.20
Oct-87	10.85	9.10	1054.99	1056.66	
Jun-88	9.74	9.42	1056.20	1056.41	
Oct-88	1065.94				
Sep-89	11.01	9.07	1054.93	1056.76	
Jan-90	1065.94				
Oct-90	10.54	8.83	1055.40	1057.00	
Dec-90	1065.94				
May-91	10.79	9.14	1055.15	1056.69	
Sep-91	10.56	8.75	1055.38	1057.08	
Jun-92	9.79	7.92	1056.15	1057.91	
Sep-92	10.27	8.29	1055.67	1057.54	
May-94	11.68	9.49	1054.24	1056.36	
Sep-94	11.93	9.82	1053.99	1056.03	
Sep-95	11.42	8.86	1054.50	1056.99	

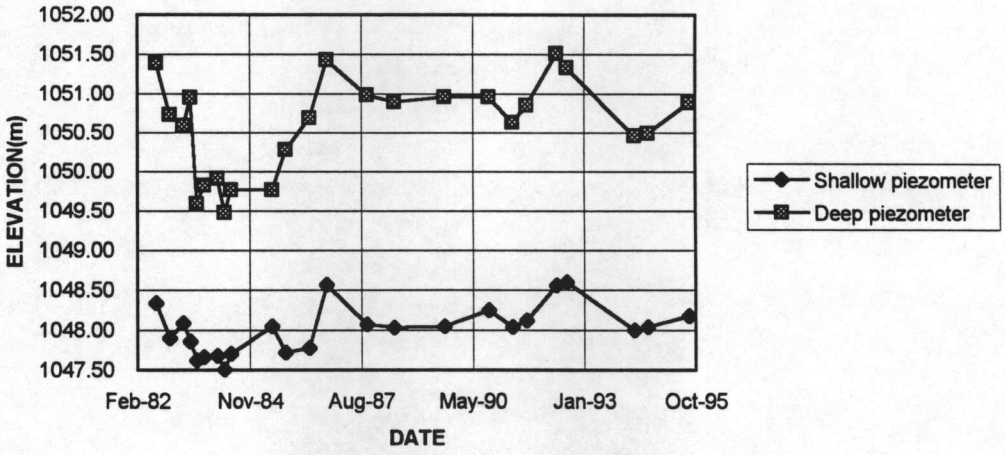
HYDRAULIC PIEZOMETER CVDC-9



CVDC-7	Location:	Cross Valley Dam St.0+450	Ground Elevation:	1065.7	Coordinates:	
	Date Installed:	1981	Shallow Tip Elev:	1040.1	Surface Protector:	yes
			Deep tip Elevation:	1035.2		
			Shallow stick-up:	0.22/0.23/0.26m		
			Deep stick-up:	0.13/0.29m		

Date	Water level from top of pipe		Piezometric Elevation(m)		Pond El.(m)
	Shallow	Deep	Shallow	Deep	
Aug-82	17.58	14.44	1048.34	1051.39	
Dec-82	18.02	15.10	1047.90	1050.73	
Apr-83	17.83	15.24	1048.09	1050.59	1061.63
Jun-83	18.06	14.88	1047.86	1050.95	1058.18
Aug-83	18.30	16.24	1047.62	1049.59	
Oct-83	18.26	16.01	1047.66	1049.82	
Dec-83					
Feb-84	18.24	15.92	1047.68	1049.91	
Mar-84					1062.90
Apr-84	18.41	16.36	1047.51	1049.47	
Jun-84	18.22	16.06	1047.70	1049.77	1059.10
Aug-84					
Oct-84					
Jun-85	17.87	16.06	1048.05	1049.77	1063.50
Oct-85	18.20	15.55	1047.72	1050.28	
May-86	18.14	15.14	1047.78	1050.69	1063.00
Oct-86	17.35	14.40	1048.57	1051.43	1063.20
Oct-87	17.85	14.85	1048.07	1050.98	
Jun-88	17.90	15.10	1048.03	1050.89	
Oct-88					
Sep-89	17.88	15.03	1048.05	1050.96	
Jan-90					
Oct-90	17.68	15.03	1048.25	1050.96	
Dec-90					
May-91	17.89	15.36	1048.04	1050.63	
Sep-91	17.81	15.14	1048.12	1050.85	
Jun-92	17.37	14.48	1048.56	1051.51	
Sep-92	17.33	14.66	1048.60	1051.33	
May-94	17.99	15.50	1048.00	1050.46	
Sep-94	17.95	15.47	1048.04	1050.49	
Sep-95	17.81	15.08	1048.18	1050.88	

HYDRAULIC PIEZOMETER CVDC-7



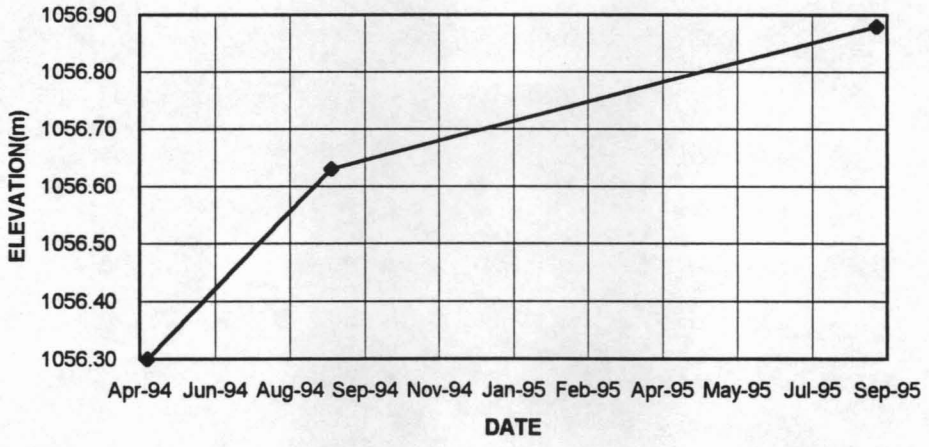
Anvil Range Mining Corp.

Faro Mine Instrumentation
CROSS VALLEY DAM

94CVDC-1	**Location:**	Cross Valley Dam St.0+215	**Ground Elevation:**	1065.5	**Coordinates:**
	Date Installed:	1994	**Tip Elevation**	1052.7	**Surface Protector:** yes
			Stick-up	0.7m	

Date	Water level from top of pipe	Piezometric Elevation(m)	Pond El.(m)
May-94	9.90	1056.30	
Sep-94	9.57	1056.63	
Sep-95	9.32	1056.88	

HYDRAULIC PIEZOMETER BH94 CVDC-1



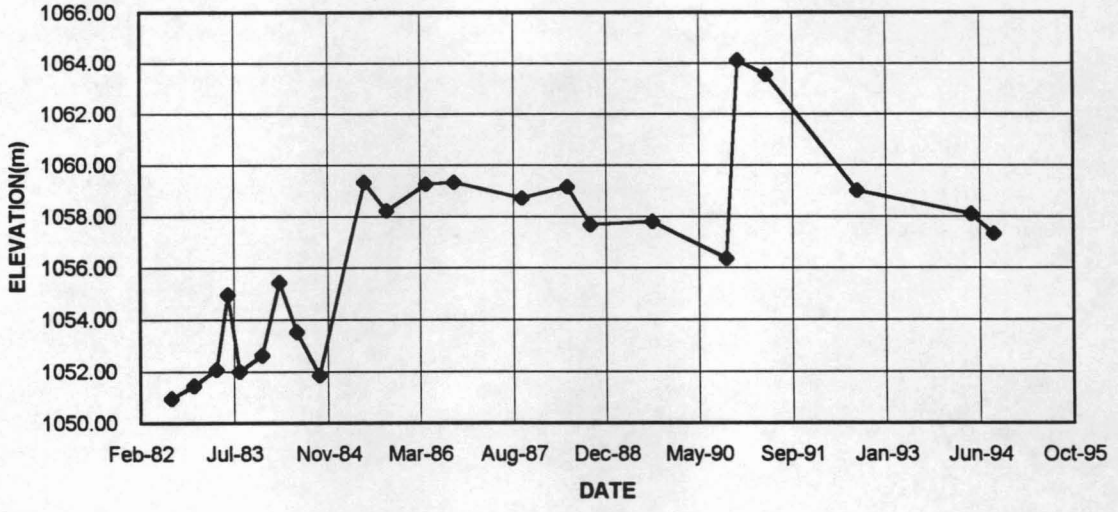
Anvil Range Mining Corp.

Faro Mine Instrumentation
CROSS VALLEY DAM

CVDC-11	Location: Cross Valley Dam St.0+645	Ground Elevation: 1065.70	Coordinates:
	Date Installed: 1982	Tip Elevation: 1050.80	Surface Protector: yes

Date	Reading (psi)	Piezometric Elevation (m)	Pond El.(m)
Aug-82	0.20	1050.94	
Dec-82	0.91	1051.44	
Apr-83	1.80	1052.06	1061.63
Jun-83	5.90	1054.93	1058.18
Aug-83	1.70	1051.99	
Oct-83			
Dec-83	2.60	1052.62	
Feb-84			
Mar-84	6.60	1055.42	1062.9
Apr-84			
Jun-84	3.90	1053.53	1059.1
Aug-84			
Oct-84	1.50	1051.85	
Jun-85	12.20	1059.34	1063.5
Oct-85	10.60	1058.22	
May-86	12.10	1059.27	1063
Oct-86	12.20	1059.34	1063.2
Oct-87	11.30	1058.71	
Jun-88	11.94	1059.16	
Oct-88	9.80	1057.66	
Sep-89	10.00	1057.80	
Jan-90			
Oct-90	7.91	1056.34	
Dec-90	19.01	1064.11	
May-91	18.21	1063.55	
Sep-91			
Jun-92			
Sep-92	11.71	1059.00	
May-94	10.40	1058.08	
Sep-94	9.30	1057.31	
Sep-95	10.00	1057.80	

PNEUMATIC PIEZOMETER CVDC-11



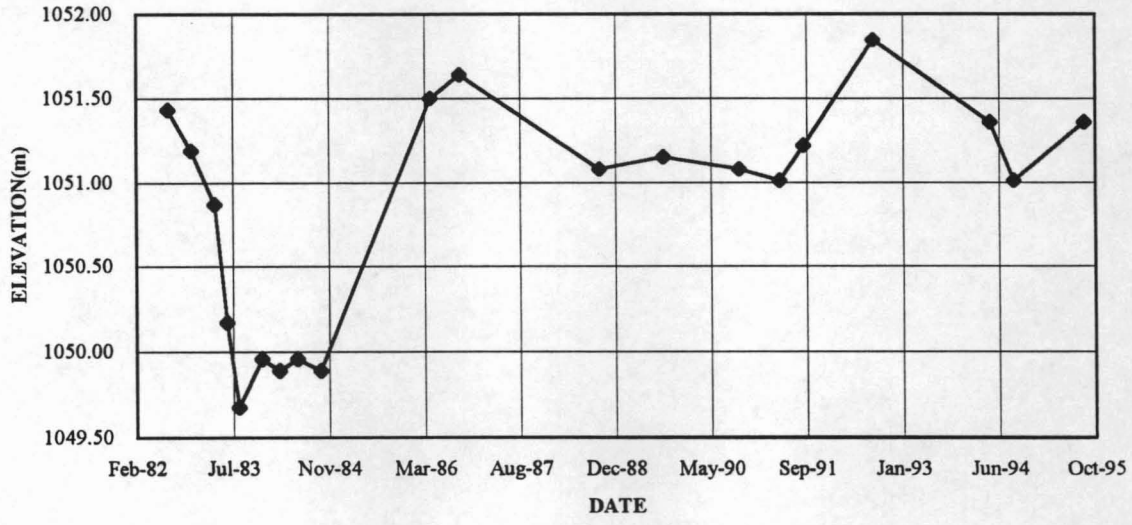
Anvil Range Mining Corp.

Faro Mine Instrumentation
CROSS VALLEY DAM

CVDP-1	Location: Cross Valley Dam St.0+450 20m u/s of CL.	Ground Elevation:	Coordinates:
	Date Installed: 1982	Tip Elevation: 1046.81	Surface Protector: yes

Date	Reading (psi)	Piezometric Elevation (m)	Pond El.(m)
Aug-82	6.60	1051.43	
Dec-82	6.26	1051.19	
Apr-83	5.80	1050.87	1061.63
Jun-83	4.80	1050.17	1058.18
Aug-83	4.10	1049.68	
Dec-83	4.50	1049.96	
Mar-84	4.40	1049.89	1062.01
Jun-84	4.50	1049.96	1059.10
Oct-84	4.40	1049.89	
May-86	6.70	1051.50	1063.00
Oct-86	6.90	1051.64	1063.20
Oct-87			
Jun-88			
Oct-88	6.10	1051.08	
Sep-89	6.20	1051.15	
Oct-90	6.10	1051.08	
May-91	6.00	1051.01	
Sep-91	6.30	1051.22	
Sep-92	7.20	1051.85	
May-94	6.50	1051.36	
Sep-94	6.00	1051.01	
Sep-95	6.50	1051.36	

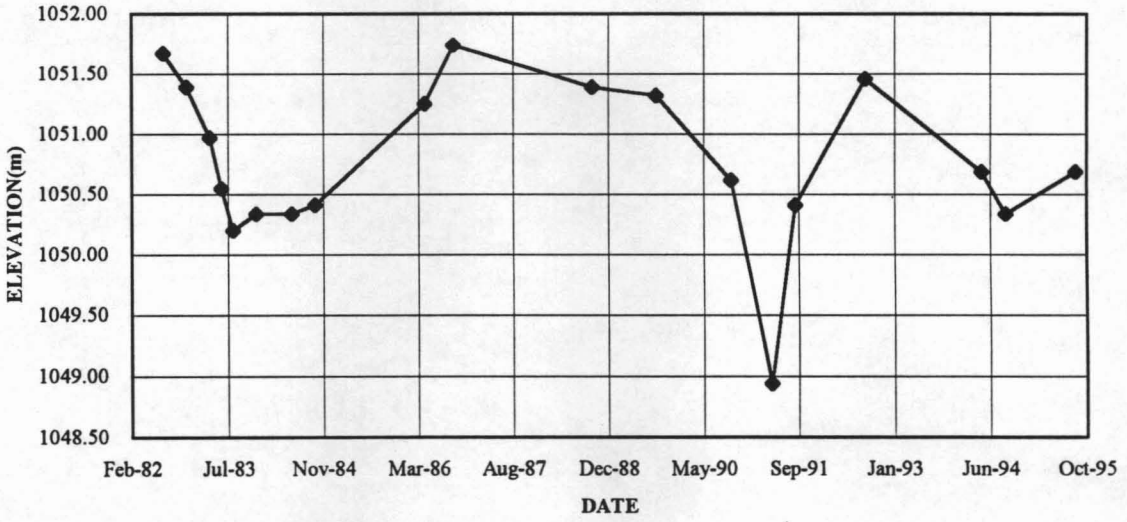
PNEUMATIC PIEZOMETER CVDP-1



CVDP-2	**Location:** Cross Valley Dam St.0+450 5m u/s of CL.	**Ground Elevation:**	**Coordinates:**
	Date Installed: 1982	**Tip Elevation:** 1046.84	**Surface Protector:** yes

Date	Reading (psi)	Piezometric Elevation (m)	Pond El.(m)
Aug-82	6.90	1051.67	
Dec-82	6.50	1051.39	
Apr-83	5.90	1050.97	1061.63
Jun-83	5.30	1050.55	1058.18
Aug-83	4.80	1050.20	
Dec-83	5.00	1050.34	
Mar-84			1062.01
Jun-84	5.00	1050.34	1059.10
Oct-84	5.10	1050.41	
May-86	6.30	1051.25	1063.00
Oct-86	7.00	1051.74	1063.20
Oct-87			
Jun-88			
Oct-88	6.50	1051.39	
Sep-89	6.40	1051.32	
Oct-90	5.40	1050.62	
May-91	3.00	1048.94	
Sep-91	5.10	1050.41	
Sep-92	6.60	1051.46	
May-94	5.50	1050.69	
Sep-94	5.00	1050.34	
Sep-95	5.50	1050.69	

PNEUMATIC PIEZOMETER CVDP-2

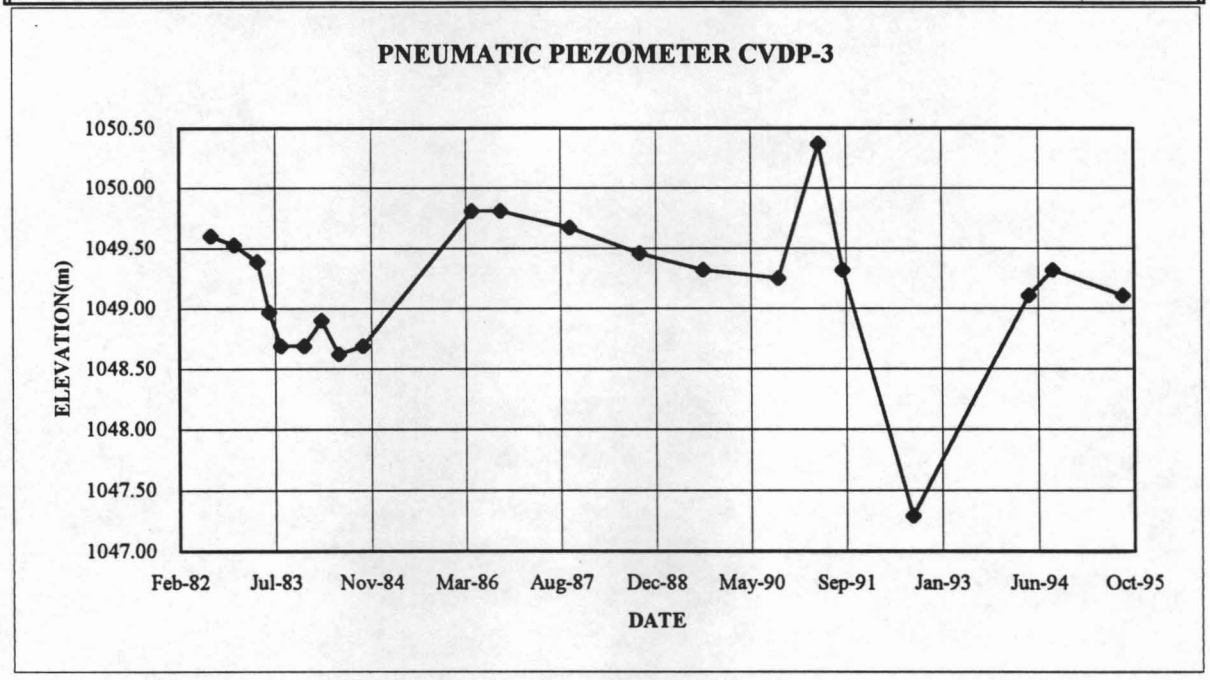


Anvil Range Mining Corp.

Faro Mine Instrumentation
CROSS VALLEY DAM

CVDP-3	Location: Cross Valley Dam St.0+450 7m d/s of CL.	Ground Elevation:	Coordinates:
	Date Installed: 1982	Tip Elevation: 1047.01	Surface Protector: yes

Date	Reading (psi)	Piezometric Elevation (m)	Pond El.(m)
Aug-82	3.70	1049.60	
Dec-82	3.60	1049.53	
Apr-83	3.40	1049.39	1061.63
Jun-83	2.80	1048.97	1058.18
Aug-83	2.40	1048.69	
Dec-83	2.40	1048.69	
Mar-84	2.70	1048.90	1062.01
Jun-84	2.30	1048.62	1059.10
Oct-84	2.40	1048.69	
May-86	4.00	1049.81	1063.00
Oct-86	4.00	1049.81	1063.20
Oct-87	3.80	1049.67	
Jun-88			
Oct-88	3.50	1049.46	
Sep-89	3.30	1049.32	
Oct-90	3.20	1049.25	
May-91	4.80	1050.37	
Sep-91	3.30	1049.32	
Sep-92	0.40	1047.29	
May-94	3.00	1049.11	
Sep-94	3.30	1049.32	
Sep-95	3.00	1049.11	



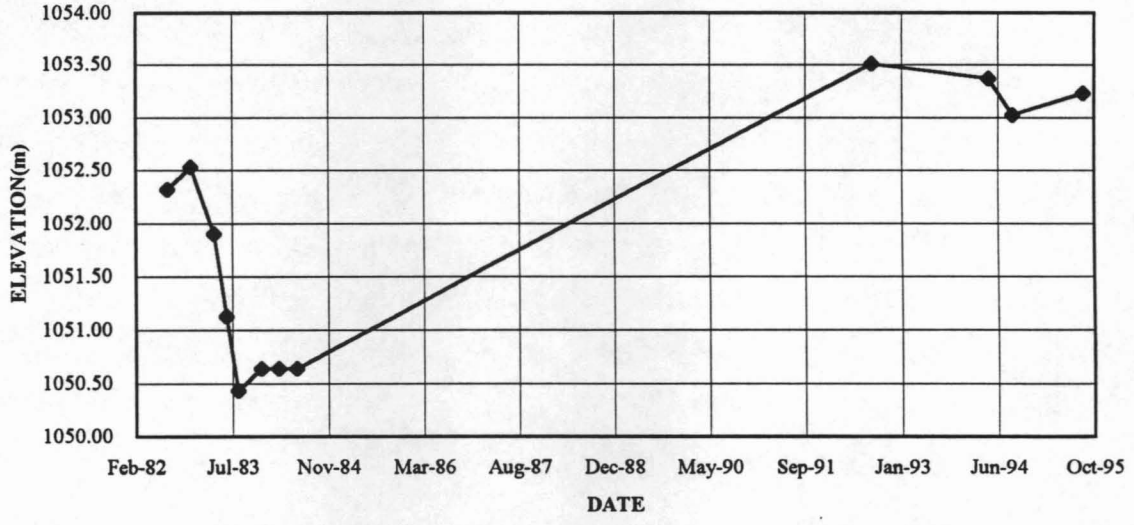
Anvil Range Mining Corp.

Faro Mine Instrumentation
CROSS VALLEY DAM

CVDP-5	Location: Cross Valley Dam St.0+210 9m u/s of CL.	Ground Elevation:	Coordinates:
	Date Installed: 1982	Tip Elevation: 1046.58	Surface Protector: yes

Date	Reading (psi)	Piezometric Elevation (m)	Pond El.(m)
Aug-82	8.20	1052.32	
Dec-82	8.50	1052.53	
Apr-83	7.60	1051.90	1061.63
Jun-83	6.50	1051.13	1058.18
Aug-83	5.50	1050.43	
Dec-83	5.80	1050.64	
Mar-84	5.80	1050.64	1062.01
Jun-84	5.80	1050.64	1059.10
Oct-84			
May-86			1063.00
Oct-86			1063.20
Oct-87			
Jun-88			
Oct-88			
Sep-89			
Oct-90			
May-91			
Sep-91			
Sep-92	9.90	1053.51	
May-94	9.70	1053.37	
Sep-94	9.20	1053.02	
Sep-95	9.50	1053.23	

PNEUMATIC PIEZOMETER CVDP5

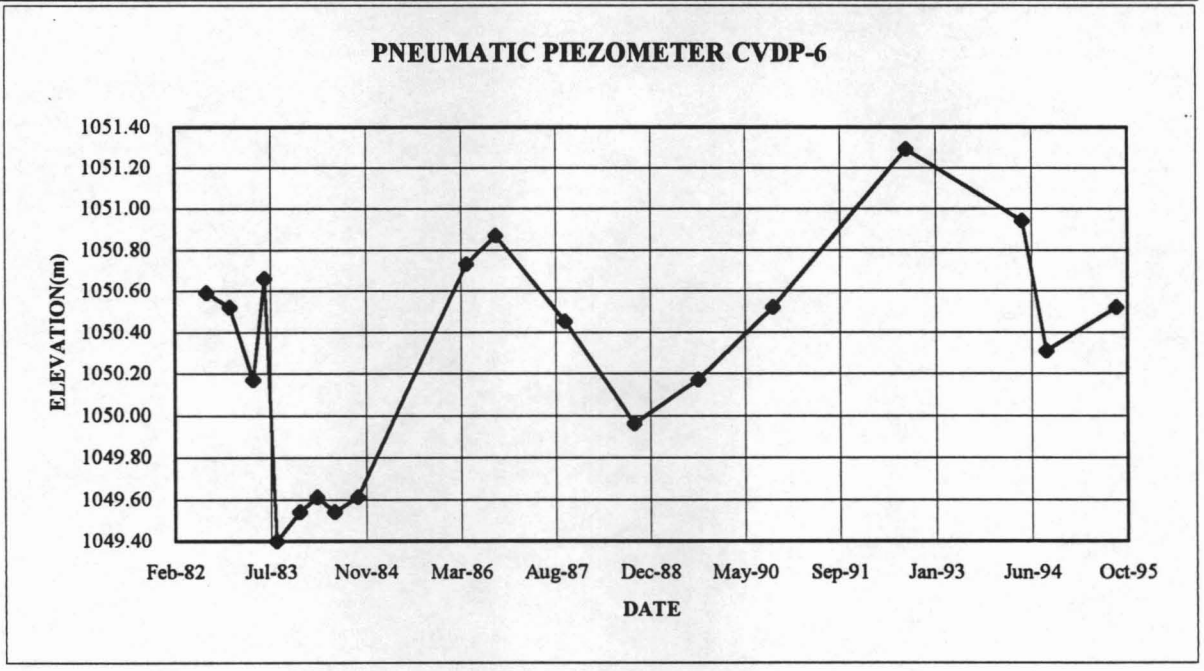


Anvil Range Mining Corp.

Faro Mine Instrumentation
CROSS VALLEY DAM

CVDP-6	Location: Cross Valley Dam St.0+210 5m d/s of CL.	Ground Elevation:	Coordinates:
	Date Installed: 1982	Tip Elevation: 1046.67	Surface Protector: yes

Date	Reading (psi)	Piezometric Elevation (m)	Pond El.(m)
Aug-82	5.60	1050.59	
Dec-82	5.50	1050.52	
Apr-83	5.00	1050.17	1061.63
Jun-83	5.70	1050.66	1058.18
Aug-83	3.90	1049.40	
Dec-83	4.10	1049.54	
Mar-84	4.20	1049.61	1062.01
Jun-84	4.10	1049.54	1059.10
Oct-84	4.20	1049.61	
May-86	5.80	1050.73	1063.00
Oct-86	6.00	1050.87	1063.20
Oct-87	5.40	1050.45	
Jun-88			
Oct-88	4.70	1049.96	
Sep-89	5.00	1050.17	
Oct-90	5.50	1050.52	
May-91			
Sep-91			
Sep-92	6.60	1051.29	
May-94	6.10	1050.94	
Sep-94	5.20	1050.31	
Sep-95	5.50	1050.52	



CROSS VALLEY DAM

THERMISTORS

Anvil Range Mining Corp.

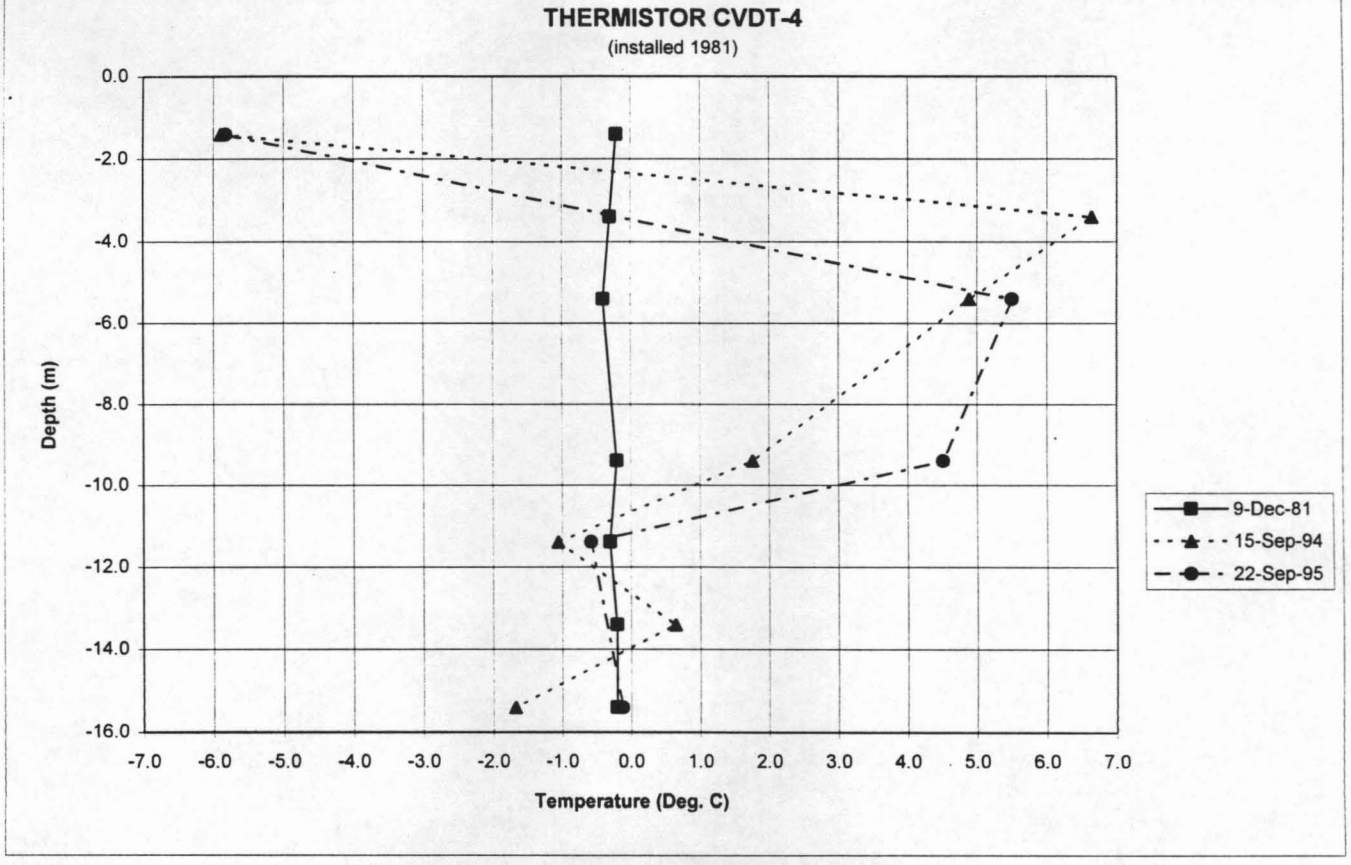
Faro Mine Instrumentation
Cross Valley Dam

CVDT-4 0+630	**Location:**	Cross Valley Dam S. Abut.	**Elevation:**	1058.9 Cantec	**Coordinates:**	not available			
Thermistor String #31	**Date Installed:**	1981	**Thermistor Type:**	Controls YSI 44007	**Ice-Bath Calibration:**	applied	**Surface Protector:**	yes	
Depth Correction -0.6									

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 9-Dec-81	Resistivity (kOhms) 15-Sep-94	Resistivity (kOhms) 22-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
2.0	-1.4	16.36	21.99	21.91						
4.0	-3.4	16.38	11.57							
6.0	-5.4	16.47	12.62	12.24						
8.0	-7.4		17.82							
10.0	-9.4	16.30	14.75	12.85						
12.0	-11.4	16.39	17.03	16.62						
14.0	-13.4	16.34	15.65							
16.0	-15.4	16.30	17.58	16.23						

* The initial reading (Nov 15/81) is excluded from the data set because post-installation temperature equilibruim may not have been complete.

Depth on String (m)	Actual Depth (m)	Temperature (C) 9-Dec-81	Temperature (C) 15-Sep-94	Temperature (C) 22-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
2.0	-1.4	-0.20	-5.89	-5.82						
4.0	-3.4	-0.30	6.64							
6.0	-5.4	-0.40	4.89	5.51						
8.0	-7.4									
10.0	-9.4	-0.20	1.76	4.52						
12.0	-11.4	-0.30	-1.05	-0.57						
14.0	-13.4	-0.20	0.65							
16.0	-15.4	-0.20	-1.68	-0.12						



BH 88-4 0+450 **Location:** Cross Valley Dam Crest **Elevation:** 1066.9 **Coordinates:** 2018.3mN, 76.6mW

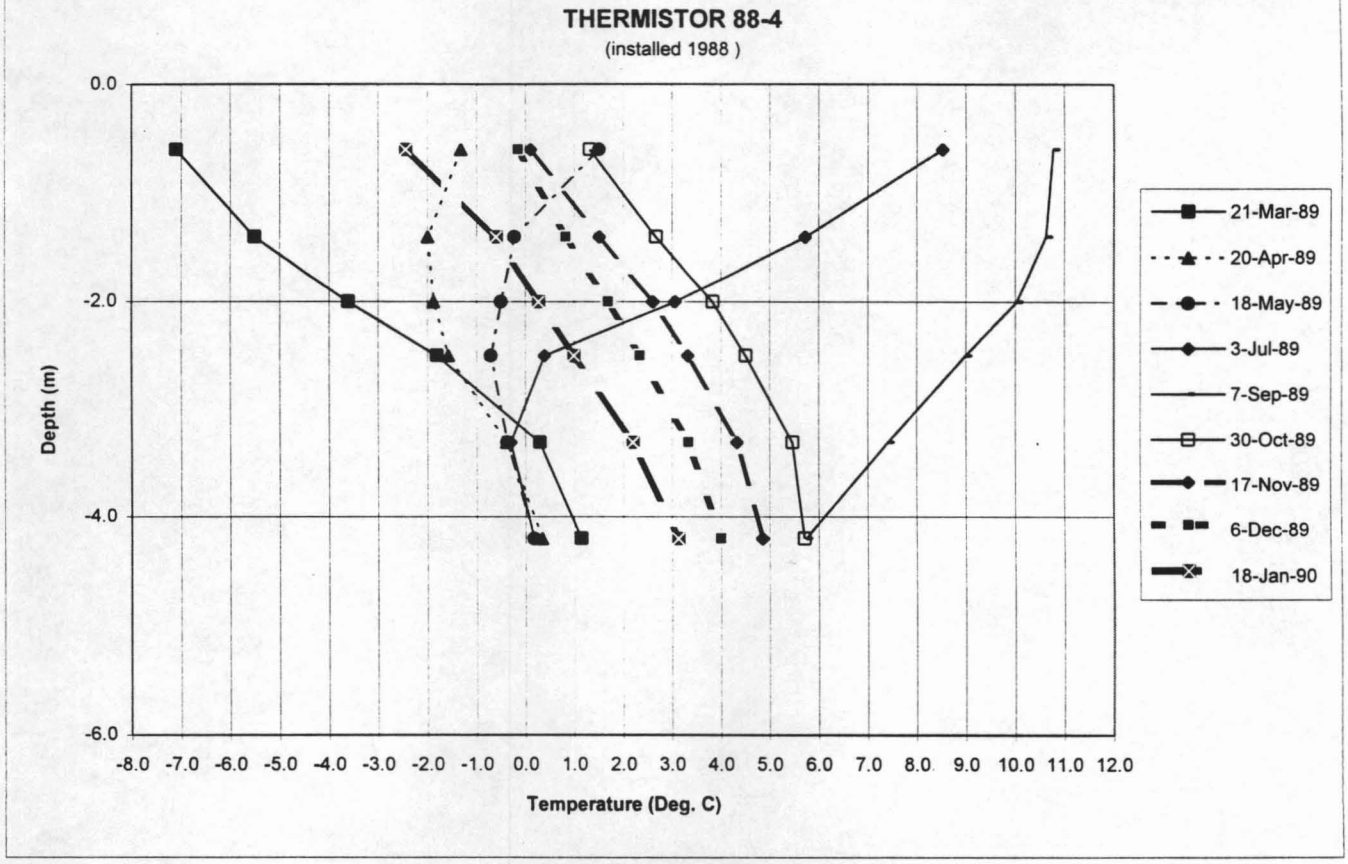
Date Installed: 1988 **Thermistor Type:** Cantec Controls YSI 44007 **Ice-Bath Calibration:** no **Surface Protector:** Yes

Depth Correction 0

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 21-Mar-89	Resistivity (kOhms) 20-Apr-89	Resistivity (kOhms) 18-May-89	Resistivity (kOhms) 3-Jul-89	Resistivity (kOhms) 7-Sep-89	Resistivity (kOhms) 30-Oct-89	Resistivity (kOhms) 17-Nov-89	Resistivity (kOhms) 6-Dec-89	Resistivity (kOhms) 18-Jan-90
0.6	-0.6	23.50	17.35	15.02	10.61	9.52	15.17	16.13	16.35	18.39
1.4	-1.4	21.50	17.89	16.34	12.12	9.55	14.11	14.95	15.49	16.66
2.0	-2.0	19.53	17.85	16.63	13.88	9.86	13.36	14.20	14.87	15.99
2.5	-2.5	17.73	17.52	16.75	15.84	10.34	12.88	13.66	14.35	15.36
3.3	-3.3	15.93	16.49	16.48	16.42	11.17	12.29	13.00	13.66	14.46
4.2	-4.2	15.22	15.86	15.99	15.99	12.10	12.12	12.64	13.19	13.78

* The initial reading (Oct 10/88) is excluded from the data set because post-installation temperature equilibruim may not have been complete.

Depth on String (m)	Actual Depth (m)	Temperature (C) 21-Mar-89	Temperature (C) 20-Apr-89	Temperature (C) 18-May-89	Temperature (C) 3-Jul-89	Temperature (C) 7-Sep-89	Temperature (C) 30-Oct-89	Temperature (C) 17-Nov-89	Temperature (C) 6-Dec-89	Temperature (C) 18-Jan-90
0.6	-0.6	-7.10	-1.31	1.52	8.53	10.77	1.32	0.11	-0.15	-2.44
1.4	-1.4	-5.50	-1.98	-0.22	5.73	10.63	2.68	1.53	0.83	-0.60
2.0	-2.0	-3.60	-1.87	-0.49	3.07	10.03	3.84	2.62	1.70	0.27
2.5	-2.5	-1.80	-1.57	-0.69	0.40	8.99	4.51	3.33	2.35	1.00
3.3	-3.3	0.30	-0.38	-0.37	-0.30	7.41	5.47	4.34	3.34	2.21
4.2	-4.2	1.15	0.34	0.18	0.18	5.74	5.71	4.86	4.00	3.13



Anvil Range Mining Corp.

Faro Mine Instrumentation
Cross Valley Dam

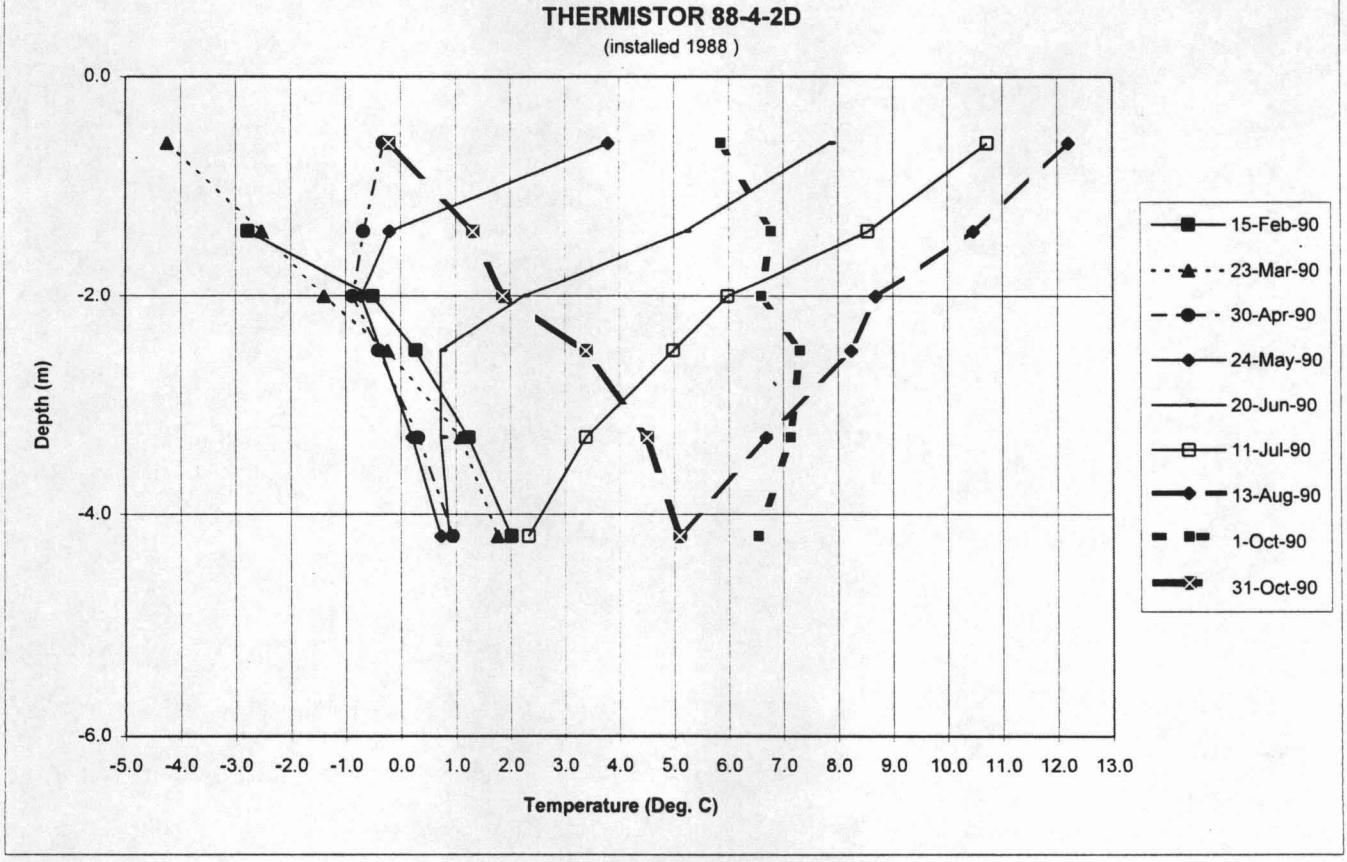
BH 88-4 0+450 **Location:** Cross Valley Dam Crest **Elevation:** 1066.9 **Coordinates:** 2018.3mN, 76.6mW

Date Installed: 1988 **Thermistor Type:** Cantec Controls YSI 44007 **Ice-Bath Calibration:** no **Surface Protector:** Yes

Depth Correction 0

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 15-Feb-90	Resistivity (kOhms) 23-Mar-90	Resistivity (kOhms) 30-Apr-90	Resistivity (kOhms) 24-May-90	Resistivity (kOhms) 20-Jun-90	Resistivity (kOhms) 11-Jul-90	Resistivity (kOhms) 13-Aug-90	Resistivity (kOhms) 1-Oct-90	Resistivity (kOhms) 31-Oct-90
0.6	-0.6		20.20	16.48	13.39	10.97	9.54	8.89	12.09	16.40
1.4	-1.4	18.64	18.40	16.72	16.32	12.44	10.56	9.62	11.51	15.11
2.0	-2.0	16.64	17.41	16.95	16.82	14.47	12.01	10.52	11.65	14.75
2.5	-2.5	15.94	16.36	16.50	16.46	15.58	12.58	10.72	11.22	13.62
3.3	-3.3	15.19	15.30	15.91	16.00	15.58	13.63	11.57	11.32	12.89
4.2	-4.2	14.57	14.76	15.38	15.55	15.43	14.34	12.48	11.63	12.49

Depth on String (m)	Actual Depth (m)	Temperature (C) 15-Feb-90	Temperature (C) 23-Mar-90	Temperature (C) 30-Apr-90	Temperature (C) 24-May-90	Temperature (C) 20-Jun-90	Temperature (C) 11-Jul-90	Temperature (C) 13-Aug-90	Temperature (C) 1-Oct-90	Temperature (C) 31-Oct-90
0.6	-0.6		-4.24	-0.31	3.80	7.84	10.73	12.21	5.86	-0.21
1.4	-1.4	-2.78	-2.53	-0.67	-0.20	5.20	8.55	10.48	6.78	1.32
2.0	-2.0	-0.51	-1.39	-0.87	-0.72	2.24	5.99	9.69	6.60	1.86
2.5	-2.5	0.28	-0.23	-0.40	-0.35	0.72	4.99	8.25	7.31	3.39
3.3	-3.3	1.23	1.09	0.32	0.21	0.73	3.39	6.69	7.14	4.51
4.2	-4.2	2.02	1.76	0.95	0.73	0.88	2.33	5.12	6.55	5.10



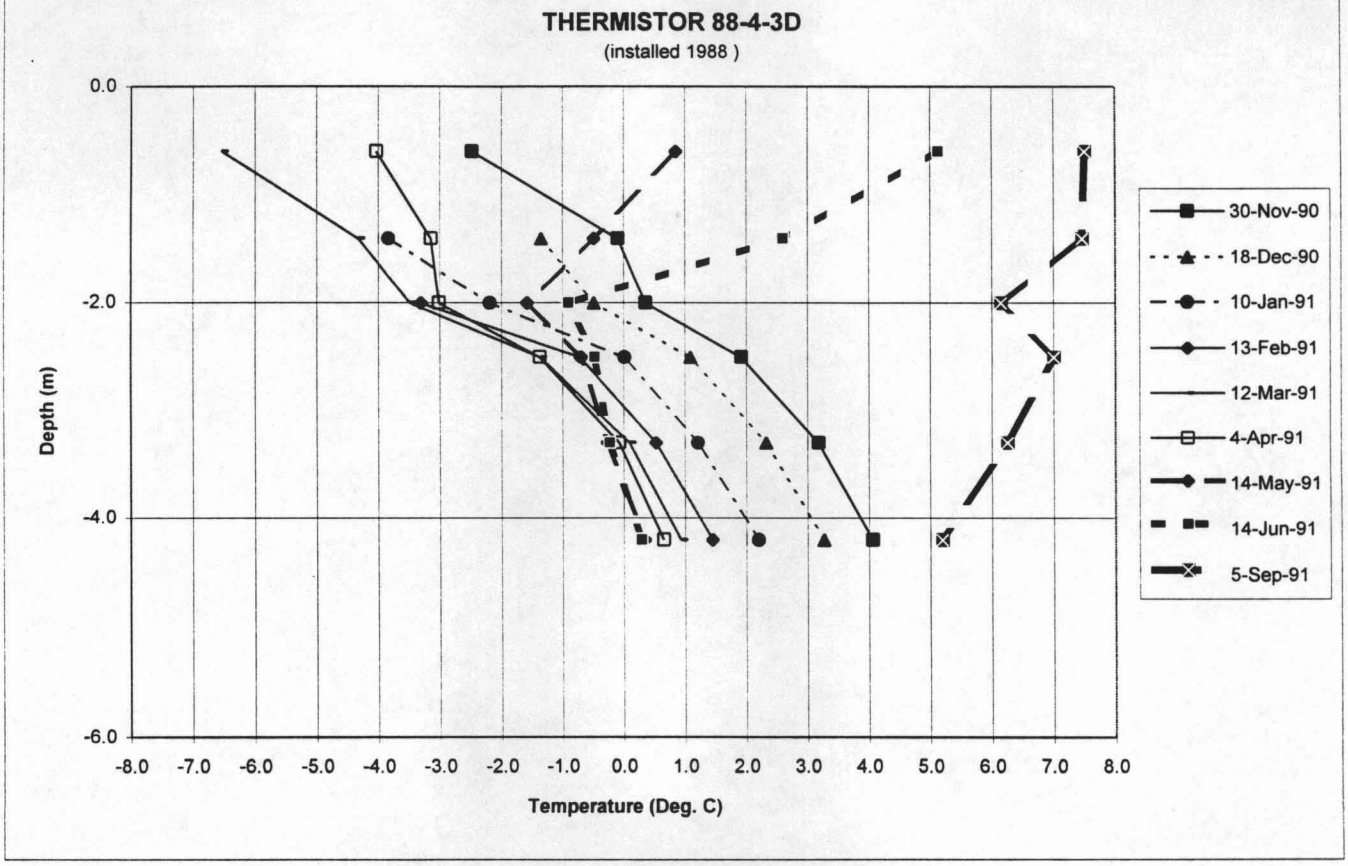
Anvil Range Mining Corp.

Faro Mine Instrumentation
Cross Valley Dam

BH 88-4 0+450	**Location:**	Cross Valley Dam Crest	**Elevation:**	1066.9	**Coordinates:**	2018.3mN, 76.6mW	
	Date Installed:	1988	**Thermistor Type:**	Cantec Controls YSI 44007	**Ice-Bath Calibration:**	no	**Surface Protector:** Yes
Depth Correction	0						

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 30-Nov-90	Resistivity (kOhms) 18-Dec-90	Resistivity (kOhms) 10-Jan-91	Resistivity (kOhms) 13-Feb-91	Resistivity (kOhms) 12-Mar-91	Resistivity (kOhms) 4-Apr-91	Resistivity (kOhms) 14-May-91	Resistivity (kOhms) 14-Jun-91	Resistivity (kOhms) 5-Sep-91
0.6	-0.6	18.35				22.80	19.98	15.53	12.53	11.15
1.4	-1.4	16.23	17.31	19.69		20.20	19.00	16.56	14.16	11.13
2.0	-2.0	15.92	16.62	18.14	19.23	19.41	18.94	17.58	16.98	11.91
2.5	-2.5	14.66	15.29	16.15	16.76	17.33	17.34	16.74	16.56	11.39
3.3	-3.3	13.77	14.37	15.20	15.74	16.09	16.23	16.39	16.36	11.82
4.2	-4.2	13.15	13.68	14.43	14.99	15.39	15.61	15.86	15.90	12.43

Depth on String (m)	Actual Depth (m)	Temperature (C) 30-Nov-90	Temperature (C) 18-Dec-90	Temperature (C) 10-Jan-91	Temperature (C) 13-Feb-91	Temperature (C) 12-Mar-91	Temperature (C) 4-Apr-91	Temperature (C) 14-May-91	Temperature (C) 14-Jun-91	Temperature (C) 5-Sep-91
0.6	-0.6	-2.47				-6.53	-4.03	0.86	5.14	7.51
1.4	-1.4	-0.09	-1.35	-3.83		-4.32	-3.14	-0.48	2.61	7.47
2.0	-2.0	0.36	-0.48	-2.18	-3.31	-3.48	-3.01	-1.58	-0.90	6.15
2.5	-2.5	1.93	1.09	0.02	-0.71	-1.36	-1.37	-0.68	-0.47	7.00
3.3	-3.3	3.18	2.33	1.22	0.53	0.10	-0.07	-0.26	-0.22	6.26
4.2	-4.2	4.06	3.27	2.21	1.46	0.94	0.66	0.34	0.29	5.20



Anvil Range Mining Corp.

Faro Mine Instrumentation
Cross Valley Dam

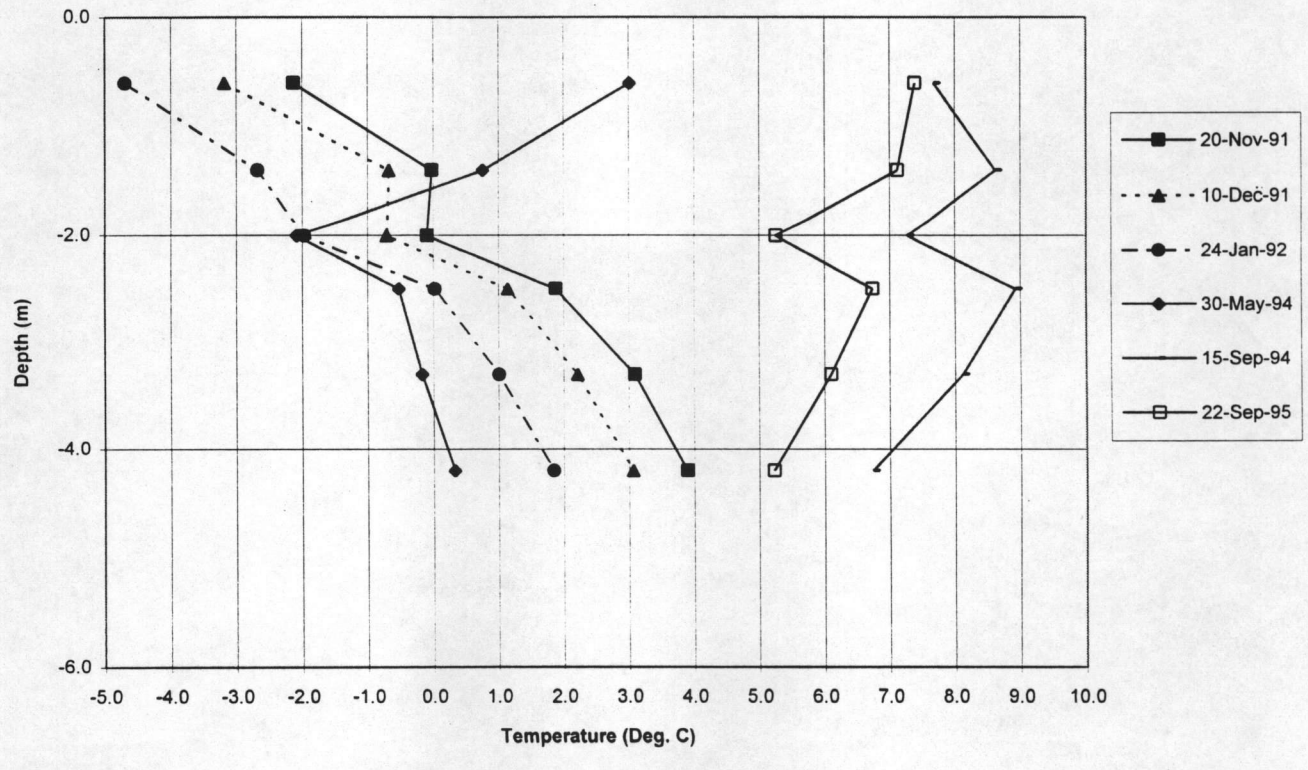
BH 88-4 0+450	Location:	Cross Valley Dam Crest	Elevation:	1066.9	Coordinates:	2018.3mN, 76.6mW		
	Date Installed:	1988	Thermistor Type:	Cantec Controls YSI 44007	Ice-Bath Calibration:	no	Surface Protector:	Yes
Depth Correction	0							

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 20-Nov-91	Resistivity (kOhms) 10-Dec-91	Resistivity (kOhms) 24-Jan-92	Resistivity (kOhms) 30-May-94	Resistivity (kOhms) 15-Sep-94	Resistivity (kOhms) 22-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
0.6	-0.6	18.02	19.03	20.60	13.87	11.01	11.17			
1.4	-1.4	16.17	16.72	18.54	15.54	10.52	11.32			
2.0	-2.0	16.29	16.81	17.93	18.04	11.27	12.45			
2.5	-2.5	14.69	15.25	16.14	16.60	10.37	11.54			
3.3	-3.3	13.83	14.45	15.36	16.31	10.79	11.91			
4.2	-4.2	13.26	13.82	14.69	15.87	11.52	12.41			

Depth on String (m)	Actual Depth (m)	Temperature (C) 20-Nov-91	Temperature (C) 10-Dec-91	Temperature (C) 24-Jan-92	Temperature (C) 30-May-94	Temperature (C) 15-Sep-94	Temperature (C) 22-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
0.6	-0.6	-2.12	-3.18	-4.69	3.02	7.69	7.39			
1.4	-1.4	-0.02	-0.67	-2.67	0.76	8.62	7.12			
2.0	-2.0	-0.09	-0.70	-1.96	-2.08	7.28	5.26			
2.5	-2.5	1.89	1.15	0.03	-0.52	8.93	6.74			
3.3	-3.3	3.10	2.22	1.01	-0.16	8.12	6.10			
4.2	-4.2	3.90	3.07	1.86	0.33	6.74	5.23			

THERMISTOR 88-4-4T

(installed 1988)



Anvil Range Mining Corp.

Faro Mine Instrumentation
Cross Valley Dam

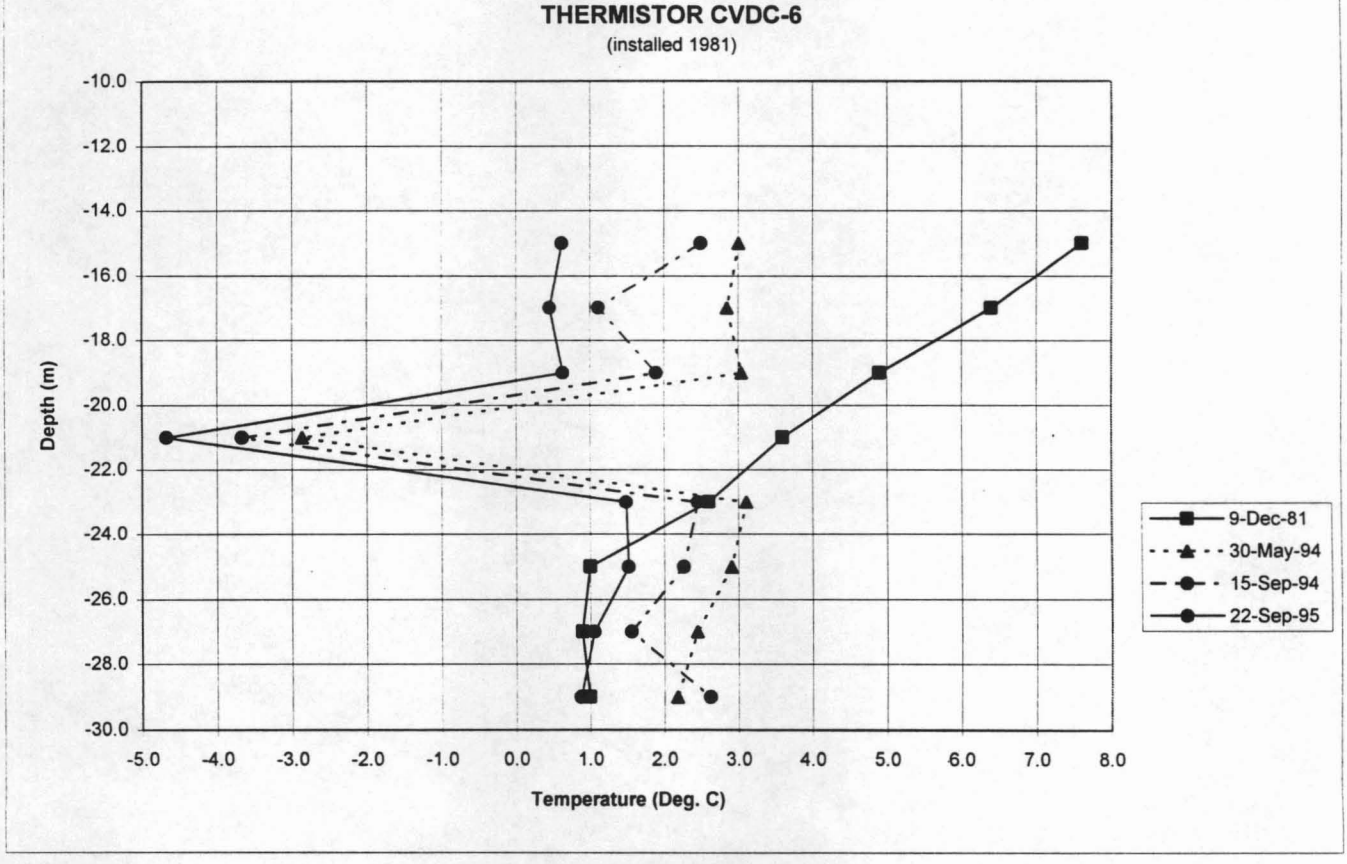
CVDC-6 Stn 0+340	**Location:**	Cross Valley Dam Crest	**Elevation:**	1065.8 m Cantec	**Coordinates:**	2182.1 mN &4.7 mE			
Thermistor String #32	**Date Installed:**	1981	**Thermistor Type:**	Controls YSI 44007	**Ice-Bath Calibration:**	applied	**Surface Protector:**	yes	
Depth Correction	0								

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 9-Dec-81	Resistivity (kOhms) 30-May-94	Resistivity (kOhms) 15-Sep-94	Resistivity (kOhms) 22-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
15.0	-15.0	11.05	13.87	14.23	15.64					
17.0	-17.0	11.70	13.95	15.22	15.74					
19.0	-19.0	12.59	13.81	14.63	15.59					
21.0	-21.0	13.48	18.73	19.53	20.59					
23.0	-23.0	14.16	13.80	14.26	14.97					
25.0	-25.0	15.37	13.96	14.42	14.97					
27.0	-27.0	15.42	14.26	14.91	15.29					
29.0	-29.0	15.35	14.46	14.14	15.44					

* The initial reading (Nov 15/81) is excluded from the data set because post-installation temperature equilibruim may not have been complete.

Depth on String (m)	Actual Depth (m)	Temperature (C) 9-Dec-81	Temperature (C) 30-May-94	Temperature (C) 15-Sep-94	Temperature (C) 22-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
15.0	-15.0	7.60	3.01	2.50	0.63					
17.0	-17.0	6.40	2.85	1.12	0.46					
19.0	-19.0	4.90	3.04	1.90	0.64					
21.0	-21.0	3.60	-2.86	-3.66	-4.67					
23.0	-23.0	2.60	3.11	2.46	1.49					
25.0	-25.0	1.00	2.91	2.26	1.52					
27.0	-27.0	0.90	2.45	1.56	1.06					
29.0	-29.0	1.00	2.18	2.62	0.88					

The -21 metre depth tip is suspect



Golder Associates

Anvil Range Mining Corp.

Faro Mine Instrumentation
Cross Valley Dam

BH 88-5 0+295 | **Location:** Cross Valley Dam Crest | **Elevation:** 1066.9 | **Coordinates:** 2223.5mN, 28.3mE

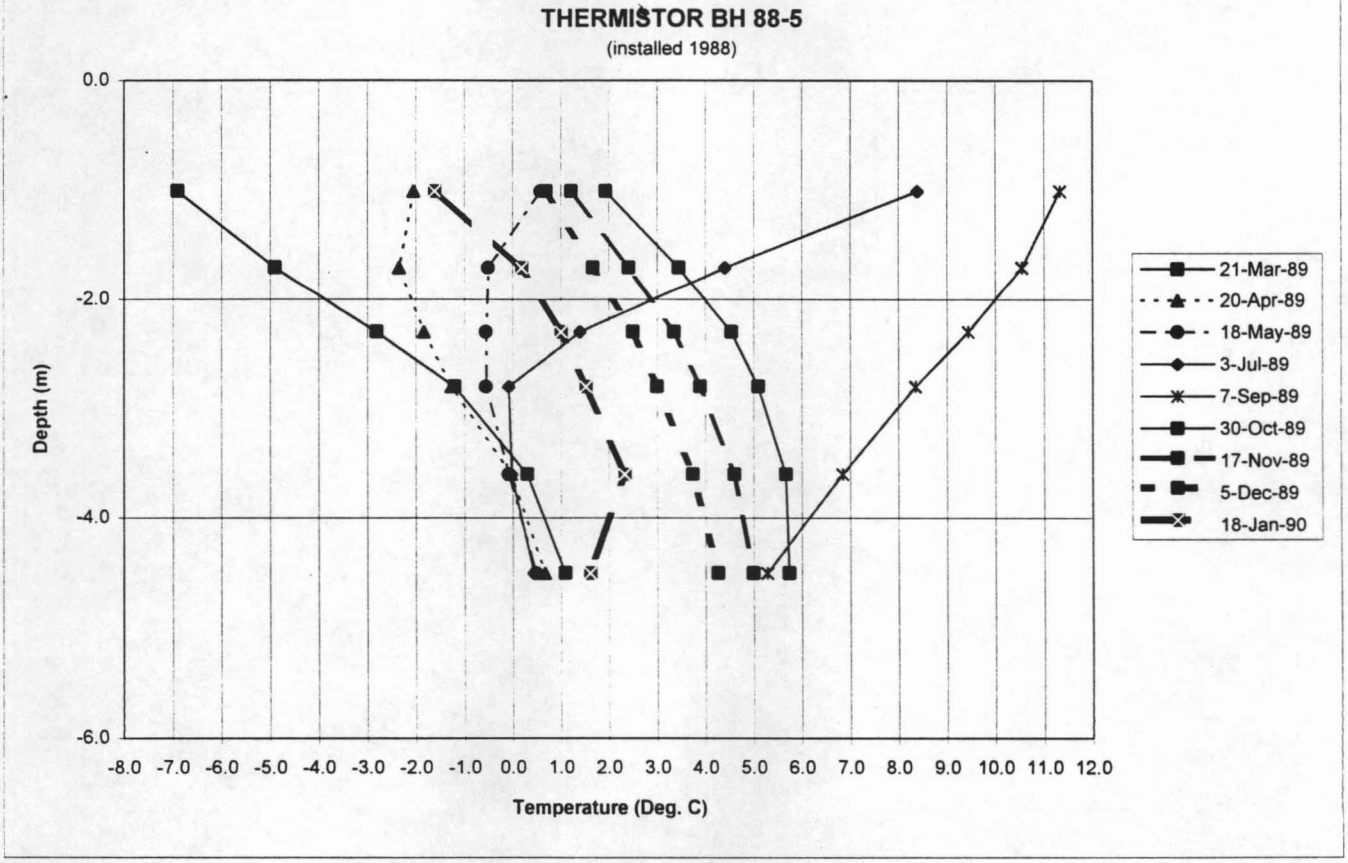
	Date Installed:	1988	**Thermistor Type:**	Cantec Controls YSI 44007	**Ice-Bath Calibration:**	not applied	**Surface Protector:** yes

Depth Correction 0

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 21-Mar-89	Resistivity (kOhms) 20-Apr-89	Resistivity (kOhms) 18-May-89	Resistivity (kOhms) 3-Jul-89	Resistivity (kOhms) 7-Sep-89	Resistivity (kOhms) 30-Oct-89	Resistivity (kOhms) 17-Nov-89	Resistivity (kOhms) 5-Dec-89	Resistivity (kOhms) 18-Jan-90
1.0	-1.0	23.40	18.13	15.84	10.74	9.32	14.79	15.34	15.75	17.73
1.7	-1.7	21.00	18.37	16.71	13.04	9.66	13.68	14.41	14.96	16.13
2.3	-2.3	18.84	17.91	16.77	15.18	10.20	12.97	13.76	14.36	15.49
2.8	-2.8	17.32	17.38	16.75	16.35	10.74	12.60	13.38	13.99	15.07
3.6	-3.6	16.08	16.36	16.40	16.35	11.59	12.28	12.95	13.52	14.51
4.5	-4.5	15.46	15.80	15.95	15.98	12.53	12.25	12.71	13.18	15.06

* The initial reading (Oct 10/88) is excluded from the data set because post-installation temperature equilibruim may not have been complete.

Depth on String (m)	Actual Depth (m)	Temperature (C) 21-Mar-89	Temperature (C) 20-Apr-89	Temperature (C) 18-May-89	Temperature (C) 3-Jul-89	Temperature (C) 7-Sep-89	Temperature (C) 30-Oct-89	Temperature (C) 17-Nov-89	Temperature (C) 5-Dec-89	Temperature (C) 18-Jan-90
1.0	-1.0	-6.90	-2.04	0.59	8.40	11.34	1.94	1.22	0.70	-1.61
1.7	-1.7	-4.90	-2.34	-0.50	4.41	10.55	3.45	2.42	1.68	0.19
2.3	-2.3	-2.80	-1.83	-0.55	1.41	9.44	4.54	3.36	2.51	1.01
2.8	-2.8	-1.20	-1.26	-0.54	-0.07	8.36	5.10	3.90	3.01	1.53
3.6	-3.6	0.30	-0.03	-0.08	-0.02	6.85	5.67	4.60	3.74	2.33
4.5	-4.5	1.10	0.67	0.48	0.45	5.29	5.74	5.00	4.27	1.61



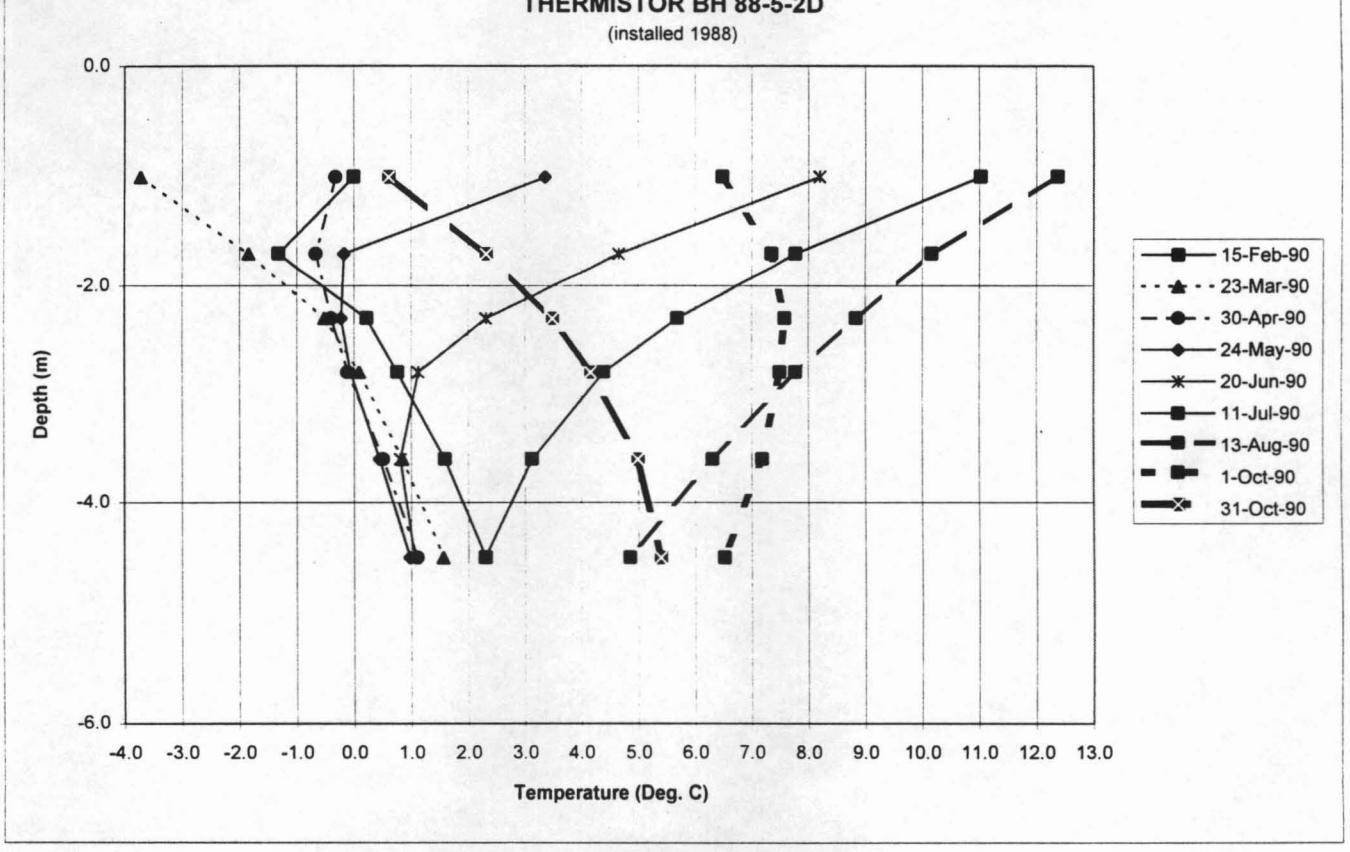
Anvil Range Mining Corp.

Faro Mine Instrumentation
Cross Valley Dam

BH 88-5 0+295	**Location:**	Cross Valley Dam Crest	**Elevation:**	1066.9	**Coordinates:**	2223.5mN, 28.3mE		
	Date Installed:	1988	**Thermistor Type:**	Cantec Controls YSI 44007	**Ice-Bath Calibration:**	not applied	**Surface Protector:**	yes
Depth Correction	0							

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 15-Feb-90	Resistivity (kOhms) 23-Mar-90	Resistivity (kOhms) 30-Apr-90	Resistivity (kOhms) 24-May-90	Resistivity (kOhms) 20-Jun-90	Resistivity (kOhms) 11-Jul-90	Resistivity (kOhms) 13-Aug-90	Resistivity (kOhms) 1-Oct-90	Resistivity (kOhms) 31-Oct-90
1.0	-1.0		19.78	16.59	13.77	10.84	9.46	8.87	11.79	15.82
1.7	-1.7	17.43	17.90	16.85	16.43	12.88	11.05	9.84	11.28	14.48
2.3	-2.3	16.12	16.74	16.64	16.49	14.50	12.25	10.50	11.16	13.67
2.8	-2.8	15.67	16.21	16.38	16.34	15.38	13.05	11.05	11.20	13.20
3.6	-3.6	15.06	15.64	15.91	15.96	15.67	13.94	11.90	11.40	12.70
4.5	-4.5	14.54	15.10	15.45	15.55	15.49	14.55	12.80	11.79	12.46

Depth on String (m)	Actual Depth (m)	Temperature (C) 15-Feb-90	Temperature (C) 23-Mar-90	Temperature (C) 30-Apr-90	Temperature (C) 24-May-90	Temperature (C) 20-Jun-90	Temperature (C) 11-Jul-90	Temperature (C) 13-Aug-90	Temperature (C) 1-Oct-90	Temperature (C) 31-Oct-90
1.0	-1.0	#DIV/0!	-3.72	-0.32	3.36	8.21	11.03	12.37	6.49	0.61
1.7	-1.7	-1.32	-1.83	-0.66	-0.17	4.66	7.77	10.17	7.35	2.32
2.3	-2.3	0.22	-0.51	-0.40	-0.22	2.31	5.69	8.84	7.59	3.49
2.8	-2.8	0.76	0.10	-0.11	-0.06	1.13	4.40	7.77	7.50	4.17
3.6	-3.6	1.59	0.85	0.51	0.45	0.81	3.13	6.31	7.19	5.00
4.5	-4.5	2.31	1.56	1.11	0.98	1.06	2.30	4.86	6.52	5.40



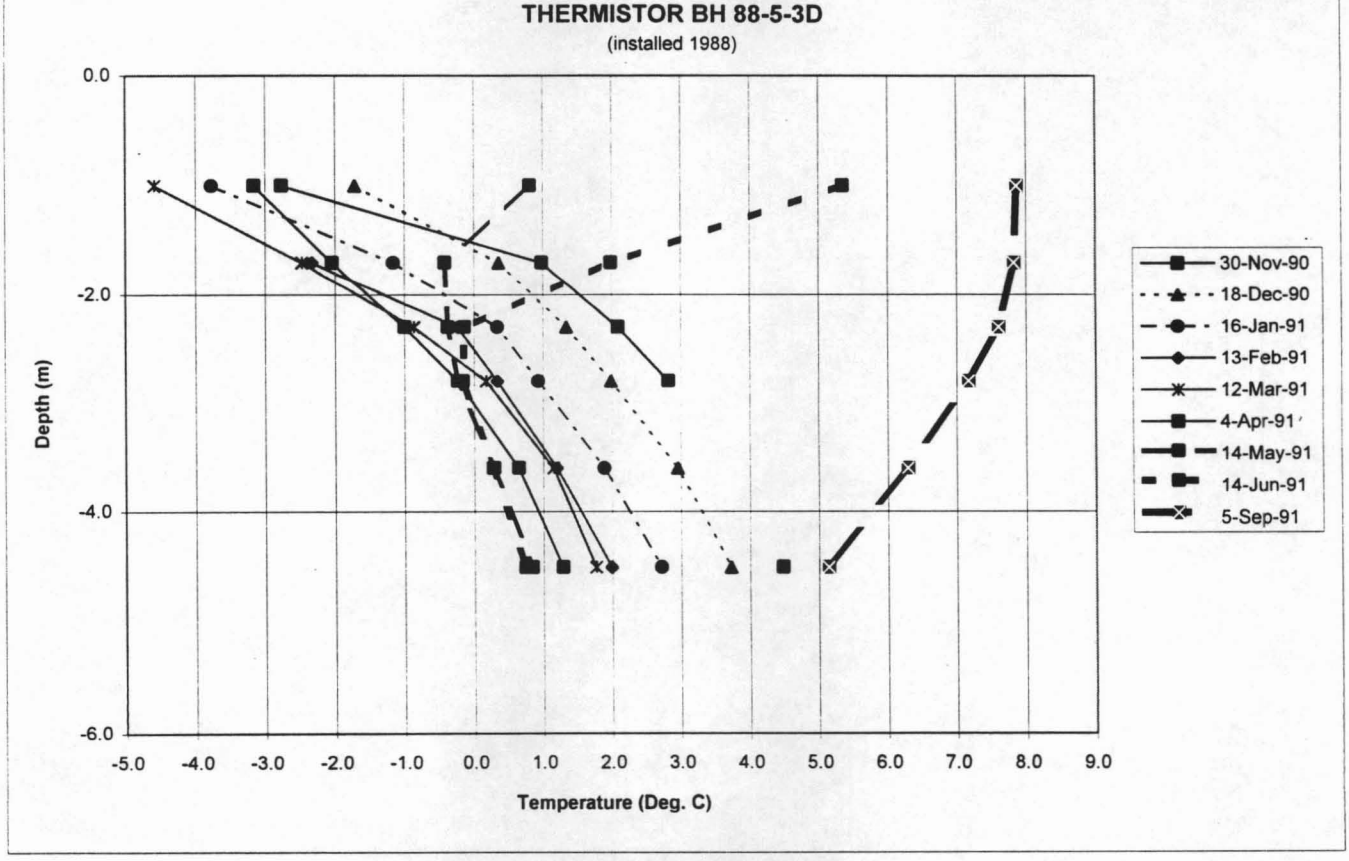
BH 88-5 0+295 **Location:** Cross Valley Dam Crest **Elevation:** 1066.9 **Coordinates:** 2223.5mN, 28.3mE

Date Installed: 1988 **Thermistor Type:** Cantec Controls YSI 44007 **Ice-Bath Calibration:** not applied **Surface Protector:** yes

Depth Correction 0

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 30-Nov-90	Resistivity (kOhms) 18-Dec-90	Resistivity (kOhms) 16-Jan-91	Resistivity (kOhms) 13-Feb-91	Resistivity (kOhms) 12-Mar-91	Resistivity (kOhms) 4-Apr-91	Resistivity (kOhms) 14-May-91	Resistivity (kOhms) 14-Jun-91	Resistivity (kOhms) 5-Sep-91
1.0	-1.0	18.82	17.82	19.83		20.70	19.21	15.66	12.47	11.02
1.7	-1.7	15.49	15.99	17.28	18.36	18.50	18.09	16.64	14.72	11.02
2.3	-2.3	14.66	15.23	16.02	16.50	17.04	17.16	16.62	16.42	11.15
2.8	-2.8	14.12	14.72	15.53	16.01	16.14	16.48	16.48	16.42	11.38
3.6	-3.6		14.06	14.83	15.36	15.40	15.80	16.09	16.10	11.91
4.5	-4.5	13.04	13.54	14.24	14.77	14.94	15.31	15.66	15.74	12.62

Depth on String (m)	Actual Depth (m)	Temperature (C) 30-Nov-90	Temperature (C) 18-Dec-90	Temperature (C) 16-Jan-91	Temperature (C) 13-Feb-91	Temperature (C) 12-Mar-91	Temperature (C) 4-Apr-91	Temperature (C) 14-May-91	Temperature (C) 14-Jun-91	Temperature (C) 5-Sep-91
1.0	-1.0	-2.76	-1.71	-3.76		-4.58	-3.16	0.81	5.35	7.87
1.7	-1.7	0.99	0.36	-1.15	-2.33	-2.47	-2.04	-0.42	2.00	7.83
2.3	-2.3	2.10	1.34	0.35	-0.23	0.86	-1.00	-0.37	-0.14	7.61
2.8	-2.8	2.82	2.00	0.94	0.34	0.18	-0.23	-0.23	-0.16	7.17
3.6	-3.6		2.96	1.90	1.20	1.15	0.65	0.29	0.28	6.29
4.5	-4.5	4.48	3.73	2.72	2.00	1.77	1.29	0.84	0.74	5.14



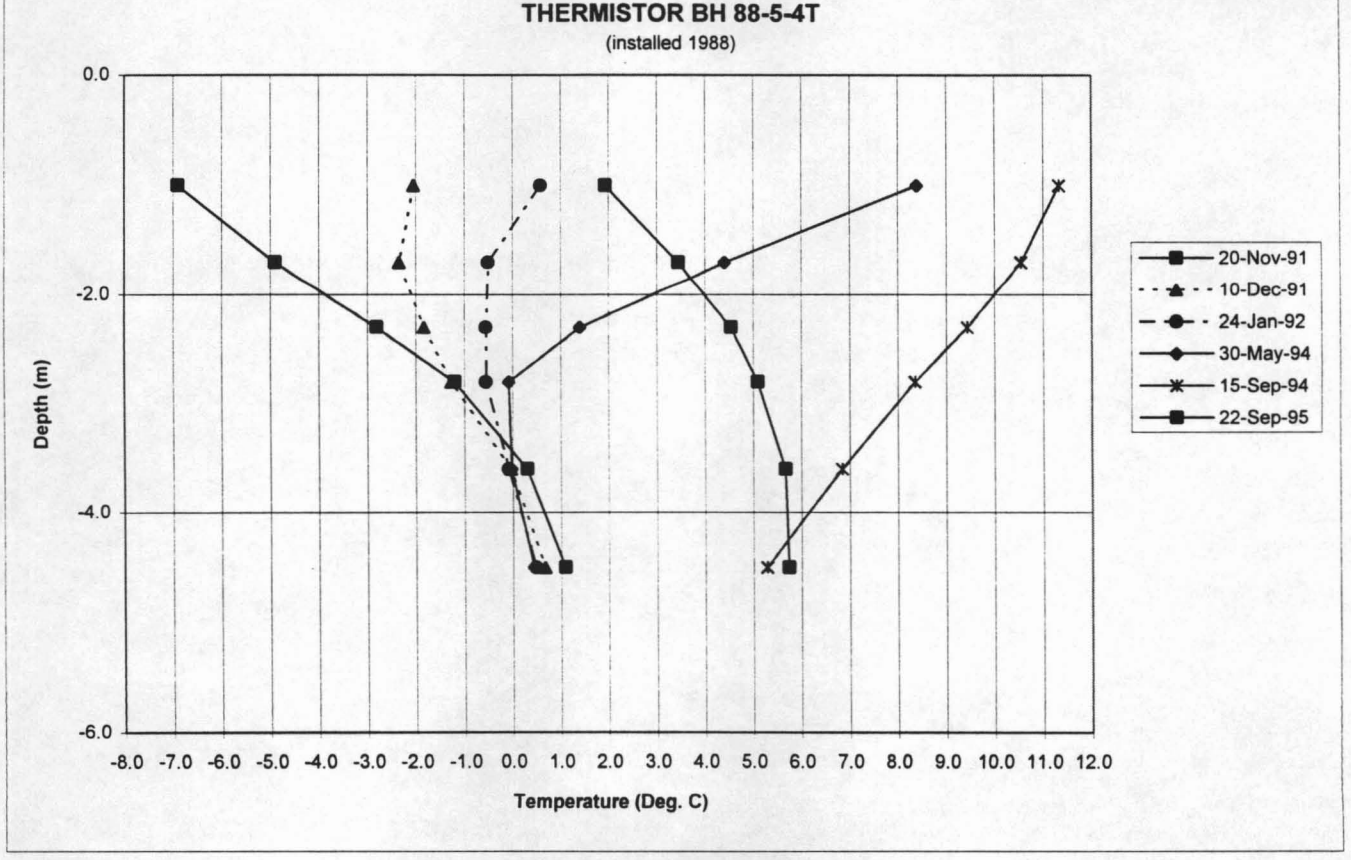
Anvil Range Mining Corp.

Faro Mine Instrumentation
Cross Valley Dam

BH 88-5 0+295	**Location:**	Cross Valley Dam Crest	**Elevation:**	1066.9	**Coordinates:**	2223.5mN, 28.3mE			
	Date Installed:	1988	**Thermistor Type:**	Cantec Controls YSI 44007	**Ice-Bath Calibration:**	not applied	**Surface Protector:**	yes	
Depth Correction	0								

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 20-Nov-91	Resistivity (kOhms) 10-Dec-91	Resistivity (kOhms) 24-Jan-92	Resistivity (kOhms) 30-May-94	Resistivity (kOhms) 15-Sep-94	Resistivity (kOhms) 22-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
1.0	-1.0	23.40	18.13	15.84	10.74	9.32	14.79			
1.7	-1.7	21.00	18.37	16.71	13.04	9.66	13.68			
2.3	-2.3	18.84	17.91	16.77	15.18	10.20	12.97			
2.8	-2.8	17.32	17.38	16.75	16.35	10.74	12.60			
3.6	-3.6	16.08	16.36	16.40	16.35	11.59	12.28			
4.5	-4.5	15.46	15.80	15.95	15.98	12.53	12.25			

Depth on String (m)	Actual Depth (m)	Temperature (C) 20-Nov-91	Temperature (C) 10-Dec-91	Temperature (C) 24-Jan-92	Temperature (C) 30-May-94	Temperature (C) 15-Sep-94	Temperature (C) 22-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-1.0	-6.90	-2.04	0.59	8.40	11.34	1.94			
1.7	-1.7	-4.90	-2.34	-0.50	4.41	10.55	3.45			
2.3	-2.3	-2.80	-1.83	-0.55	1.41	9.44	4.54			
2.8	-2.8	-1.20	-1.26	-0.54	-0.07	8.36	5.10			
3.6	-3.6	0.30	-0.03	-0.08	-0.02	6.85	5.67			
4.5	-4.5	1.10	0.67	0.48	0.45	5.29	5.74			



Anvil Range Mining Corp.

Faro Mine Instrumentation
Cross Valley Dam

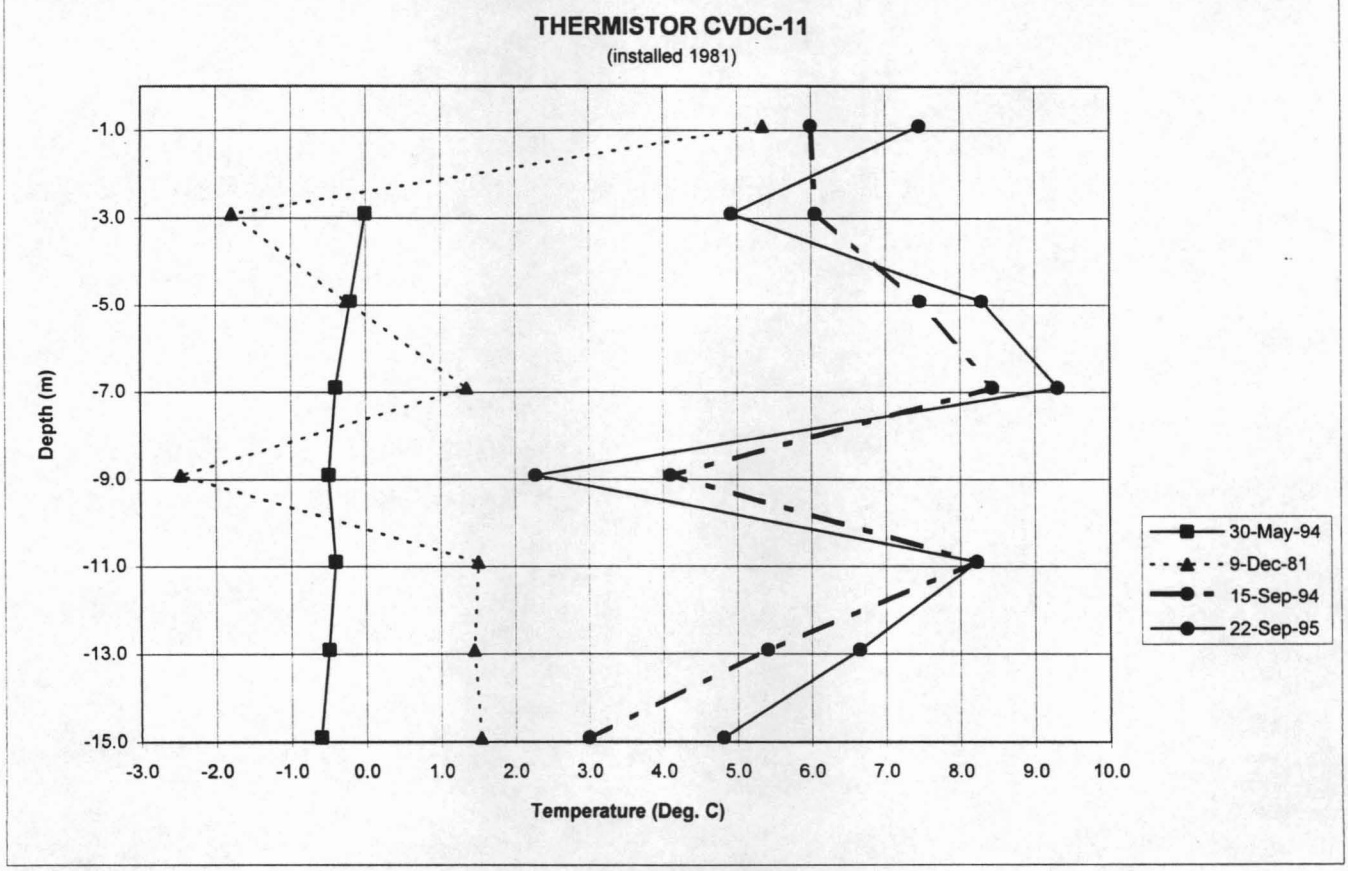
CVDC-1	St0+645	**Location:**	Cross Valley Dam Crest	**Elevation:**	1065.7 m Cantec	**Coordinates:**	1913.4 mN -133.5mW			
Thermistor String #29		**Date Installed:**	1981	**Thermistor Type:**	Controls YSI 44007	**Ice-Bath Calibration:**	applied	**Surface Protector:**	yes	
Depth Correction	-0.1									

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 9-Dec-81	Resistivity (kOhms) 30-May-94	Resistivity (kOhms) 15-Sep-94	Resistivity (kOhms) 22-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
1.0	-0.9		12.38	11.99	11.16					
3.0	-2.9	16.21	17.76	11.96	12.65					
5.0	-4.9	16.36	16.40	11.15	10.71					
7.0	-6.9	16.50	15.09	10.62	10.18					
9.0	-8.9	16.64	18.42	13.19	14.45					
11.0	-10.9	16.52	14.99	10.74	10.74					
13.0	-12.9	16.64	15.07	12.36	11.63					
15.0	-14.9	16.67	14.95	13.89	12.69					

* The initial reading (Nov 15/81) is excluded from the data set because post-installation temperature equilibruim may not have been complete.

Depth on String (m)	Actual Depth (m)	Temperature (C) 9-Dec-81	Temperature (C) 30-May-94	Temperature (C) 15-Sep-94	Temperature (C) 22-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-0.9		5.35	6.00	7.46					
3.0	-2.9	0.00	-1.78	6.06	4.92					
5.0	-4.9	-0.20	-0.25	7.47	8.30					
7.0	-6.9	-0.40	1.35	8.44	9.31					
9.0	-8.9	-0.50	-2.47	4.10	2.28					
11.0	-10.9	-0.40	1.51	8.23	8.23					
13.0	-12.9	-0.50	1.45	5.41	6.65					
15.0	-14.9	-0.60	1.54	3.00	4.81					

The 9 metre depth tip is suspect



LIST OF OPERATIONAL INSTRUMENTS 1995

Reference Number	Reference Line Chainage	Instrument
BH94 LCD1	0+100	Pneumatic piezometer
BH94 LCD2	0+180	Pneumatic piezometer
BH94 LCD3	0+240	Pneumatic piezometer
BH94 LCD4	0+120	Thermistor
BH94 LCD5	0+200	Thermistor
BH94 LCD6	0+250	Thermistor

LITTLE CREEK DAM

PIEZOMETERS

Anvil Range Mining Corp.

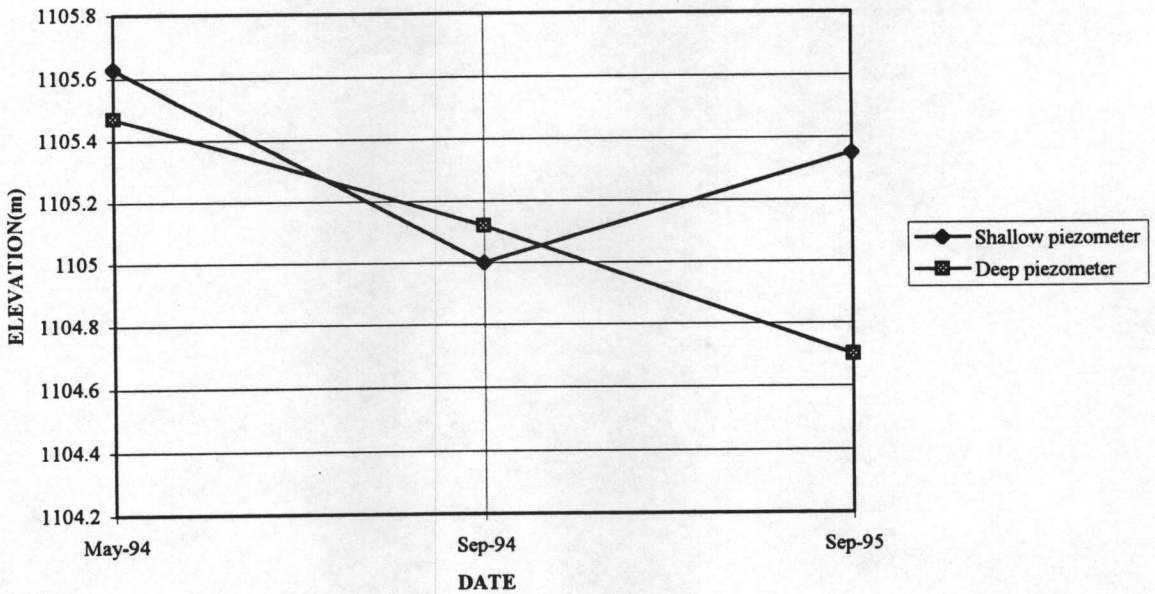
Faro Mine Instrumentation
Little Creek Dam

BH94 LCD1 **Location:** Little Creek Dam Crest **Ground Elevation:** 1114.5m **Coordinates:** 3000N, 13460E

Date Installed: June '94 **Shallow Tip Elevation:** 1103.6 **Deep Tip Elevation :** 1097.0 **Surface Protector:** yes

Date	Reading (psi)		Piezometric Elevation (m)	
	Shallow	Deep	Shallow	Deep
May-94	2.9	12.1	1105.63	1105.47
Sep-94	2.0	11.6	1105.00	1105.12
Sep-95	2.5	11.0	1105.35	1104.70

PNEUMATIC PIEZOMETER BH94 LCD1

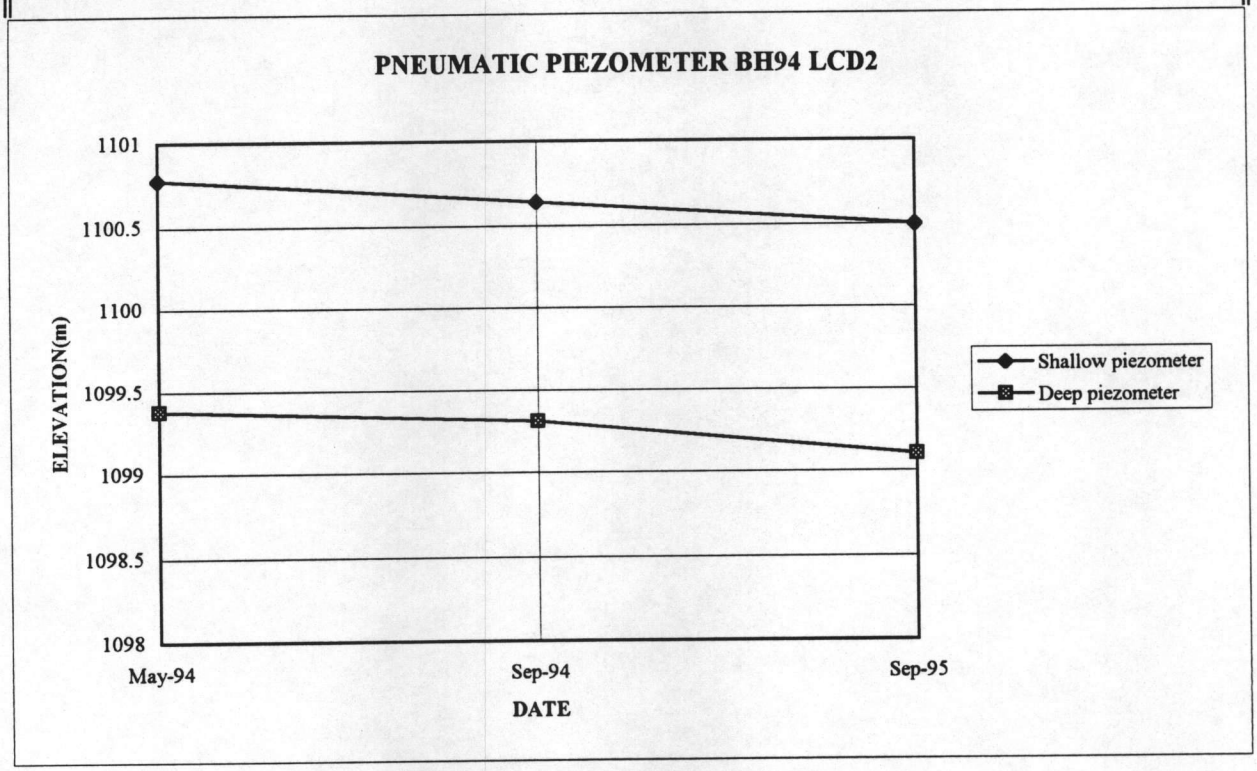


Anvil Range Mining Corp.

Faro Mine Instrumentation
Little Creek Dam

BH94 LCD2	**Location:** Little Creek Dam Crest		**Ground Elevation:**	1114.5m	**Coordinates:** 3065N,13485E
	Date Installed: June '94	**Shallow Tip Elevation:**	1100.5	**Surface Protector:**	yes
		Deep Tip Elevation :	1094.9		

Date	Reading (psi)		Piezometric Elevation (m)	
	Shallow	Deep	Shallow	Deep
May-94	0.4	6.4	1100.78	1099.38
Sep-94	0.2	6.3	1100.64	1099.31
Sep-95	0.0	6.0	1100.50	1099.10



Anvil Range Mining Corp.

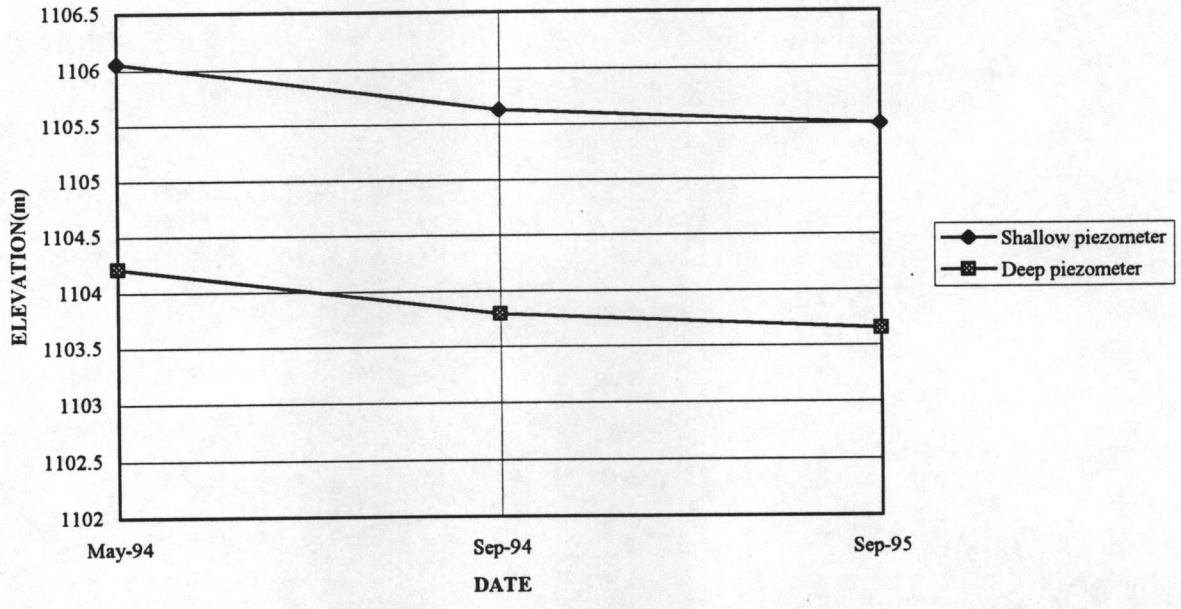
Faro Mine Instrumentation
Little Creek Dam

BH94 LCD3 **Location:** Little Creek Dam Crest **Ground Elevation:** 1114.5m **Coordinates:** 3115N, 13525E

Date Installed: June '94 **Shallow Tip Elevation:** 1105.5 **Deep Tip Elevation :** 1101.2 **Surface Protector:** yes

Date	Reading (psi)		Piezometric Elevation (m)	
	Shallow	Deep	Shallow	Deep
May-94	0.8	4.3	1106.06	1104.21
Sep-94	0.2	3.7	1105.64	1103.79
Sep-95	0.0	3.5	1105.50	1103.65

PNEUMATIC PIEZOMETER BH94 LCD3



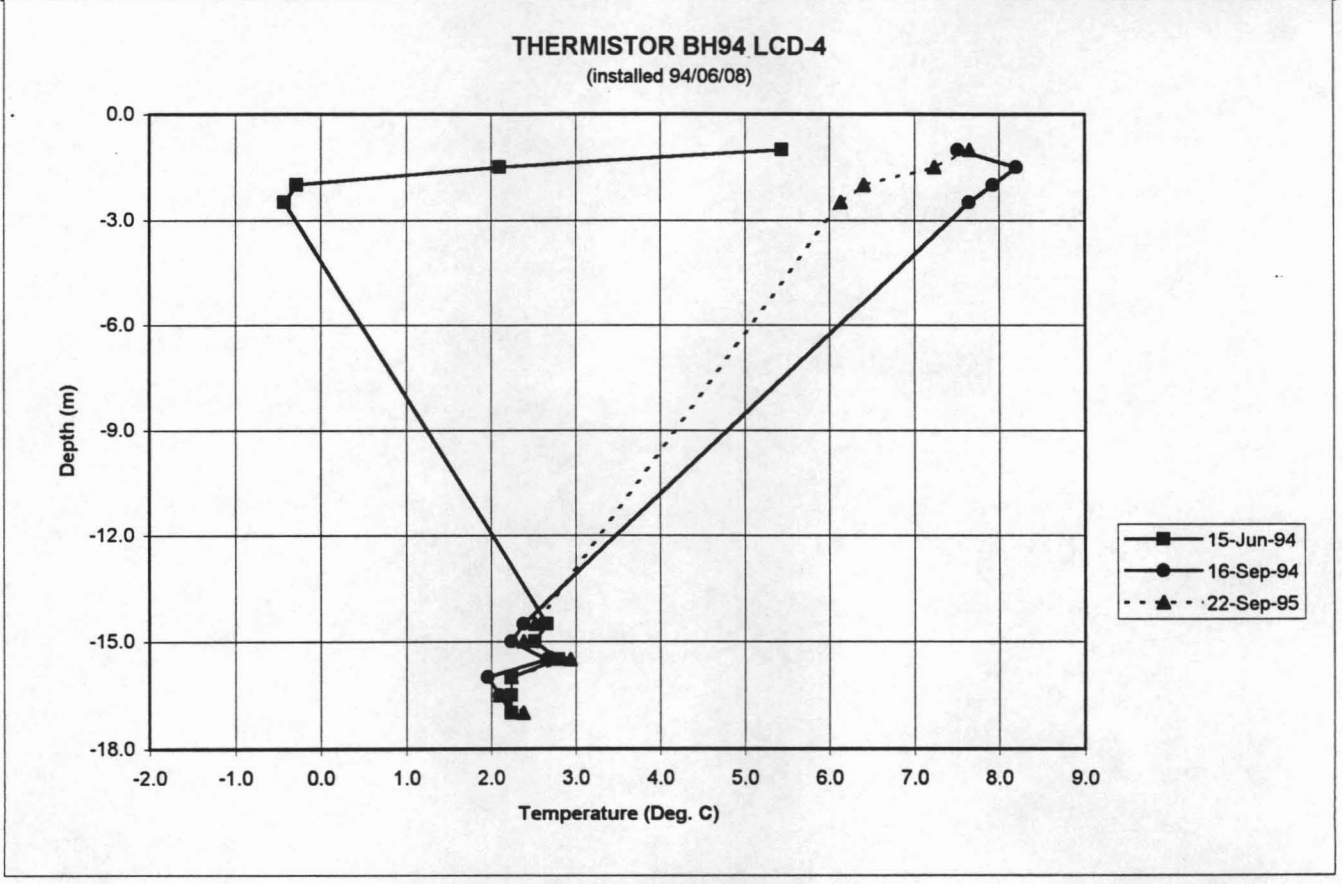
LITTLE CREEK DAM

THERMISTORS

BH94 LCD-4	Location:	Little Creek Dam Crest	Elevation:	1114.5m	Coordinates:	3015N, 13465E		
	Date Installed:	8-Jun-94	Thermistor Type:	SINCA RTD's	Ice-Bath Calibration:	not applied	Surface Protector:	yes
Depth Correction	0		Ro (Ohms)=	1854				

Depth on String (m)	Actual Depth (m)	Resistivity (Ohms) 15-Jun-94	Resistivity (Ohms) 16-Sep-94	Resistivity (Ohms) 22-Sep-95	Resistivity (Ohms)	Resistivity (Ohms)	Resistivity (Ohms)	Resistivity (Ohms)	Resistivity (Ohms)	Resistivity (Ohms)
1.0	-1.0	1893	1908	1909						
1.5	-1.5	1869	1913	1906						
2.0	-2.0	1852	1911	1900						
2.5	-2.5	1851	1909	1898						
14.5	-14.5	1873	1871	1872						
15.0	-15.0	1872	1870	1871						
15.5	-15.5	1874	1873	1875						
16.0	-16.0	1870	1868	1870						
16.5	-16.5	1870	1869	1869						
17.0	-17.0	1870	1870	1871						

Depth on String (m)	Actual Depth (m)	Temperature (C) 15-Jun-94	Temperature (C) 16-Sep-94	Temperature (C) 22-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-1.0	5.4	7.5	7.7						
1.5	-1.5	2.1	8.2	7.2						
2.0	-2.0	-0.3	7.9	6.4						
2.5	-2.5	-0.4	7.7	6.1						
14.5	-14.5	2.7	2.4	2.5						
15.0	-15.0	2.5	2.2	2.4						
15.5	-15.5	2.8	2.7	2.9						
16.0	-16.0	2.2	2.0	2.2						
16.5	-16.5	2.2	2.1	2.1						
17.0	-17.0	2.2	2.2	2.4						



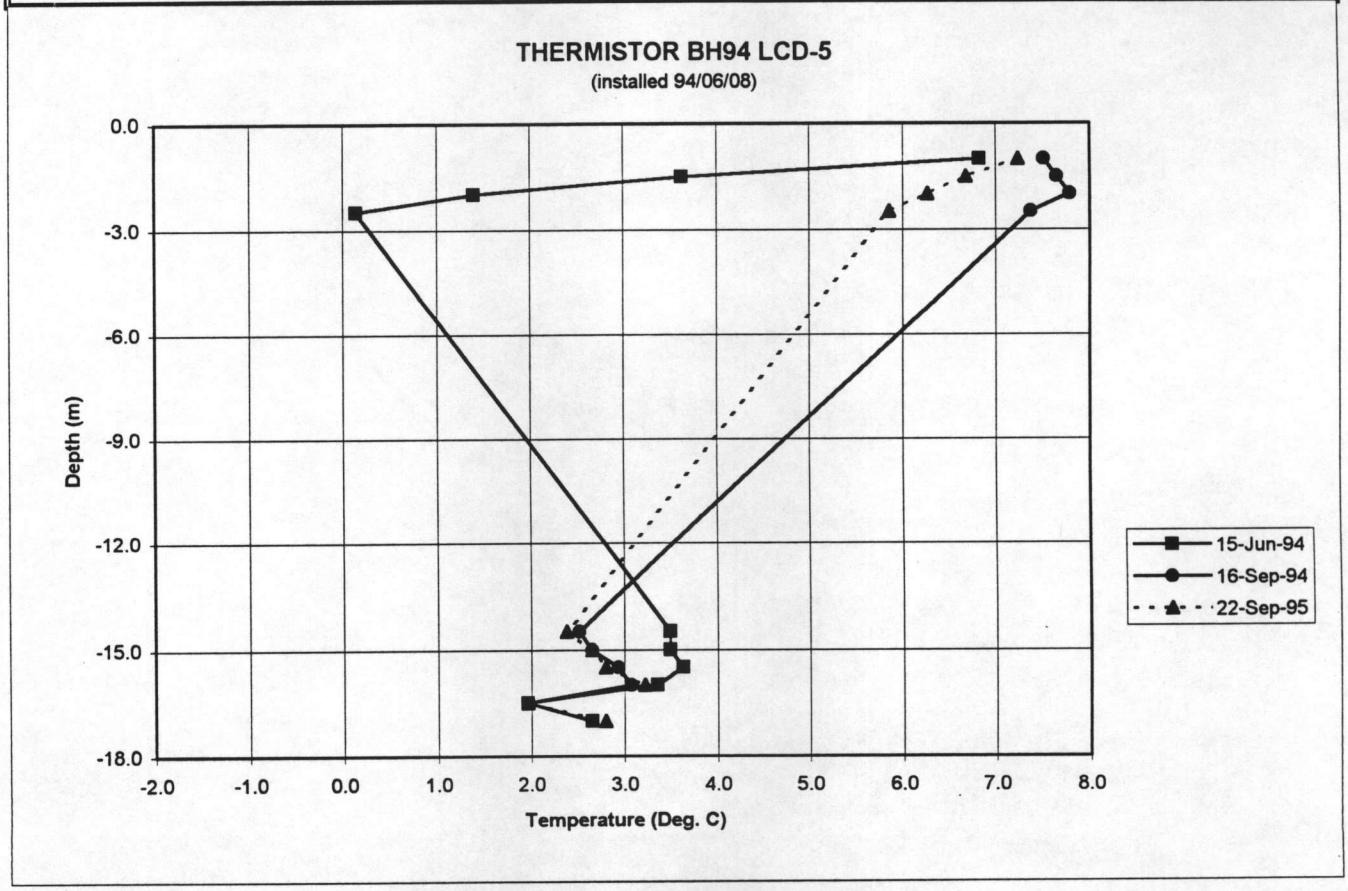
Anvil Range
Mining Corp.

Faro Mine Instrumentation
Little Creek Dam

BH94 LCD-5	Location:	Little Creek Dam Crest	Elevation:	1114.5m	Coordinates:	3090N, 13500E		
	Date Installed:	8-Jun-94	Thermistor Type:	SINCA RTD's	Ice-Bath Calibration:	not applied	Surface Protector:	yes
Depth Correction	0		Ro (Ohms)=	1854				

Depth on String (m)	Actual Depth (m)	Resistivity (Ohms) 15-Jun-94	Resistivity (Ohms) 16-Sep-94	Resistivity (Ohms) 22-Sep-95	Resistivity (Ohms)	Resistivity (Ohms)	Resistivity (Ohms)	Resistivity (Ohms)	Resistivity (Ohms)	Resistivity (Ohms)
1.0	-1.0	1903	1908	1906						
1.5	-1.5	1880	1909	1902						
2.0	-2.0	1864	1910	1899						
2.5	-2.5	1855	1907	1896						
14.5	-14.5	1879	1872	1871						
15.0	-15.0	1879	1873	1873						
15.5	-15.5	1880	1875	1874						
16.0	-16.0	1878	1876	1877						
16.5	-16.5	1868	1868	1868						
17.0	-17.0	1873	1873	1874						

Depth on String (m)	Actual Depth (m)	Temperature (C) 15-Jun-94	Temperature (C) 16-Sep-94	Temperature (C) 22-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-1.0	6.8	7.5	7.2						
1.5	-1.5	3.6	7.7	6.7						
2.0	-2.0	1.4	7.8	6.3						
2.5	-2.5	0.1	7.4	5.9						
14.5	-14.5	3.5	2.5	2.4						
15.0	-15.0	3.5	2.7	2.7						
15.5	-15.5	3.6	2.9	2.8						
16.0	-16.0	3.4	3.1	3.2						
16.5	-16.5	2.0	2.0	2.0						
17.0	-17.0	2.7	2.7	2.8						



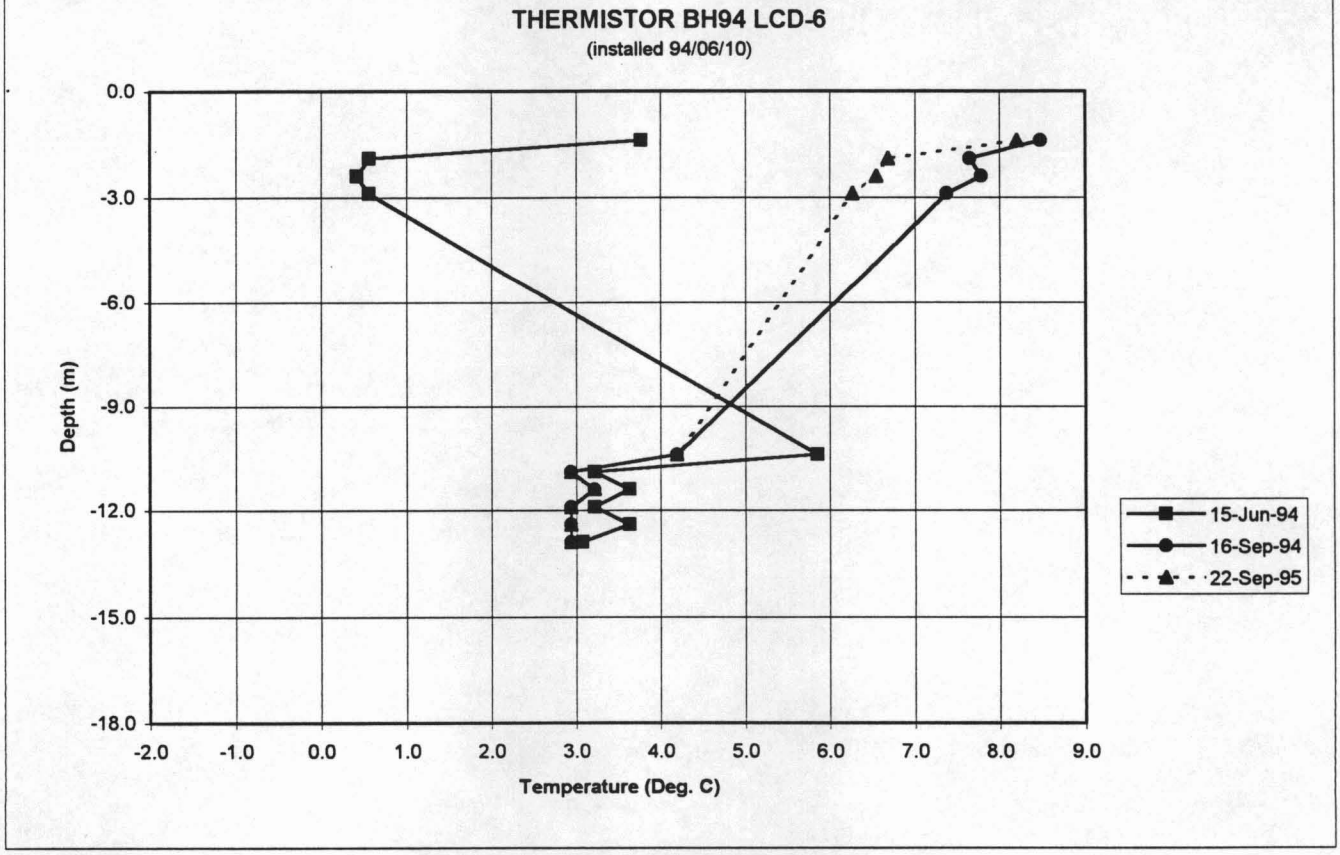
Anvil Range
Mining Corp.

Faro Mine Instrumentation
Little Creek Dam

BH94 LCD-6	Location:	Little Creek Dam Crest	Elevation:	1114.5m	Coordinates:	3125N, 13535E		
	Date Installed:	10-Jun-94	Thermistor Type:	SINCA RTD's	Ice-Bath Calibration:	not applied	Surface Protector:	yes
Depth Correction	0.4		Ro (Ohms)=	1854				

Depth on String (m)	Actual Depth (m)	Resistivity (Ohms) 15-Jun-94	Resistivity (Ohms) 16-Sep-94	Resistivity (Ohms) 22-Sep-95	Resistivity (Ohms)	Resistivity (Ohms)	Resistivity (Ohms)	Resistivity (Ohms)	Resistivity (Ohms)	Resistivity (Ohms)
1.0	-1.4	1881	1915	1913						
1.5	-1.9	1858	1909	1902						
2.0	-2.4	1857	1910	1901						
2.5	-2.9	1858	1907	1899						
10.0	-10.4	1896	1884	1884						
10.5	-10.9	1877	1875	1875						
11.0	-11.4	1880	1877	1877						
11.5	-11.9	1877	1875	1875						
12.0	-12.4	1880	1875	1875						
12.5	-12.9	1876	1875	1875						

Depth on String (m)	Actual Depth (m)	Temperature (C) 15-Jun-94	Temperature (C) 16-Sep-94	Temperature (C) 22-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-1.4	3.8	8.5	8.2						
1.5	-1.9	0.6	7.7	6.7						
2.0	-2.4	0.4	7.8	6.5						
2.5	-2.9	0.6	7.4	6.3						
10.0	-10.4	5.9	4.2	4.2						
10.5	-10.9	3.2	2.9	2.9						
11.0	-11.4	3.6	3.2	3.2						
11.5	-11.9	3.2	2.9	2.9						
12.0	-12.4	3.6	2.9	2.9						
12.5	-12.9	3.1	2.9	2.9						



LIST OF OPERATIONAL INSTRUMENTS 1995

Reference Number	Reference Line Chainage	Instrument
BS2	0+400	Slope Indicator Pneumatic piezometer tip#354 Thermistor
BS4	0+710	Thermistor Pneumatic piezometer tip#358
BS5	0+960	Slope Indicator Pneumatic piezometer tip #369 Thermistor
BS9	1+530	Slope Indicator Pneumatic piezometer tip #355 Thermistor
BS10	1+900	Slope Indicator Thermistor Pneumatic piezometer tip#359
BS11	2+100	Thermistor
BS12	2+260	Thermistor
BS15	2+760	Thermistor
BS16	2+900	Thermistor
BS17	2+900	Thermistor
BS18	3+000	Slope Indicator Thermistor Pneumatic piezometer tip#352

Note: Following inclinomter probes were used to read the slope indicators

Inclinometer probe	Faro Mine	Golder	RST
Sensor S/N	SI-1000	50303-M	SM 92512
Year of reading	1988-1992	1994	1995
Instrument Constant	2500	25000	5000

CANAL DYKE BACKSLOPE

PIEZOMETERS

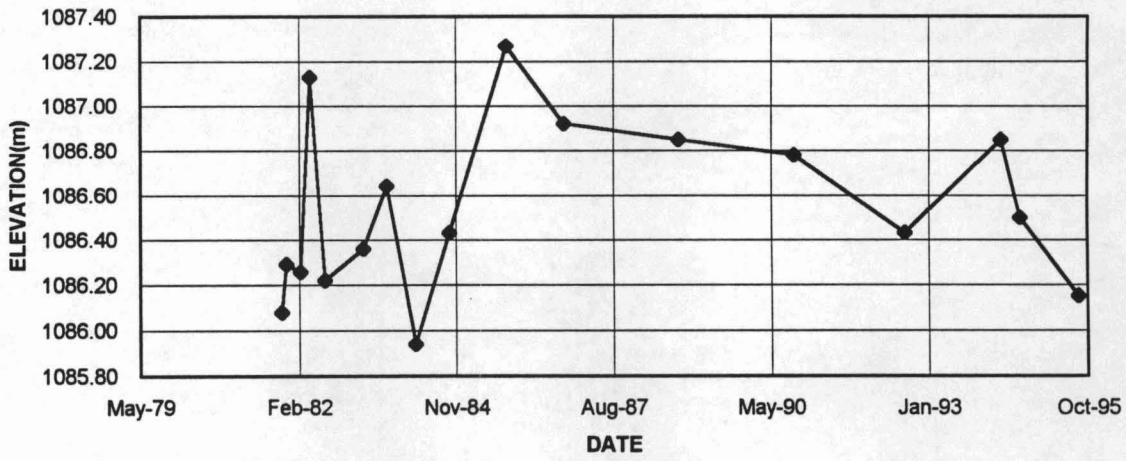
Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke Backslope

BS-2	Location: Canal Dyke Backslope St.0+400	Ground Elevation: 1094.30	Coordinates: 710.4N, 2037.3E
	Date Installed: 1981	Tip Elevation: 1085.80	Surface Protector: yes

Date	Reading (psi)	Piezometric Elevation (m)
Nov-81	0.40	1086.08
Dec-81	0.70	1086.29
Mar-82	0.65	1086.26
May-82	1.90	1087.13
Aug-82	0.60	1086.22
Apr-83	0.80	1086.36
Sep-83	1.20	1086.64
Mar-84	0.20	1085.94
Oct-84	0.90	1086.43
Oct-85	2.10	1087.27
Oct-86	1.60	1086.92
Oct-88	1.50	1086.85
Oct-90	1.40	1086.78
Sep-92	0.90	1086.43
May-94	1.50	1086.85
Sep-94	1.00	1086.50
Sep-95	0.50	1086.15

PNEUMATIC PIEZOMETER BS-2



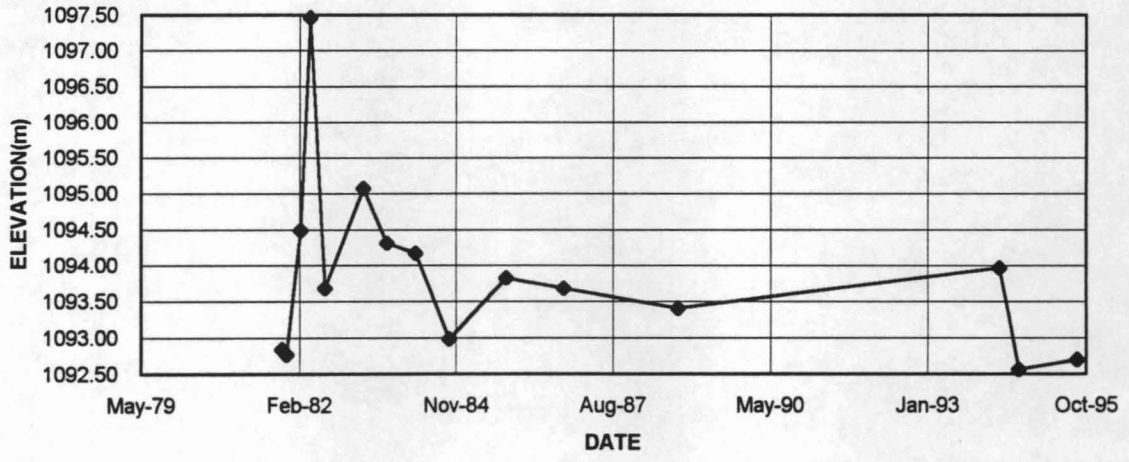
Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke Backslope

BS-4	Location: Canal Dyke Backslope St.0+710	Ground Elevation: 1096.70	Coordinates: 825.5N, 1757.1E
	Date Installed: 1981	Tip Elevation: 1085.70	Surface Protector: yes

Date	Reading (psi)	Piezometric Elevation (m)
Nov-81	10.20	1092.84
Dec-81	10.10	1092.77
Mar-82	12.55	1094.49
May-82	16.80	1097.46
Aug-82	11.40	1093.68
Apr-83	13.40	1095.08
Sep-83	12.30	1094.31
Mar-84	12.10	1094.17
Oct-84	10.40	1092.98
Oct-85	11.60	1093.82
Oct-86	11.40	1093.68
Oct-88	11.00	1093.40
Oct-90		
Sep-92		
May-94	11.80	1093.96
Sep-94	9.80	1092.56
Sep-95	10.00	1092.70

PNEUMATIC PIEZOMETER BS-4

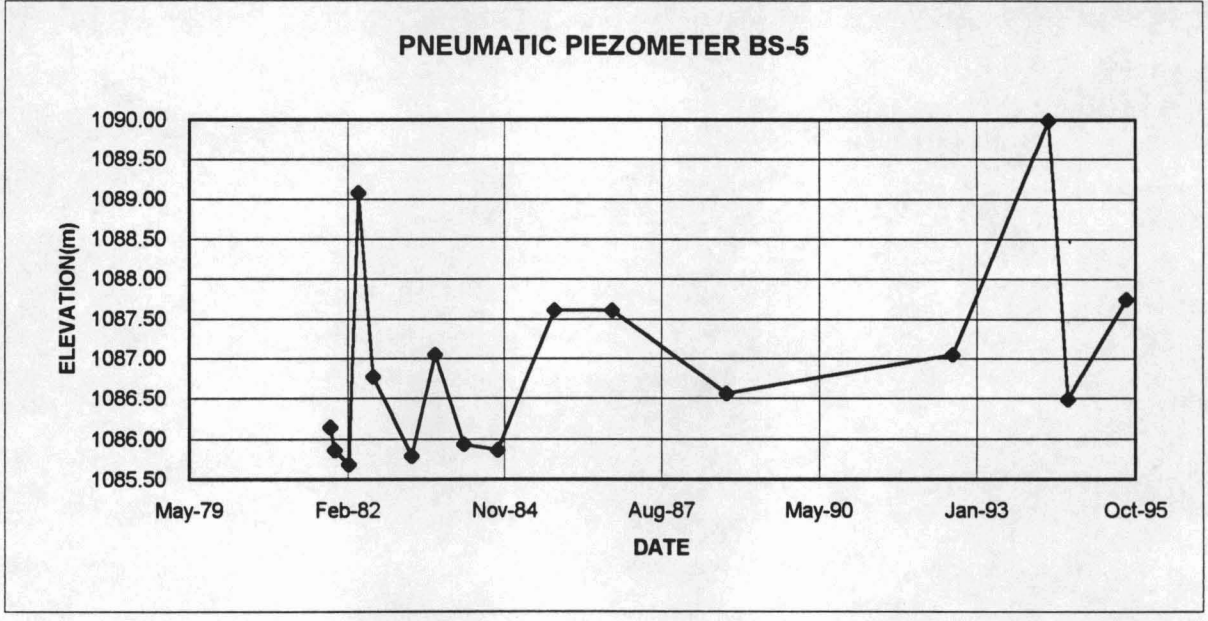


Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke Backslope

BS-5	Location: Canal Dyke Backslope St.0+960	Ground Elevation: 1092.50	Coordinates: 953.2N, 1534.6E
	Date Installed: 1981	Tip Elevation: 1085.30	Surface Protector: yes

Date	Reading (psi)	Piezometric Elevation (m)
Nov-81	1.20	1086.14
Dec-81	0.80	1085.86
Mar-82	0.55	1085.69
May-82	5.40	1089.08
Aug-82	2.10	1086.77
Apr-83	0.70	1085.79
Sep-83	2.50	1087.05
Mar-84	0.90	1085.93
Oct-84	0.80	1085.86
Oct-85	3.30	1087.61
Oct-86	3.30	1087.61
Oct-88	1.80	1086.56
Oct-90		
Sep-92	2.50	1087.05
May-94	6.70	1089.99
Sep-94	1.70	1086.49
Sep-95	3.50	1087.75

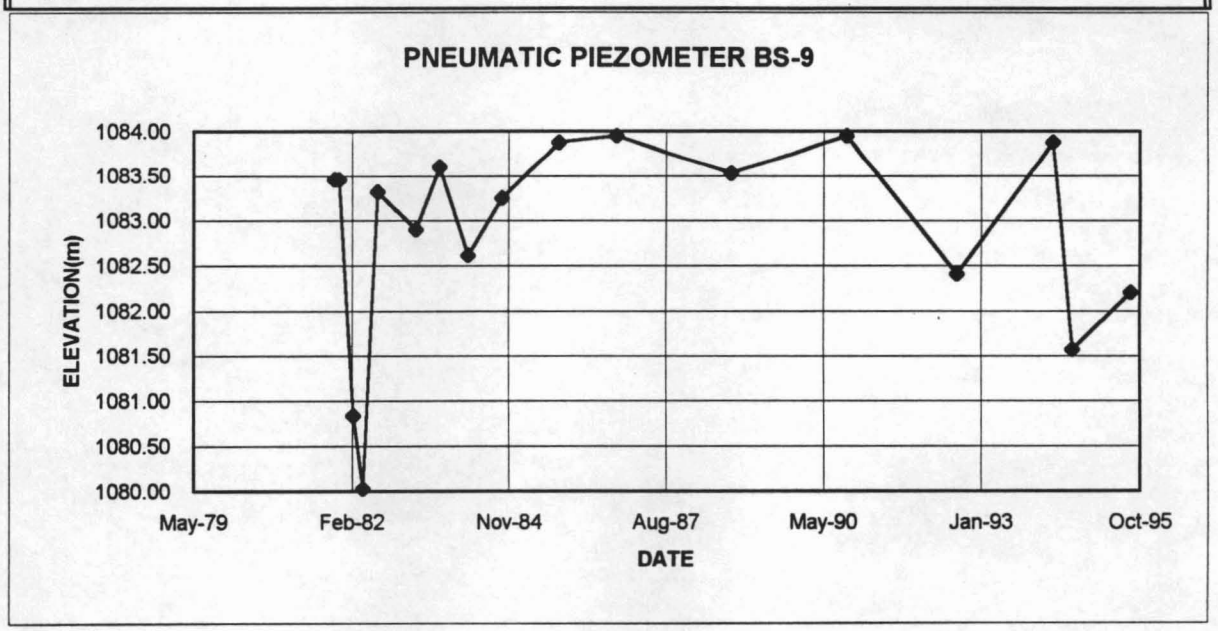


Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke Backslope

BS-9	**Location:** Canal Dyke Backslope St.1+530	**Ground Elevation:** 1088.30	**Coordinates:** 1200N, 1018.4E
	Date Installed: 1981	**Tip Elevation:** 1077.30	**Surface Protector:** yes

Date	Reading (psi)	Piezometric Elevation (m)
Nov-81	8.80	1083.46
Dec-81	8.80	1083.46
Mar-82	5.05	1080.84
May-82	3.90	1080.03
Aug-82	8.60	1083.32
Apr-83	8.00	1082.90
Sep-83	9.00	1083.60
Mar-84	7.60	1082.62
Oct-84	8.50	1083.25
Oct-85	9.40	1083.88
Oct-86	9.50	1083.95
Oct-88	8.90	1083.53
Oct-90	9.50	1083.95
Sep-92	7.30	1082.41
May-94	9.40	1083.88
Sep-94	6.10	1081.57
Sep-95	7.00	1082.20

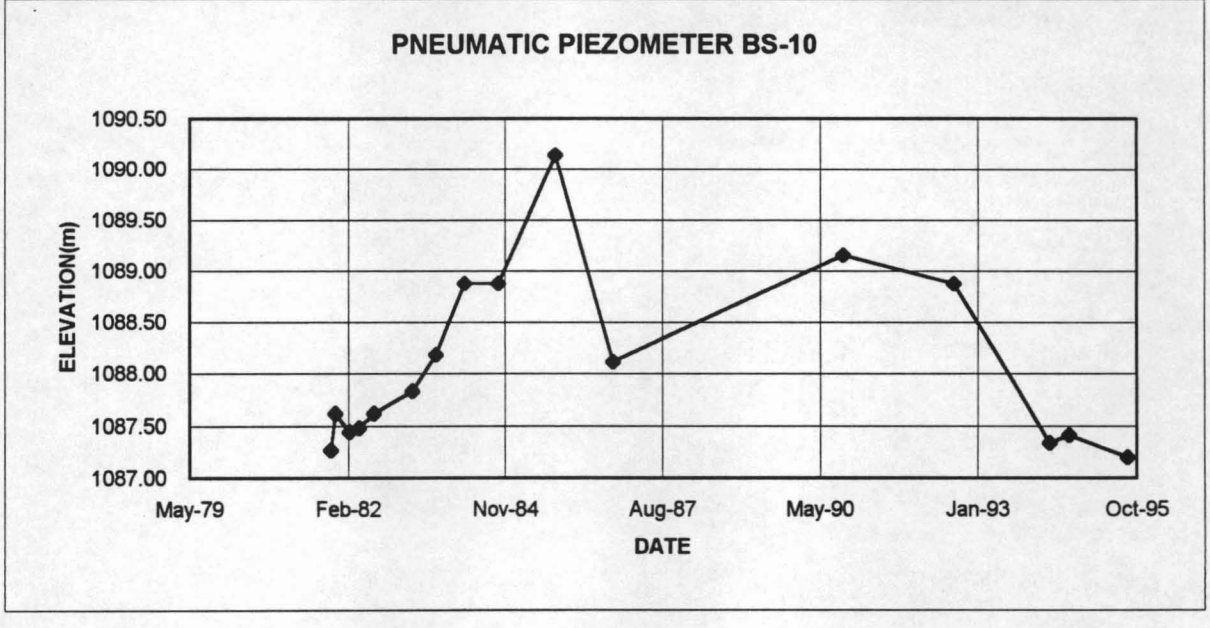


Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke Backslope

BS-10	Location: Canal Dyke Backslope St.1+900	Ground Elevation: 1098.20	Coordinates: 1310.5N, 657.3E
	Date Installed: 1981	Tip Elevation: 1087.20	Surface Protector: yes

Date	Reading (psi)	Piezometric Elevation (m)
Nov-81	0.10	1087.27
Dec-81	0.60	1087.62
Mar-82	0.35	1087.45
May-82	0.40	1087.48
Aug-82	0.60	1087.62
Apr-83	0.90	1087.83
Sep-83	1.40	1088.18
Mar-84	2.40	1088.88
Oct-84	2.40	1088.88
Oct-85	4.20	1090.14
Oct-86	1.30	1088.11
Oct-88		
Oct-90	2.80	1089.16
Sep-92	2.40	1088.88
May-94	0.20	1087.34
Sep-94	0.30	1087.41
Sep-95	0.00	1087.20



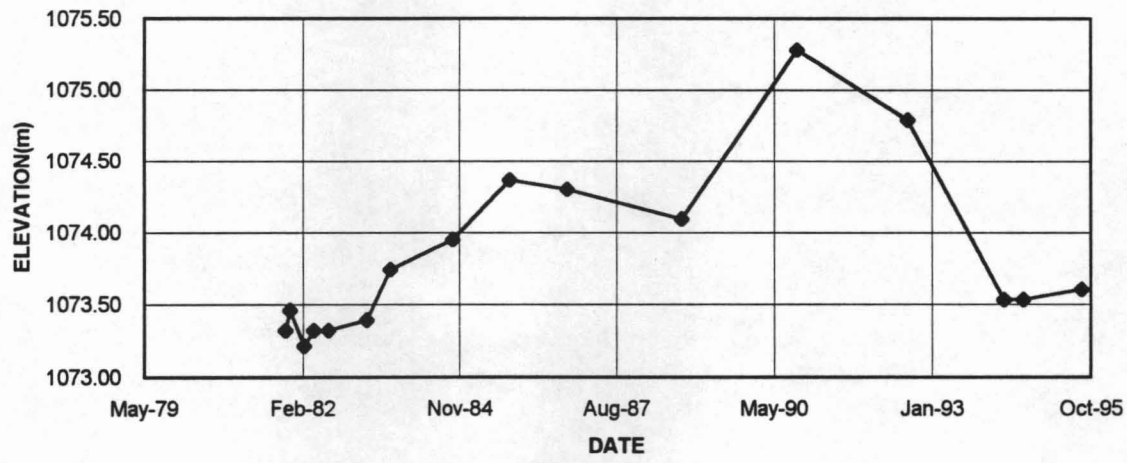
Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke Backslope

BS-16	Location: Canal Dyke Backslope St.2+900	Ground Elevation: 1087.10	Coordinates: 1819N, 202.4E
	Date Installed: 1981	Tip Elevation: 1072.90	Surface Protector: yes

Date	Reading (psi)	Piezometric Elevation (m)
Nov-81	0.60	1073.32
Dec-81	0.80	1073.46
Mar-82	0.45	1073.22
May-82	0.60	1073.32
Aug-82	0.60	1073.32
Apr-83	0.70	1073.39
Sep-83	1.20	1073.74
Mar-84		
Oct-84	1.50	1073.95
Oct-85	2.10	1074.37
Oct-86	2.00	1074.30
Oct-88	1.70	1074.09
Oct-90	3.40	1075.28
Sep-92	2.70	1074.79
May-94	0.90	1073.53
Sep-94	0.90	1073.53
Sep-95	1.00	1073.60

PNEUMATIC PIEZOMETER BS-16

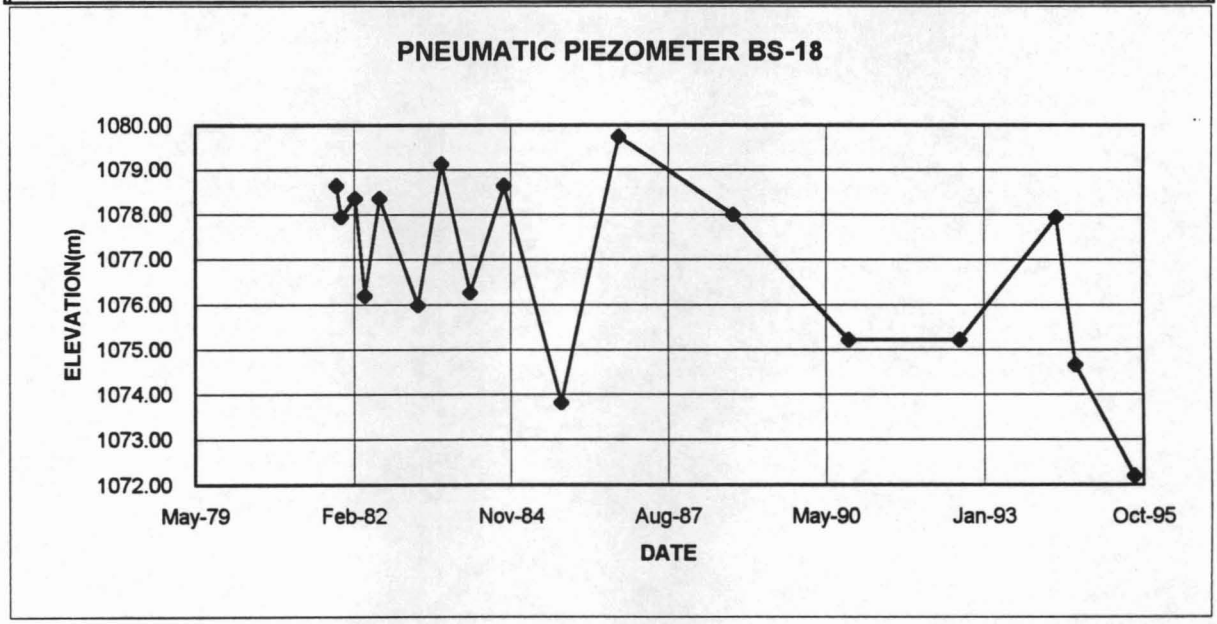


Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke Backslope

BS-18	Location: Canal Dyke Backslope St.3+000	Ground Elevation: 1083.20	Coordinates: 1877.9N, 282.5E
	Date Installed: 1981	Tip Elevation: 1072.20	Surface Protector: yes

Date	Reading (psi)	Piezometric Elevation (m)
Nov-81	9.20	1078.64
Dec-81	8.20	1077.94
Mar-82	8.80	1078.36
May-82	5.70	1076.19
Aug-82	8.80	1078.36
Apr-83	5.40	1075.98
Sep-83	9.90	1079.13
Mar-84	5.80	1076.26
Oct-84	9.20	1078.64
Oct-85	2.30	1073.81
Oct-86	10.80	1079.76
Oct-88	8.30	1078.01
Oct-90	4.30	1075.21
Sep-92	4.30	1075.21
May-94	8.20	1077.94
Sep-94	3.50	1074.65
Sep-95	0.00	1072.20



CANAL DYKE BACKSLOPE

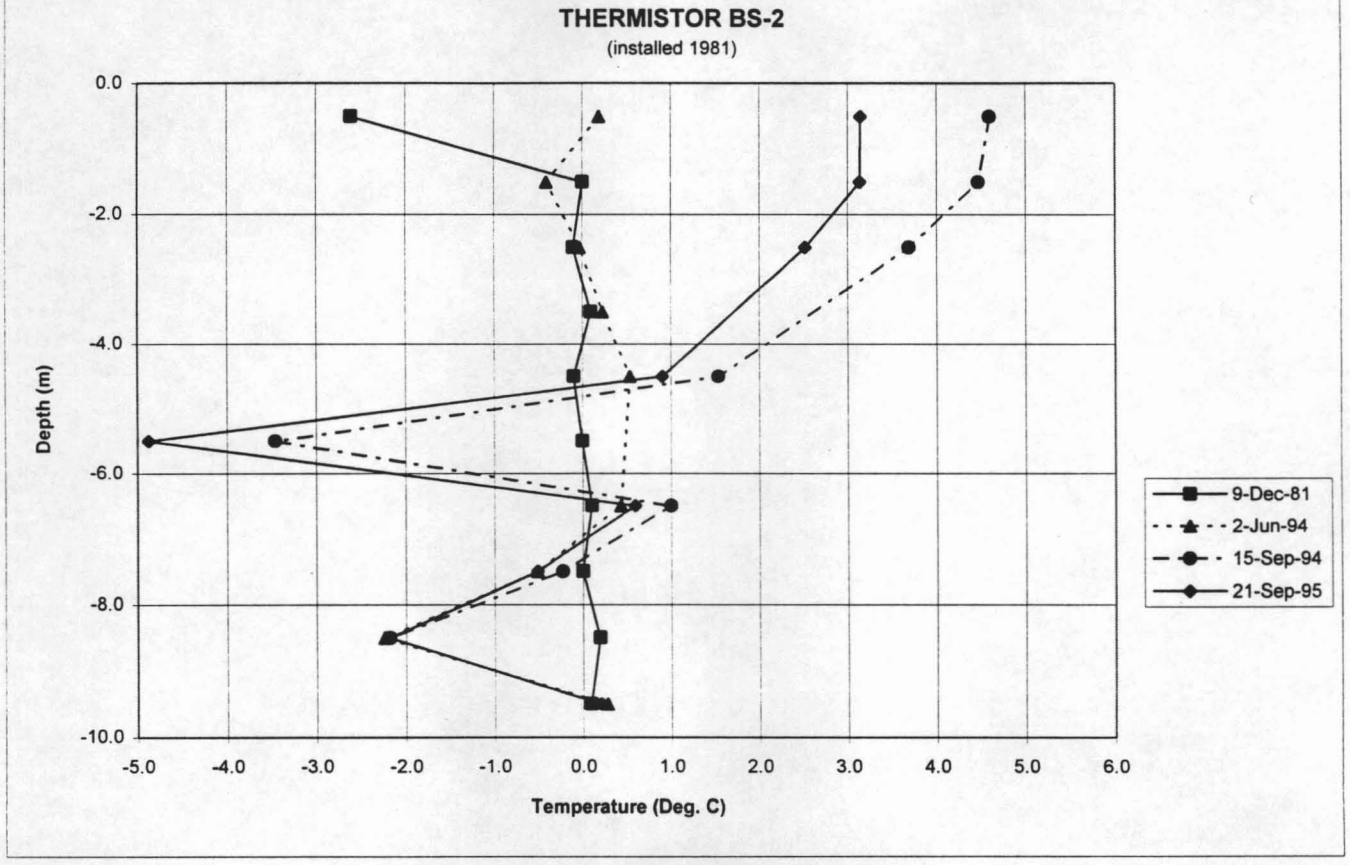
THERMISTORS

BS-2 Backslope	Location:	Diversion Canal - Back Slope St.0+400		Elevation:	1094.0 m	Coordinates	747.2 mN, 2057.0 mE
				Cantec			
Thermistor String #1	Date Installed:	1981	Thermistor Type:	Controls YSI 44007	Ice-Bath Calibration:	applied	Surface Protector: yes
Depth Correction	-0.5						

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 9-Dec-81	Resistivity (kOhms) 2-Jun-94	Resistivity (kOhms) 15-Sep-94	Resistivity (kOhms) 21-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
1.0	-0.5	18.57	16.08	12.88	13.85					
2.0	-1.5	16.17	16.51	12.91	13.80					
3.0	-2.5	16.29	16.23	13.45	14.26					
4.0	-3.5	16.11	16.00				* The initial reading (Nov 15/81) is excluded from			
5.0	-4.5	16.27	15.75	14.97	15.46		the data set because post-installation temperature			
6.0	-5.5	16.18		19.34	20.83		equilibruim may not have been complete.			
7.0	-6.5	16.12	15.85	15.40	15.72					
8.0	-7.5	16.17	16.60	16.36	16.60					
9.0	-8.5	15.98	18.10	18.05	18.05					
10.0	-9.5	16.07	15.92	15.89	15.98					

Depth on String (m)	Actual Depth (m)	Temperature (C) 9-Dec-81	Temperature (C) 2-Jun-94	Temperature (C) 15-Sep-94	Temperature (C) 21-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-0.5	-2.60	0.19	4.60	3.15					
2.0	-1.5	0.00	-0.40	4.47	3.14					
3.0	-2.5	-0.10	-0.03	3.69	2.53					
4.0	-3.5	0.10	0.23							
5.0	-4.5	-0.10	0.54	1.54	0.91					
6.0	-5.5	0.00		-3.46	-4.87					
7.0	-6.5	0.10	0.44	1.00	0.60					
8.0	-7.5	0.00	-0.51	-0.22	-0.51					
9.0	-8.5	0.20	-2.23	-2.18	-2.18					
10.0	-9.5	0.10	0.28	0.32	0.21					

* The 6 and 8 metre depth tips are suspect



BS-4 Backslope	**Location:**	Diversion Canal - Back Slope St. 0+710	**Elevation:**	1096.7 m	**Coordinates**	825.5 mN, 1757.1 mE
			Cantec			
Thermistor String #2	**Date Installed:**	1981	**Thermistor Type:**	Controls YSI 44007	**Ice-Bath Calibration:**	applied	**Surface Protector:**	yes
Depth Correction	-0.5					

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 9-Dec-81	Resistivity (kOhms) 2-Jun-94	Resistivity (kOhms) 15-Sep-94	Resistivity (kOhms) 21-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
1.0	-0.5	17.80	16.87	14.37	15.21					
2.0	-1.5	15.62	16.90	14.69	15.26					
3.0	-2.5	15.56	16.98	14.86	15.57					
4.0	-3.5	15.53	17.22	16.65	16.37					
5.0	-4.5	15.38		19.47	23.76					
6.0	-5.5	15.43	16.37	15.12	15.52					
7.0	-6.5	15.28	16.05	15.14	15.37					
8.0	-7.5	15.25	16.02	15.34	15.46					
9.0	-8.5	15.23	15.66	15.45	15.53					
10.0	-9.5	15.22	17.49	17.37	17.53					

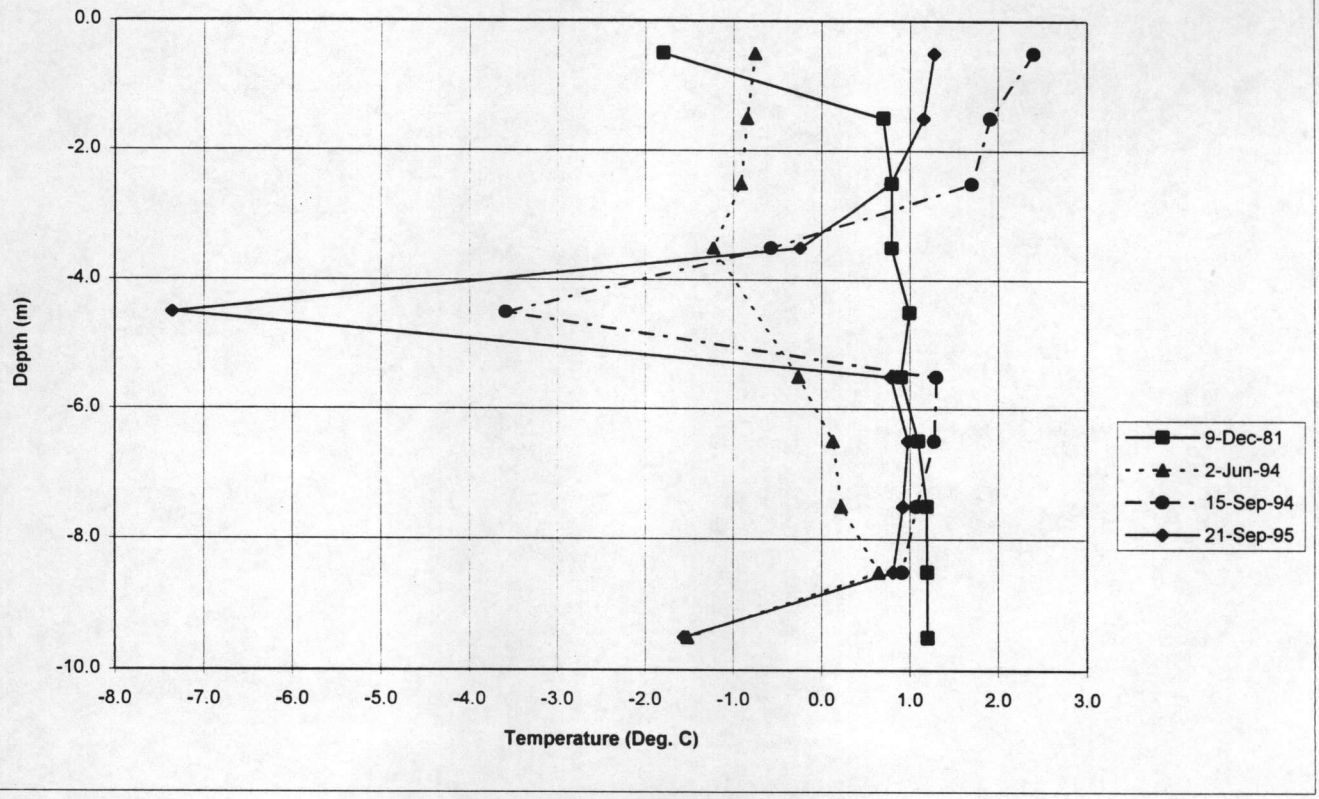
* The initial reading (Nov 15/81) is excluded from the data set because post-installation temperature equilibruim may not have been complete.

Depth on String (m)	Actual Depth (m)	Temperature (C) 9-Dec-81	Temperature (C) 2-Jun-94	Temperature (C) 15-Sep-94	Temperature (C) 21-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-0.5	-1.80	-0.75	2.40	1.28					
2.0	-1.5	0.70	-0.84	1.92	1.16					
3.0	-2.5	0.80	-0.91	1.71	0.79					
4.0	-3.5	0.80	-1.22	-0.57	-0.24					
5.0	-4.5	1.00		-3.58	-7.35					
6.0	-5.5	0.90	-0.26	1.30	0.79					
7.0	-6.5	1.10	0.13	1.28	0.98					
8.0	-7.5	1.20	0.23	1.08	0.93					
9.0	-8.5	1.20	0.65	0.92	0.82					
10.0	-9.5	1.20	-1.52	-1.38	-1.56					

* The 5 and 10 metre depth tips are suspect

THERMISTOR BS-4

(installed 1981)



Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke Backslope

BS-5 Backslope	**Location:**	Diversion Canal - Back Slope St.0+960	**Elevation:**	1092.5 m	**Coordinates**	953.2 mN, 1534.6 mE
			Cantec			
Thermistor	**Date**	**Thermistor**	Controls YSI	**Ice-Bath**	**Surface**	
String #3	**Installed:**	1981	**Type:**	44007	**Calibration:**	applied	**Protector:**	yes
Depth Correction	-0.5					

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 9-Dec-81	Resistivity (kOhms) 2-Jun-94	Resistivity (kOhms) 15-Sep-94	Resistivity (kOhms) 21-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
1.0	-0.5		14.56	12.33	13.50					
2.0	-1.5	16.28	16.11	12.55	13.80					
3.0	-2.5	16.25	16.39	13.39	14.85					
4.0	-3.5	16.18	16.26	14.06	15.34					
5.0	-4.5	16.10	16.36	14.81	16.21					
6.0	-5.5	16.10	16.27	15.27	16.12					
7.0	-6.5	16.05	17.05	16.56	17.20					
8.0	-7.5	16.01	16.44	16.11	16.40					
9.0	-8.5	16.04	16.24	16.04	16.20					
10.0	-9.5	16.03	16.37	16.23	16.37					

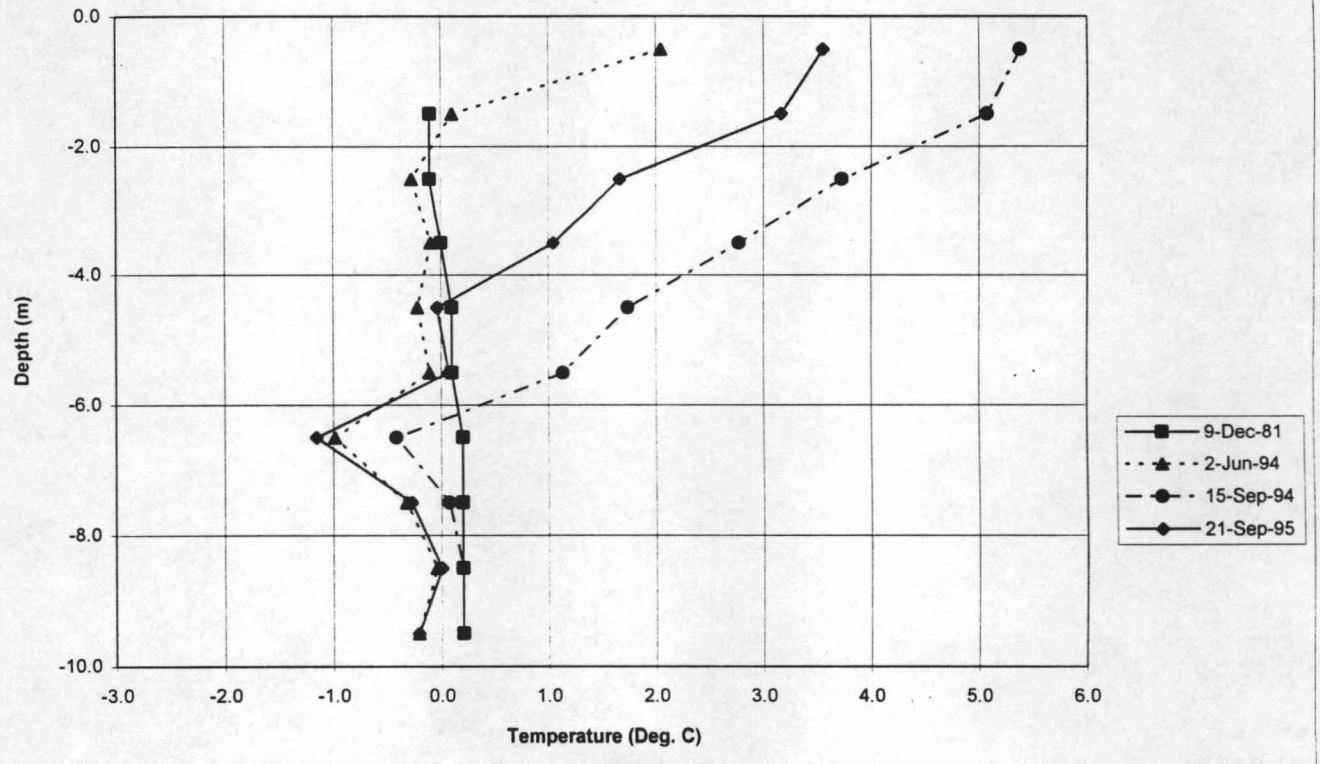
* The initial reading (Nov 15/81) is excluded from the data set because post-installation temperature equilibruim may not have been complete.

Depth on String (m)	Actual Depth (m)	Temperature (C) 9-Dec-81	Temperature (C) 2-Jun-94	Temperature (C) 15-Sep-94	Temperature (C) 21-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-0.5		2.05	5.38	3.56					
2.0	-1.5	-0.10	0.11	5.07	3.17					
3.0	-2.5	-0.10	-0.27	3.73	1.67					
4.0	-3.5	0.00	-0.09	2.78	1.05					
5.0	-4.5	0.10	-0.21	1.74	-0.03					
6.0	-5.5	0.10	-0.11	1.14	0.07					
7.0	-6.5	0.20	-0.98	-0.41	-1.15					
8.0	-7.5	0.20	-0.32	0.08	-0.27					
9.0	-8.5	0.20	-0.04	0.20	0.01					
10.0	-9.5	0.20	-0.21	-0.04	-0.21					

* The 6.5 metre depth tip is suspect

THERMISTOR BS-5

(installed 1981)



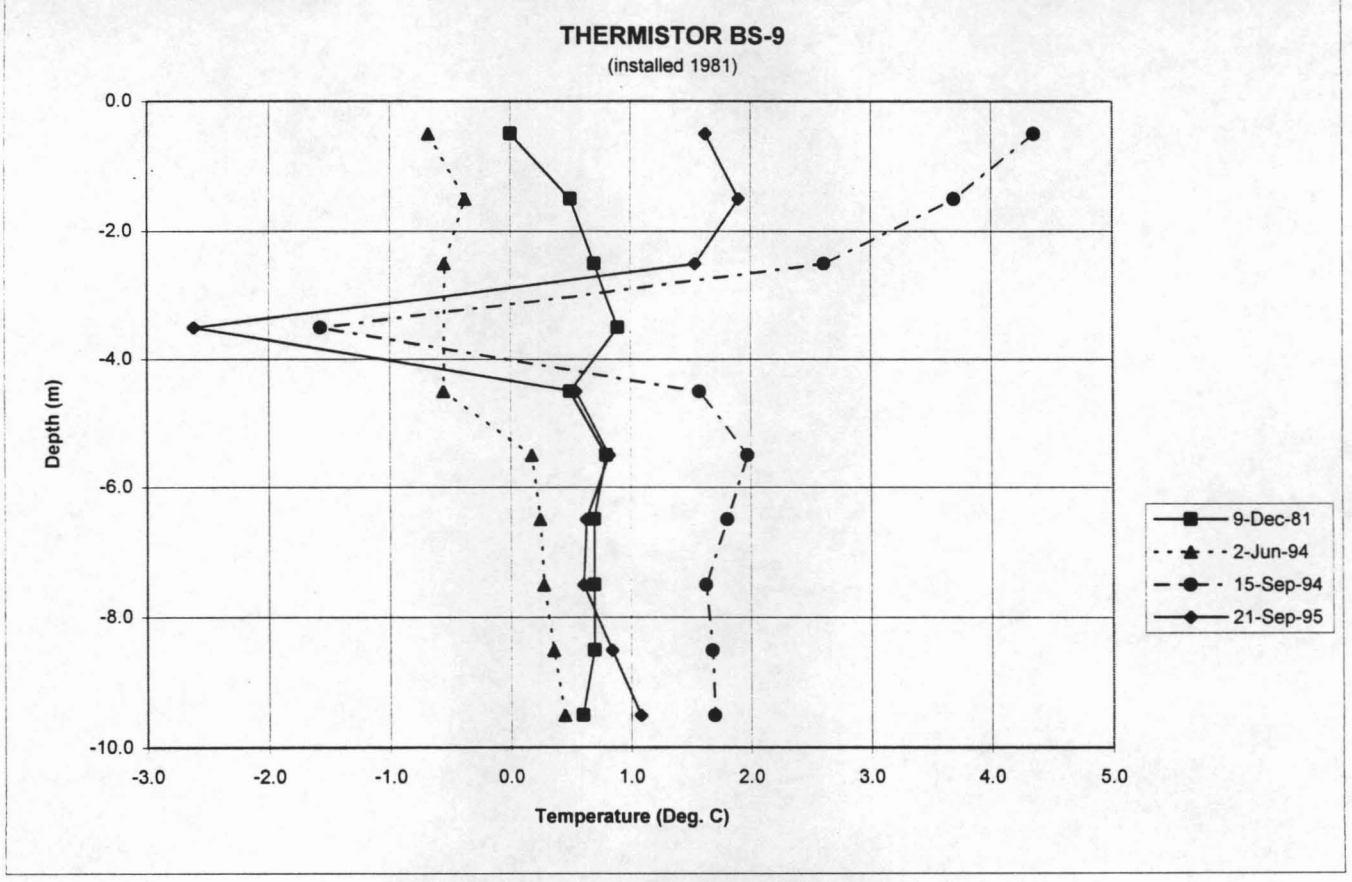
Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke Backslope

BS-9 Backslope	**Location:**	Diversion Canal - Back Slope St.1+530	**Elevation:**	1088.3 m	**Coordinates**	1200.0 mN, 1018.4 mE
			Cantec			
Thermistor String #4	**Date Installed:**	1981	**Thermistor Type:**	Controls YSI 44007	**Ice-Bath Calibration:**	applied
					Surface Protector:	yes
Depth Correction	-0.5					

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 9-Dec-81	Resistivity (kOhms) 2-Jun-94	Resistivity (kOhms) 15-Sep-94	Resistivity (kOhms) 21-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
1.0	-0.5	16.14	16.71	12.96	14.86					
2.0	-1.5	15.74	16.46	13.40	14.66					
3.0	-2.5	15.62	16.65	14.18	14.97					
4.0	-3.5	15.46		17.54	18.51		* The initial reading (Nov 15/81) is excluded from			
5.0	-4.5	15.76	16.63	14.92	15.72		the data set because post-installation temperature			
6.0	-5.5	15.56	16.06	14.66	15.54		equilibruim may not have been complete.			
7.0	-6.5	15.57	15.93	14.72	15.62					
8.0	-7.5	15.64	15.98	14.92	15.71					
9.0	-8.5	15.61	15.88	14.85	15.49					
10.0	-9.5	15.67	15.79	14.82	15.29					

Depth on String (m)	Actual Depth (m)	Temperature (C) 9-Dec-81	Temperature (C) 2-Jun-94	Temperature (C) 15-Sep-94	Temperature (C) 21-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-0.5	0.00	-0.68	4.36	1.63					
2.0	-1.5	0.50	-0.37	3.70	1.91					
3.0	-2.5	0.70	-0.55	2.62	1.54					
4.0	-3.5	0.90		-1.57	-2.61					
5.0	-4.5	0.50	-0.55	1.58	0.55					
6.0	-5.5	0.80	0.18	1.98	0.82					
7.0	-6.5	0.70	0.25	1.81	0.63					
8.0	-7.5	0.70	0.28	1.63	0.61					
9.0	-8.5	0.70	0.36	1.68	0.85					
10.0	-9.5	0.60	0.45	1.70	1.08					
		The 4 metre depth tip is suspect								



Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke Backslope

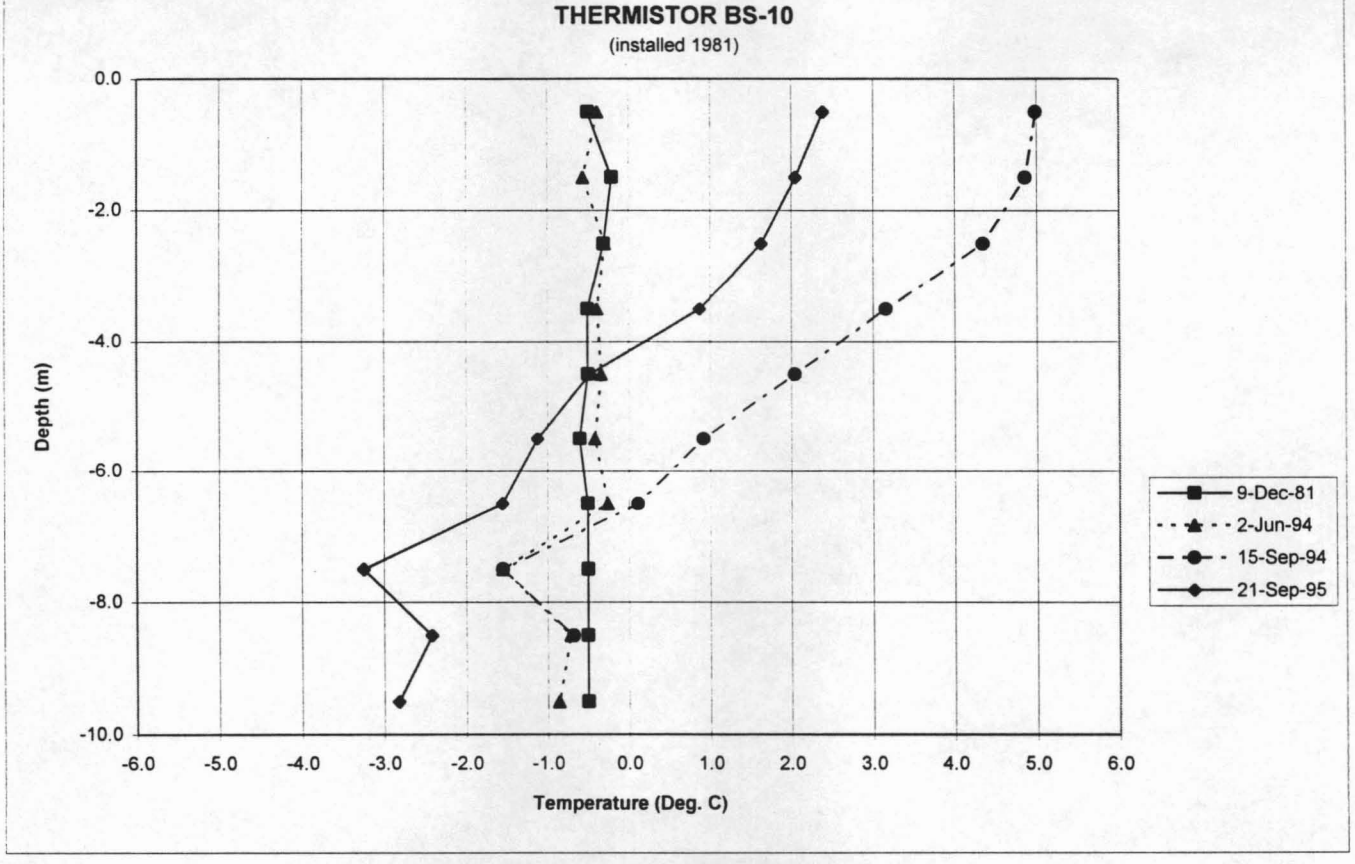
BS-10 Backslope	**Location:**	Diversion Canal - Back Slope St.1+900	**Elevation:**	1098.2 m	**Coordinates**	1310.5 mN, 657.3 mE
			Cantec			
Thermistor String #5	**Date Installed:**	1981	**Thermistor Type:**	Controls YSI 44007	**Ice-Bath Calibration:**	applied
Surface Protector:	yes					
Depth Correction	-0.5					

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 9-Dec-81	Resistivity (kOhms) 2-Jun-94	Resistivity (kOhms) 15-Sep-94	Resistivity (kOhms) 21-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
1.0	-0.5	16.64	16.54	12.62	14.37					
2.0	-1.5	16.35	16.65	12.67	14.58					
3.0	-2.5	16.45	16.44	13.01	14.91					
4.0	-3.5	16.55	16.45	13.75	15.43					
5.0	-4.5	16.59	16.45	14.58	16.57					
6.0	-5.5	16.65	16.49	15.41	17.10					
7.0	-6.5	16.62	16.41	16.10	17.54					
8.0	-7.5	16.58	17.50	17.50	19.11					
9.0	-8.5	16.62	16.80	16.77	18.34					
10.0	-9.5	16.58	16.89	16.95	18.69					

* The initial reading (Nov 15/81) is excluded from the data set because post-installation temperature equilibruim may not have been complete.

Depth on String (m)	Actual Depth (m)	Temperature (C) 9-Dec-81	Temperature (C) 2-Jun-94	Temperature (C) 15-Sep-94	Temperature (C) 21-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-0.5	-0.50	-0.38	4.99	2.39					
2.0	-1.5	-0.20	-0.56	4.86	2.05					
3.0	-2.5	-0.30	-0.29	4.35	1.63					
4.0	-3.5	-0.50	-0.38	3.16	0.87					
5.0	-4.5	-0.50	-0.33	2.04	-0.47					
6.0	-5.5	-0.60	-0.41	0.92	-1.12					
7.0	-6.5	-0.50	-0.25	0.12	-1.55					
8.0	-7.5	-0.50	-1.55	-1.55	-3.25					
9.0	-8.5	-0.50	-0.71	-0.68	-2.41					
10.0	-9.5	-0.50	-0.86	-0.93	-2.82					

The 8 metre depth tip is suspect



Golder Associates

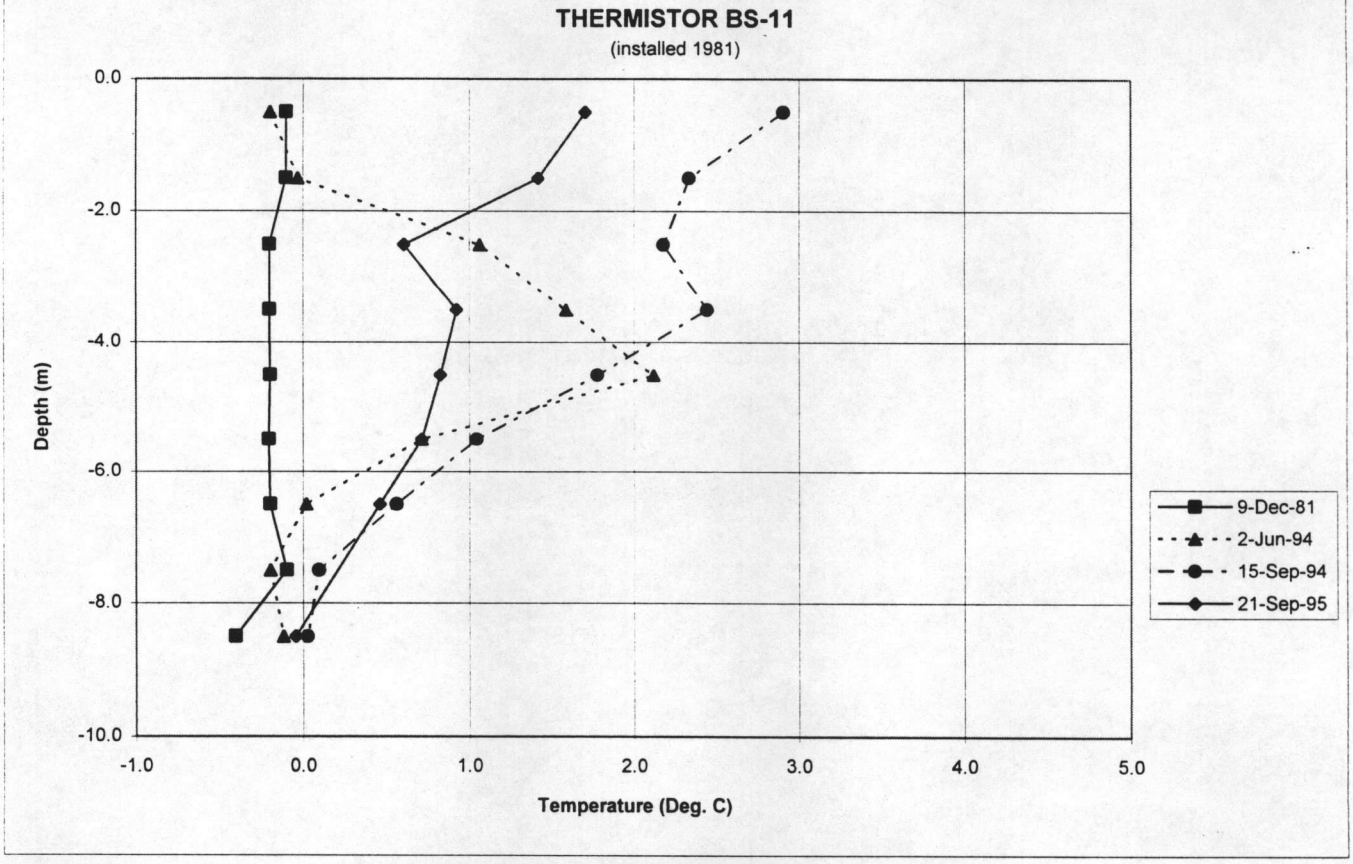
Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke Backslope

BS-11 Backslope	**Location:**	Diversion Canal - Back Slope St.2+100		**Elevation:**	1095.0 m	**Coordinates**	1413.2 mN, 480.1 mE		
Thermistor String #6	**Date Installed:**	1981		**Thermistor Type:**	Cantec Controls YSI 44007	**Ice-Bath Calibration:**	applied	**Surface Protector:**	yes
Depth Correction	-0.5								

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 9-Dec-81	Resistivity (kOhms) 2-Jun-94	Resistivity (kOhms) 15-Sep-94	Resistivity (kOhms) 21-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
1.0	-0.5	16.29	16.37	13.99	14.86					
2.0	-1.5	16.25	16.19	14.36	15.04					
3.0	-2.5	16.34	15.32	14.48	15.68					
4.0	-3.5	16.34	14.92	14.29	15.43		* The initial reading (Nov 15/81) is excluded from			
5.0	-4.5	16.32	14.51	14.76	15.49		the data set because post-installation temperature			
6.0	-5.5	16.36	15.61	15.35	15.61		equilibruim may not have been complete.			
7.0	-6.5	16.32	16.14	15.70	15.78					
8.0	-7.5	16.23	16.31	16.07						
9.0	-8.5	16.46	16.22	16.10	16.16					
10.0	-9.5									

Depth on String (m)	Actual Depth (m)	Temperature (C) 9-Dec-81	Temperature (C) 2-Jun-94	Temperature (C) 15-Sep-94	Temperature (C) 21-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) '0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-0.5	-0.10	-0.20	2.91	1.71					
2.0	-1.5	-0.10	-0.03	2.34	1.42					
3.0	-2.5	-0.20	1.06	2.18	0.61					
4.0	-3.5	-0.20	1.59	2.44	0.92					
5.0	-4.5	-0.20	2.12	1.78	0.83					
6.0	-5.5	-0.20	0.72	1.05	0.72					
7.0	-6.5	-0.20	0.02	0.56	0.46					
8.0	-7.5	-0.10	-0.19	0.10						
9.0	-8.5	-0.40	-0.12	0.03	-0.04					
10.0	-9.5									



Anvil Range Mining Corp.

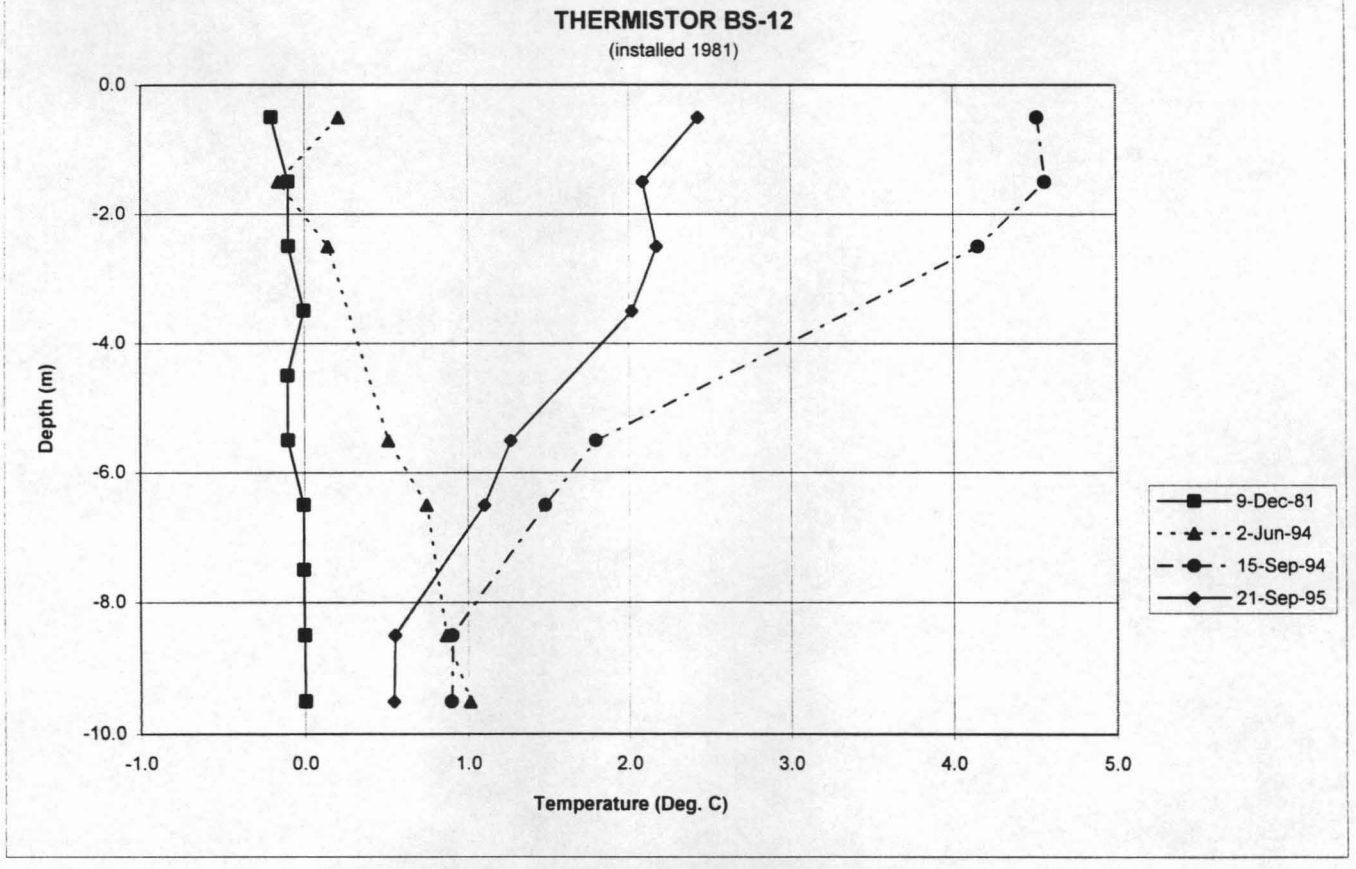
Faro Mine Instrumentation
Canal Dyke Backslope

BS-12 Backslope	**Location:**	Diversion Canal - Back Slope St.2+260		**Elevation:**	1094.6 m	**Coordinates**	1463.6 mN, 343.1 mE
				Cantec			
Thermistor String #10	**Date Installed:**	1981	**Thermistor Type:**	Controls YSI 44007	**Ice-Bath Calibration:**	applied	**Surface Protector:** yes
Depth Correction	-0.5						

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 9-Dec-81	Resistivity (kOhms) 2-Jun-94	Resistivity (kOhms) 15-Sep-94	Resistivity (kOhms) 21-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
1.0	-0.5	16.34	16.00	12.88	14.30					
2.0	-1.5	16.28	16.33	12.87	14.57					
3.0	-2.5	16.27	16.07	13.13	14.50					
4.0	-3.5	16.20			14.62					
5.0	-4.5	16.24								
6.0	-5.5	16.23	15.73	14.74	15.14					
7.0	-6.5	16.21	15.60	15.03	15.32					
8.0	-7.5	16.21								
9.0	-8.5	16.19	15.49	15.46	15.74					
10.0	-9.5	16.17	15.36	15.45	15.73					

* The initial reading (Nov 15/81) is excluded from the data set because post-installation temperature equilibruim may not have been complete.

Depth on String (m)	Actual Depth (m)	Temperature (C) 9-Dec-81	Temperature (C) 2-Jun-94	Temperature (C) 15-Sep-94	Temperature (C) 21-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-0.5	-0.20	0.21	4.52	2.43					
2.0	-1.5	-0.10	-0.16	4.57	2.09					
3.0	-2.5	-0.10	0.15	4.16	2.17					
4.0	-3.5	0.00			2.02					
5.0	-4.5	-0.10								
6.0	-5.5	-0.10	0.52	1.80	1.27					
7.0	-6.5	0.00	0.75	1.48	1.11					
8.0	-7.5	0.00								
9.0	-8.5	0.00	0.87	0.91	0.55					
10.0	-9.5	0.00	1.01	0.90	0.55					



Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke Backslope

BS-15 Backslope	**Location:**	Diversion Canal - Back Slope St.2+760		**Elevation:**	1090.5 m	**Coordinates**	1714.0 mN, 93.3 mW		
Thermistor String #9	**Date Installed:**	1981		**Thermistor Type:**	Cantec Controls YSI 44007	**Ice-Bath Calibration:**	applied	**Surface Protector:**	yes
Depth Correction	-0.5								

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 9-Dec-81	Resistivity (kOhms) 2-Jun-94	Resistivity (kOhms) 15-Sep-94	Resistivity (kOhms) 21-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
1.0	-0.5	17.40	16.49	13.12	13.85					
2.0	-1.5	16.29	16.33	12.54	13.52					
3.0	-2.5	16.21	16.01	13.15	14.07					
4.0	-3.5	16.19	15.76	13.74	14.50					
5.0	-4.5	16.13	15.50	14.08	14.69					
6.0	-5.5	16.10	15.30	14.47	14.98					
7.0	-6.5	16.03	15.43	15.01	15.50					
8.0	-7.5	16.04		21.94	22.87					
9.0	-8.5	15.96	15.18	15.16	15.45					
10.0	-9.5	15.98	17.79	18.09						

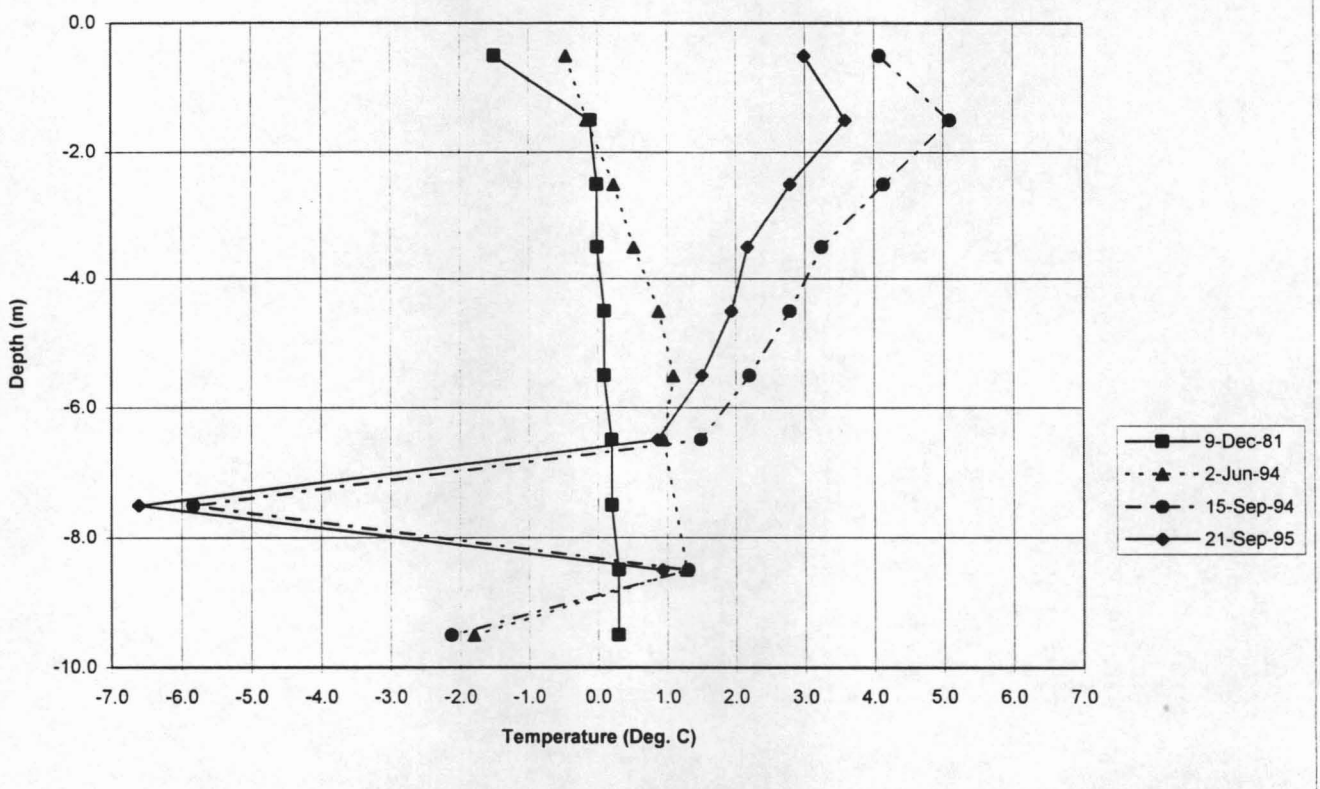
* The initial reading (Nov 15/81) is excluded from the data set because post-installation temperature equilibruim may not have been complete.

Depth on String (m)	Actual Depth (m)	Temperature (C) 9-Dec-81	Temperature (C) 2-Jun-94	Temperature (C) 15-Sep-94	Temperature (C) 21-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-0.5	-1.50	-0.45	4.08	3.00					
2.0	-1.5	-0.10	-0.15	5.10	3.59					
3.0	-2.5	0.00	0.24	4.14	2.79					
4.0	-3.5	0.00	0.53	3.25	2.17					
5.0	-4.5	0.10	0.89	2.79	1.95					
6.0	-5.5	0.10	1.10	2.20	1.52					
7.0	-6.5	0.20	0.95	1.50	0.87					
8.0	-7.5	0.20		-5.83	-6.61					
9.0	-8.5	0.30	1.29	1.31	0.94					
10.0	-9.5	0.30	-1.80	-2.12						

* The 8 and 10 metre depth tips are suspect

THERMISTOR BS-15

(installed 1981)



Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke Backslope

BS-16 Backslope	**Location:**	Diversion Canal - Back Slope St.2+900		**Elevation:**	1087.8 m	**Coordinates**	1819.0 mN, 202.4 mW		
Thermistor String #7	**Date Installed:**	1981		**Thermistor Type:**	Cantec Controls YSI 44007	**Ice-Bath Calibration:**	applied	**Surface Protector:**	yes
Depth Correction	-0.5								

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 9-Dec-81	Resistivity (kOhms) 2-Jun-94	Resistivity (kOhms) 15-Sep-94	Resistivity (kOhms) 21-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
1.0	-0.5	18.67	16.44	12.62	13.35					
2.0	-1.5	16.28	16.31	12.31	12.84					
3.0	-2.5	16.26	16.32	12.84	13.74					
4.0	-3.5	16.31	16.42	13.78	13.27					
5.0	-4.5	16.33	16.03	14.22	14.48					
6.0	-5.5	16.31	16.08	14.99	15.12					
7.0	-6.5	16.29	16.20	15.72	15.88					
8.0	-7.5	16.27	15.72	15.63	15.59					
9.0	-8.5	16.35	16.98	17.33	18.48					
10.0	-9.5	16.21	15.89	16.16	16.03					

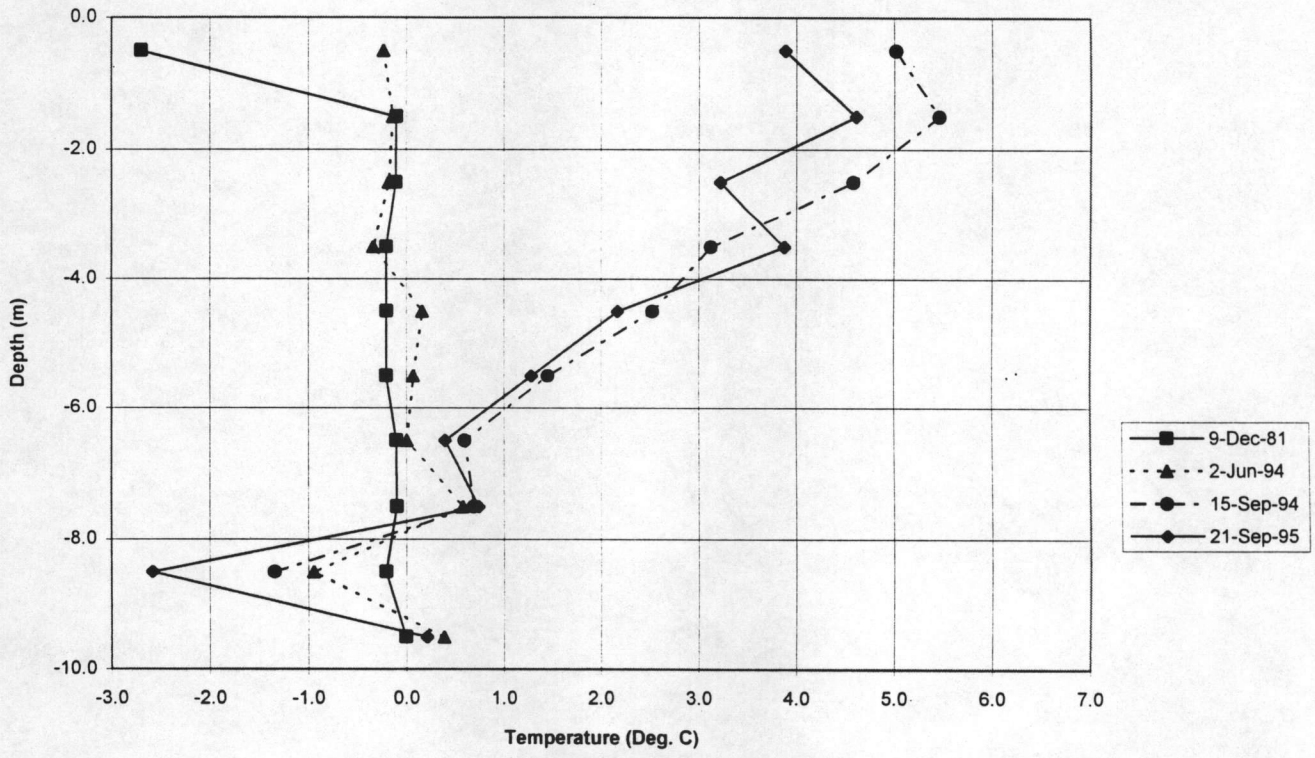
* The initial reading (Nov 15/81) is excluded from the data set because post-installation temperature equilibruim may not have been complete.

Depth on String (m)	Actual Depth (m)	Temperature (C) 9-Dec-81	Temperature (C) 2-Jun-94	Temperature (C) 15-Sep-94	Temperature (C) 21-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-0.5	-2.70	-0.23	5.02	3.89					
2.0	-1.5	-0.10	-0.13	5.47	4.61					
3.0	-2.5	-0.10	-0.18	4.58	3.23					
4.0	-3.5	-0.20	-0.34	3.13	3.88					
5.0	-4.5	-0.20	0.16	2.53	2.17					
6.0	-5.5	-0.20	0.07	1.46	1.28					
7.0	-6.5	-0.10	0.01	0.60	0.40					
8.0	-7.5	-0.10	0.58	0.69	0.74					
9.0	-8.5	-0.20	-0.94	-1.34	-2.58					
10.0	-9.5	0.00	0.39	0.06	0.21					

The 9 metre depth tip is suspect

THERMISTOR BS-16

(installed 1981)



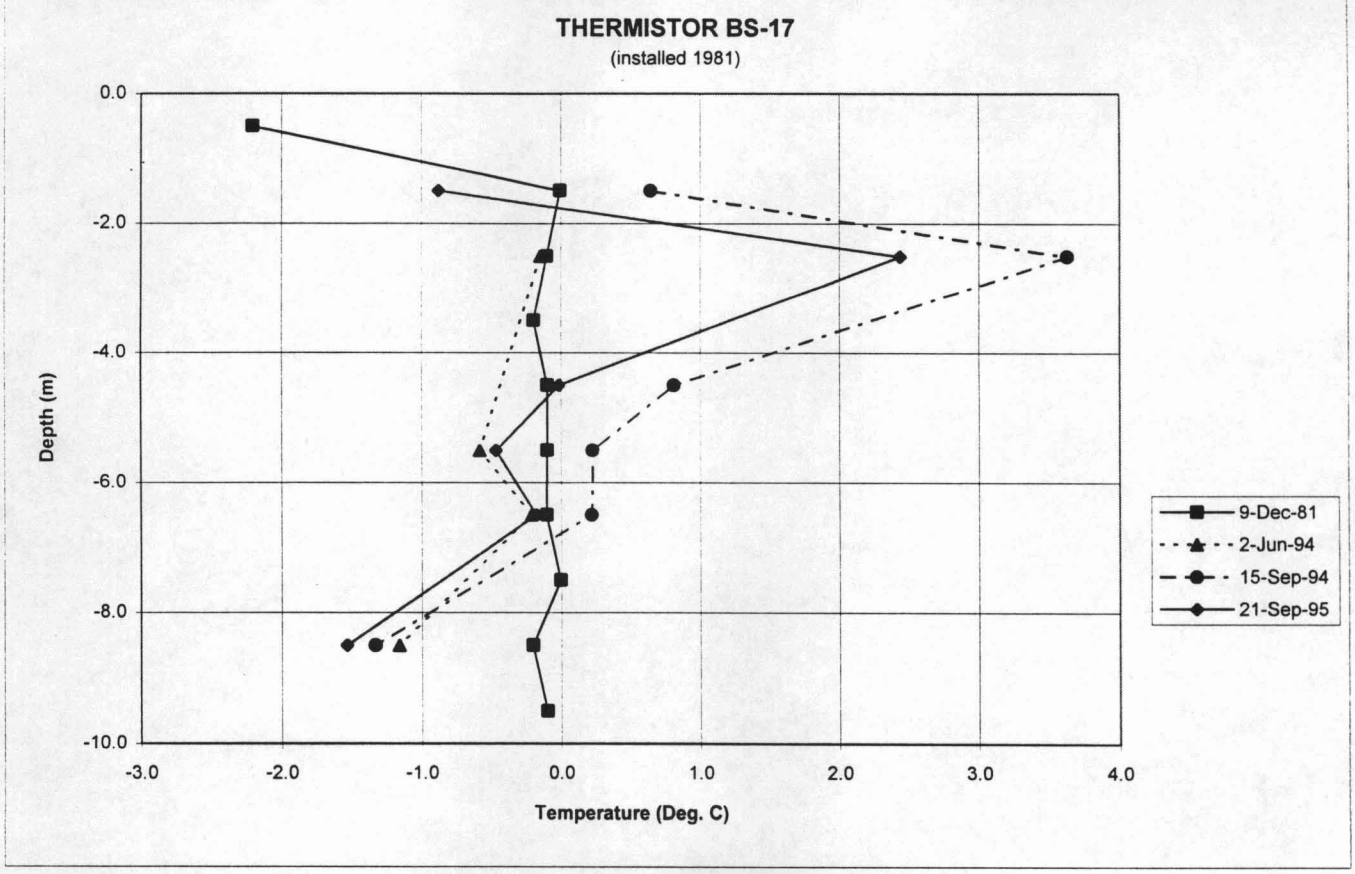
Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke Backslope

BS-17 Backslope	**Location:**	Diversion Canal - Back Slope St.2+900	**Elevation:**	1092.4 m	**Coordinates**	1795.2 mN, 212.3 mW
			Cantec			
Thermistor String #14	**Date Installed:**	1981	**Thermistor Type:**	Controls YSI 44007	**Ice-Bath Calibration:**	applied
					Surface Protector:	yes
Depth Correction	-0.5					

Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 9-Dec-81	Resistivity (kOhms) 2-Jun-94	Resistivity (kOhms) 15-Sep-94	Resistivity (kOhms) 21-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
1.0	-0.5	18.15								
2.0	-1.5	16.21		15.68	16.95					
3.0	-2.5	16.24	16.28	13.45	14.28					
4.0	-3.5	16.32					* The initial reading (Nov 15/81) is excluded from			
5.0	-4.5	16.28		15.54	16.21		the data set because post-installation temperature			
6.0	-5.5	16.28	16.69	16.01	16.59		equilibruim may not have been complete.			
7.0	-6.5	16.26	16.35	15.99	16.32					
8.0	-7.5	16.20								
9.0	-8.5	16.30	17.12	17.27	17.45					
10.0	-9.5	16.19								

Depth on String (m)	Actual Depth (m)	Temperature (C) 9-Dec-81	Temperature (C) 2-Jun-94	Temperature (C) 15-Sep-94	Temperature (C) 21-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-0.5	-2.20								
2.0	-1.5	0.00		0.65	-0.88					
3.0	-2.5	-0.10	-0.15	3.63	2.44					
4.0	-3.5	-0.20								
5.0	-4.5	-0.10		0.81	-0.01					
6.0	-5.5	-0.10	-0.58	0.23	-0.47					
7.0	-6.5	-0.10	-0.21	0.22	-0.18					
8.0	-7.5	0.00								
9.0	-8.5	-0.20	-1.16	-1.33	-1.53					
10.0	-9.5	-0.10								



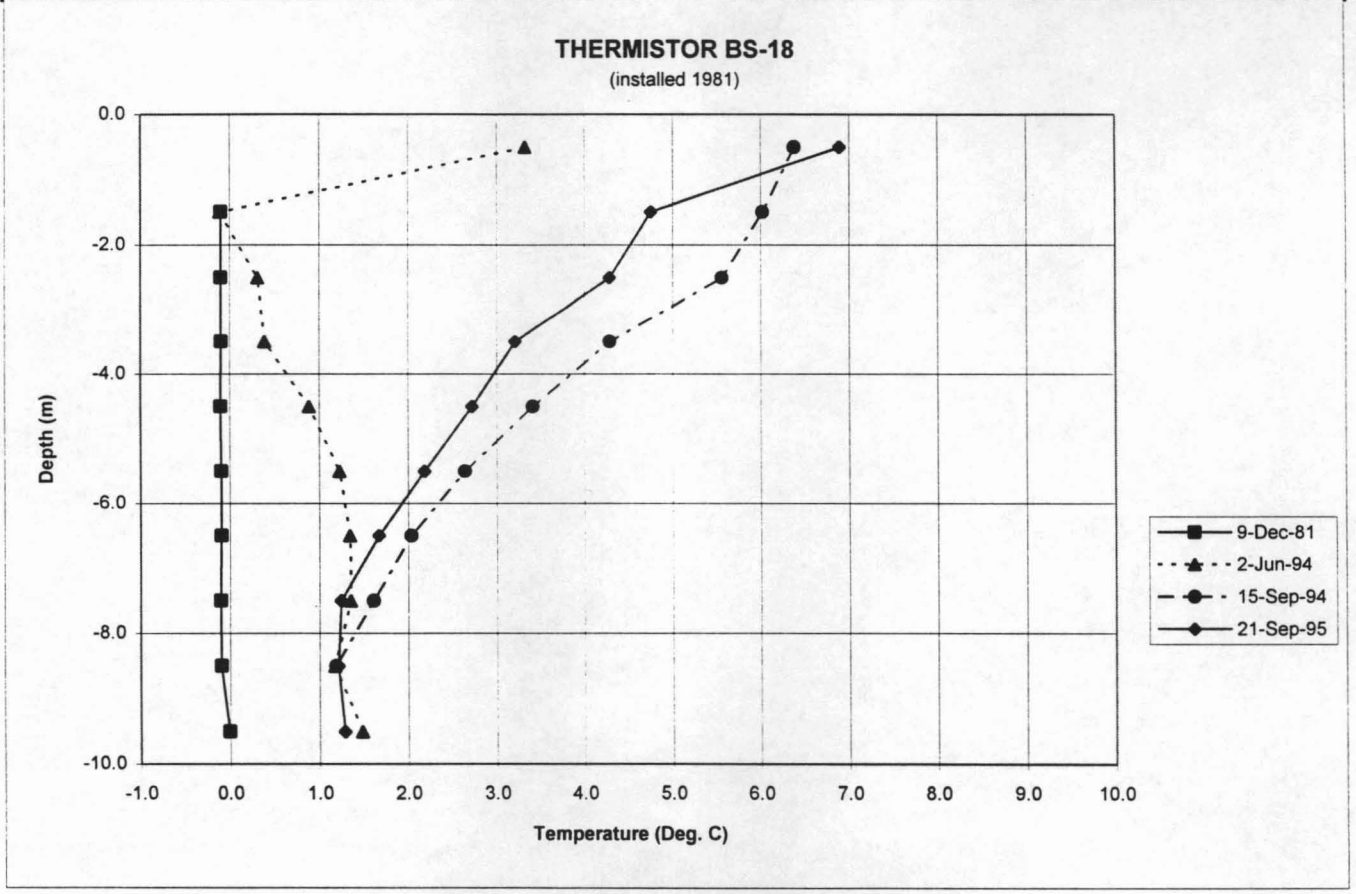
Anvil Range Mining Corp.

Faro Mine Instrumentation
Canal Dyke Backslope

BS-18 Backslope	**Location:**	Diversion Canal -back slope St. 3+000		**Elevation:**	1083.2 m	**Coordinates**	1877.9 mN, 282.5 mW		
Thermistor String #8	**Date Installed:**	1981		**Thermistor Type:**	Cantec Controls YSI 44007	**Ice-Bath Calibration:**	applied	**Surface Protector:**	yes
Depth Correction	-0.5								

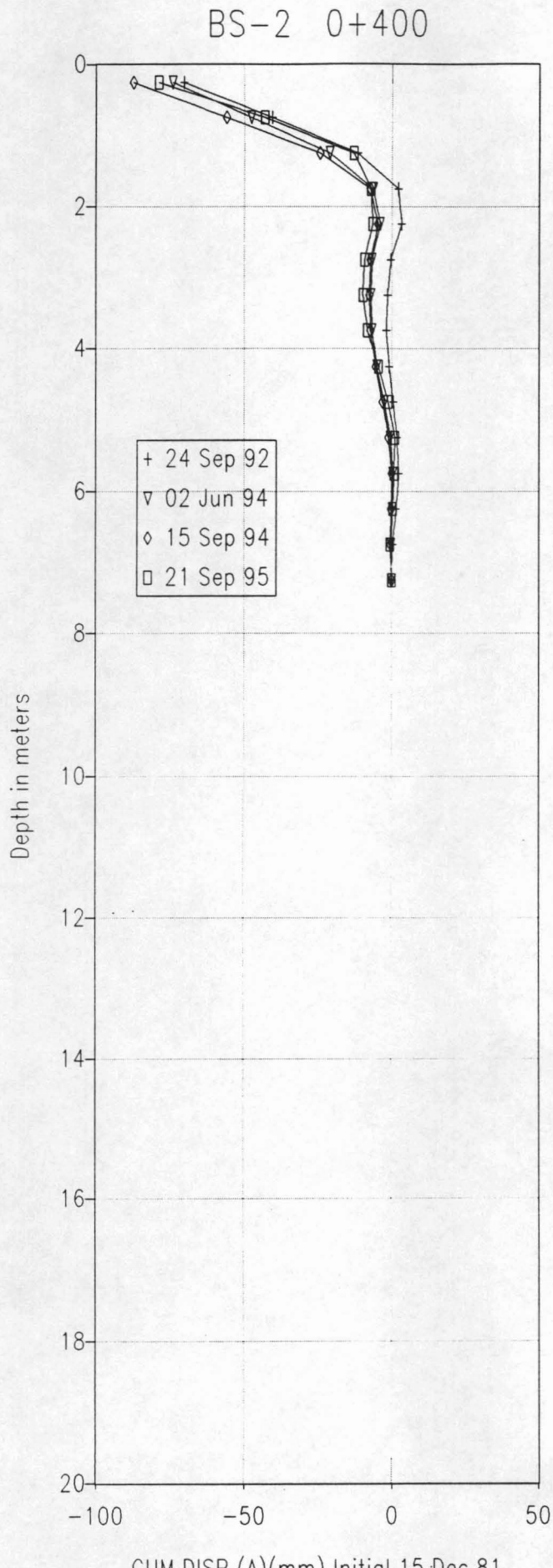
Depth on String (m)	Actual Depth (m)	Resistivity (kOhms) 9-Dec-81	Resistivity (kOhms) 2-Jun-94	Resistivity (kOhms) 15-Sep-94	Resistivity (kOhms) 21-Sep-95	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
1.0	-0.5		13.65	11.73	11.44					
2.0	-1.5	16.23	16.24	11.94	12.71					
3.0	-2.5	16.28	15.94	12.25	13.05					
4.0	-3.5	16.27	15.87	13.04	13.76		* The initial reading (Nov 15/81) is excluded from			
5.0	-4.5	16.26	15.46	13.61	14.09		the data set because post-installation temperature			
6.0	-5.5	16.27	15.21	14.16	14.49		equilibruim may not have been complete.			
7.0	-6.5	16.27	15.12	14.60	14.87					
8.0	-7.5	16.26	15.10	14.90	15.18					
9.0	-8.5	16.27	15.25	15.24	15.22					
10.0	-9.5	16.21	15.03	15.10	15.18					

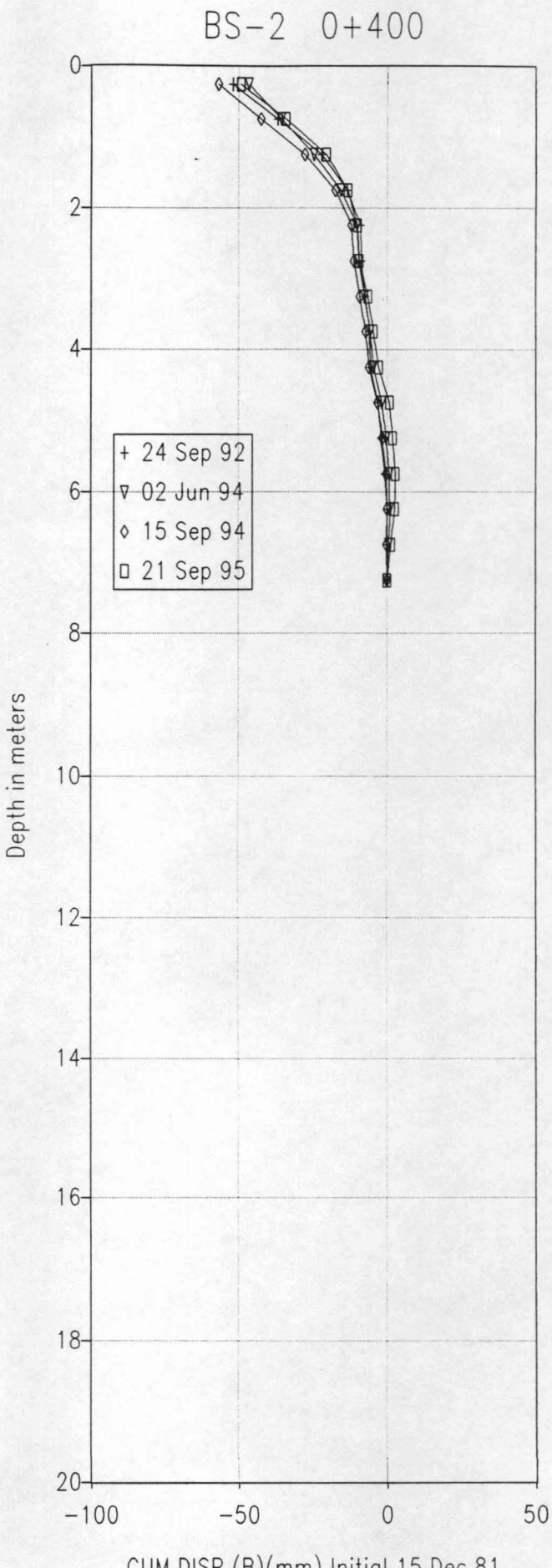
Depth on String (m)	Actual Depth (m)	Temperature (C) 9-Dec-81	Temperature (C) 2-Jun-94	Temperature (C) 15-Sep-94	Temperature (C) 21-Sep-95	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00	Temperature (C) 0-Jan-00
1.0	-0.5		3.33	6.38	6.89					
2.0	-1.5	-0.10	-0.11	6.02	4.76					
3.0	-2.5	-0.10	0.32	5.56	4.29					
4.0	-3.5	-0.10	0.39	4.29	3.22					
5.0	-4.5	-0.10	0.89	3.42	2.72					
6.0	-5.5	-0.10	1.23	2.65	2.19					
7.0	-6.5	-0.10	1.34	2.04	1.67					
8.0	-7.5	-0.10	1.35	1.61	1.25					
9.0	-8.5	-0.10	1.18	1.19	1.21					
10.0	-9.5	0.00	1.48	1.39	1.29					



CANAL DYKE BACKSLOPE

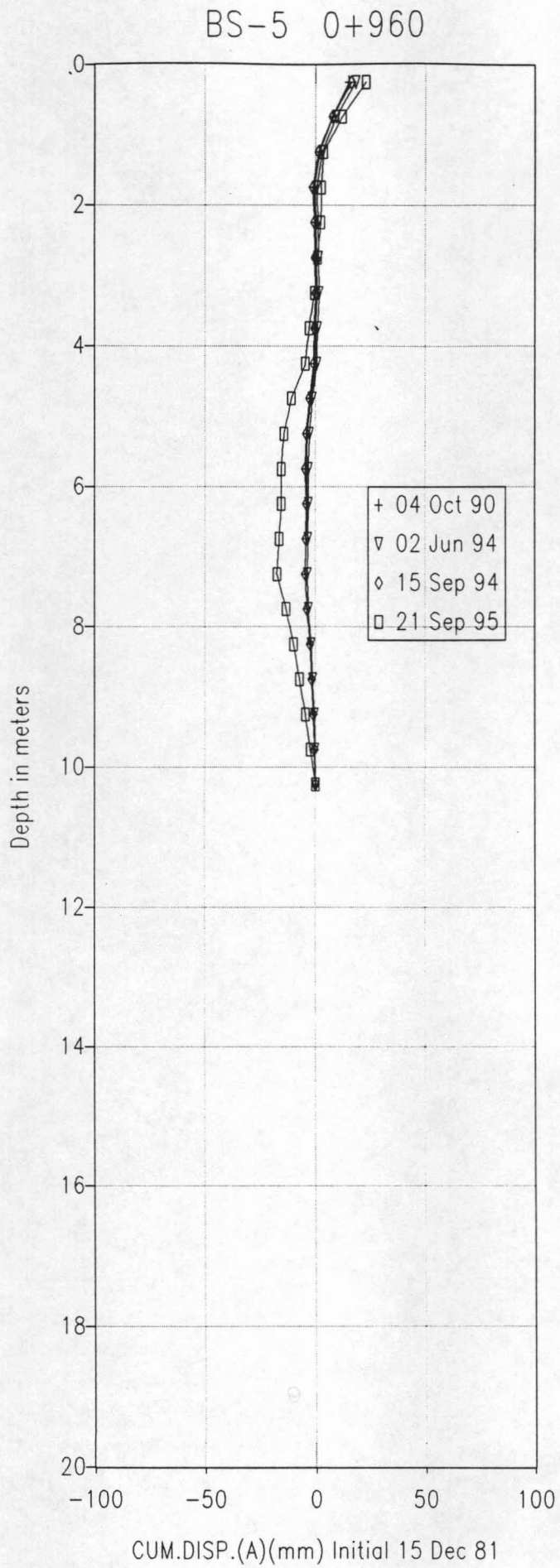
INCLINOMETERS

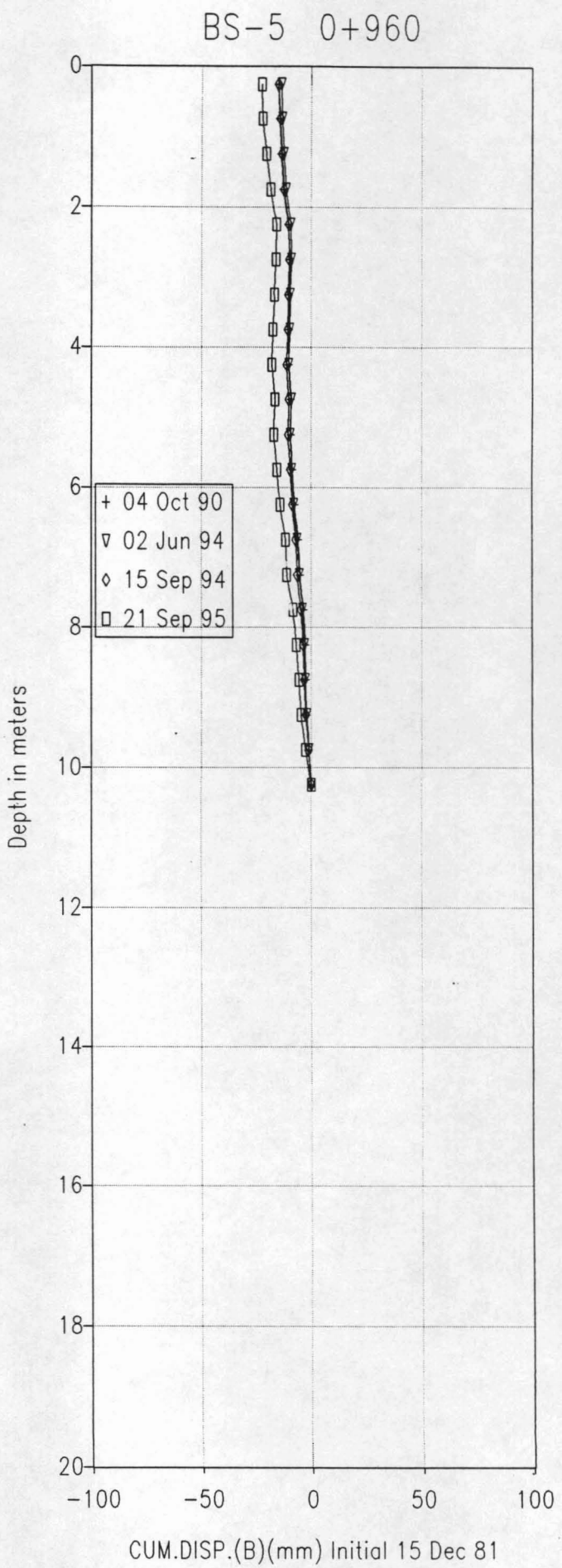

BS-2 0+400
0
2
4
6
8
10
12
14
16
18
20
Depth in meters
+ 24 Sep 92
▽ 02 Jun 94
◇ 15 Sep 94
□ 21 Sep 95
-100
-50
0
50
CUM.DISP.(A)(mm) Initial 15 Dec 81


BS-2 0+400
0
2
4
6
8
10
12
14
16
18
20
Depth in meters
+ 24 Sep 92
▽ 02 Jun 94
◇ 15 Sep 94
□ 21 Sep 95
-100
-50
0
50
CUM.DISP.(B)(mm) Initial 15 Dec 81

Back slope BS2-0+400

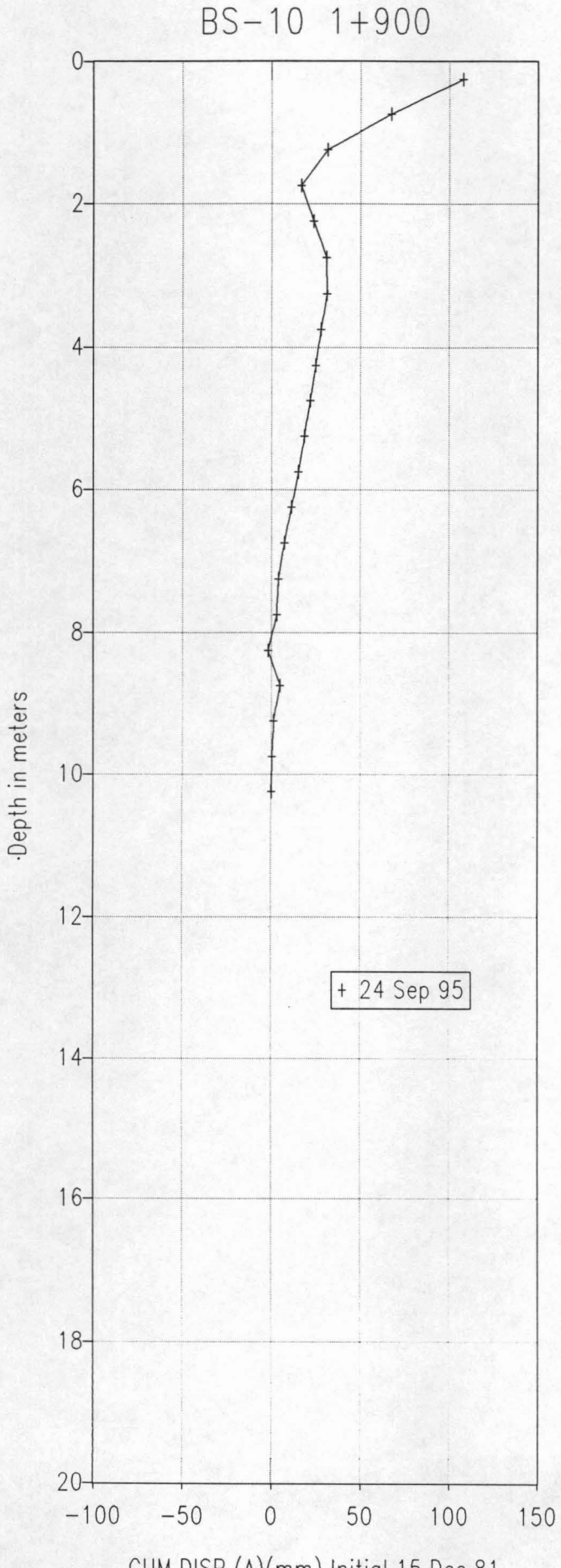
	Initial Dec 15 1981				Sep 24 1992				Jun 02 1994				Sep 15 1994				Sep 21 1995			
Depth	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-
0.5	-160	0	-64	0	-214	245	-101	115	-528	506	-216	217	-2390	2360	-1067	1030	-2128	2126	-878	871
1.0	-142	0	-61	0	-200	231	-98	110	-455	432	-198	199	-2291	2291	-1053	1022	-2038	2031	-865	840
1.5	-102	0	-67	0	-105	134	-70	85	-173	149	-140	138	-1333	1394	-864	838	-1253	1241	-795	788
2.0	-55	0	-40	0	-18	48	-37	48	-71	49	-73	72	-405	404	-490	464	-403	392	-476	467
2.5	-48	0	-33	0	9	21	-10	24	-32	9	-40	38	-110	103	-220	185	-105	98	-206	181
3.0	-21	0	-27	0	10	20	-14	27	-32	1	-56	55	-91	86	-255	215	-89	83	-240	224
3.5	-5	0	-27	0	15	16	-14	27	-30	7	-45	44	-52	44	-257	213	-49	41	-243	217
4.0	-3	0	-33	0	9	22	-12	25	-54	31	-52	51	-103	94	-239	189	-99	99	-224	200
4.5	-33	0	-43	0	-8	40	-27	41	-79	53	-82	79	-290	284	-386	341	-291	282	-372	355
5.0	-30	0	-50	0	-5	38	-24	37	-65	42	-60	59	-257	250	-350	306	-255	247	-328	312
5.5	-22	0	-36	0	3	29	-18	30	-30	7	-47	46	-163	157	-262	232	-163	155	-242	226
6.0	1	0	-32	0	21	12	-13	26	-7	-17	-31	29	5	-15	-202	155	9	-18	-182	167
6.5	9	0	-17	0	27	7	-3	14	6	-30	-4	2	53	-67	-96	61	63	-73	-68	65
7.0	24	0	5	0	31	3	8	3	7	-31	17	-18	92	-107	-4	-50	104	-111	47	-68

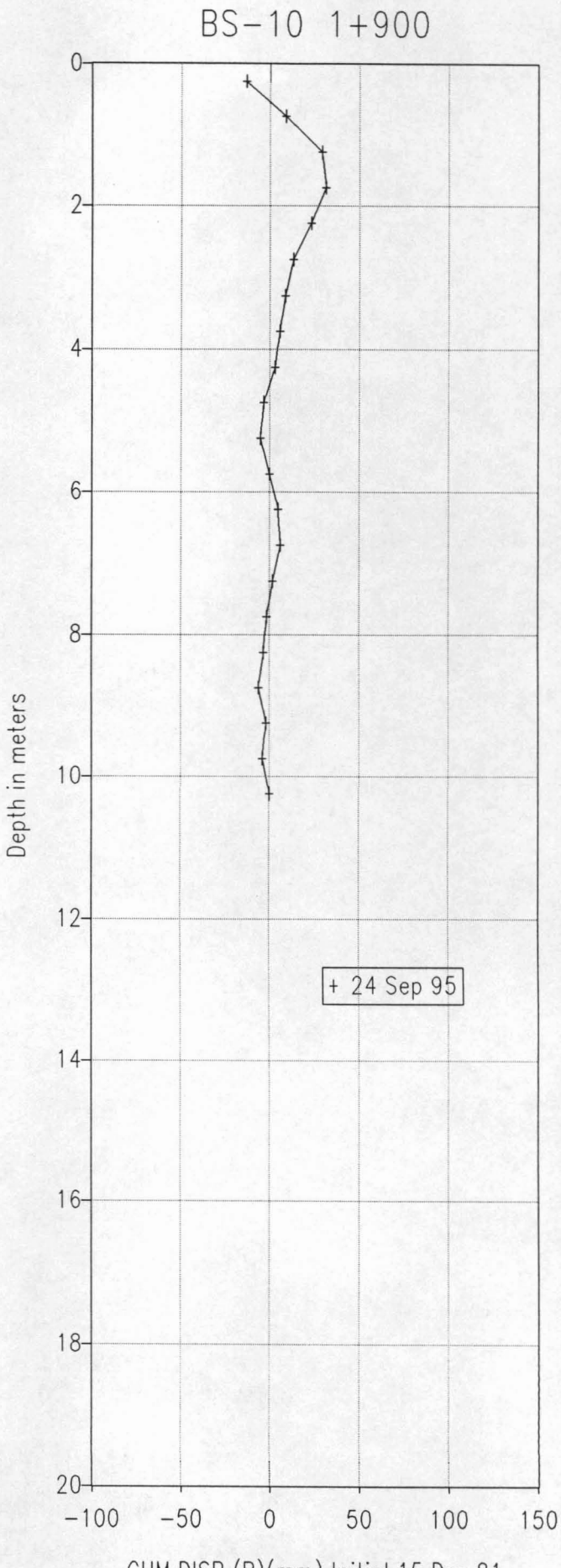

BS-5 0+960
Depth in meters
0
2
4
6
8
10
12
14
16
18
20
+ 04 Oct 90
▽ 02 Jun 94
◇ 15 Sep 94
□ 21 Sep 95
-100
-50
0
50
100
CUM.DISP.(A)(mm) Initial 15 Dec 81

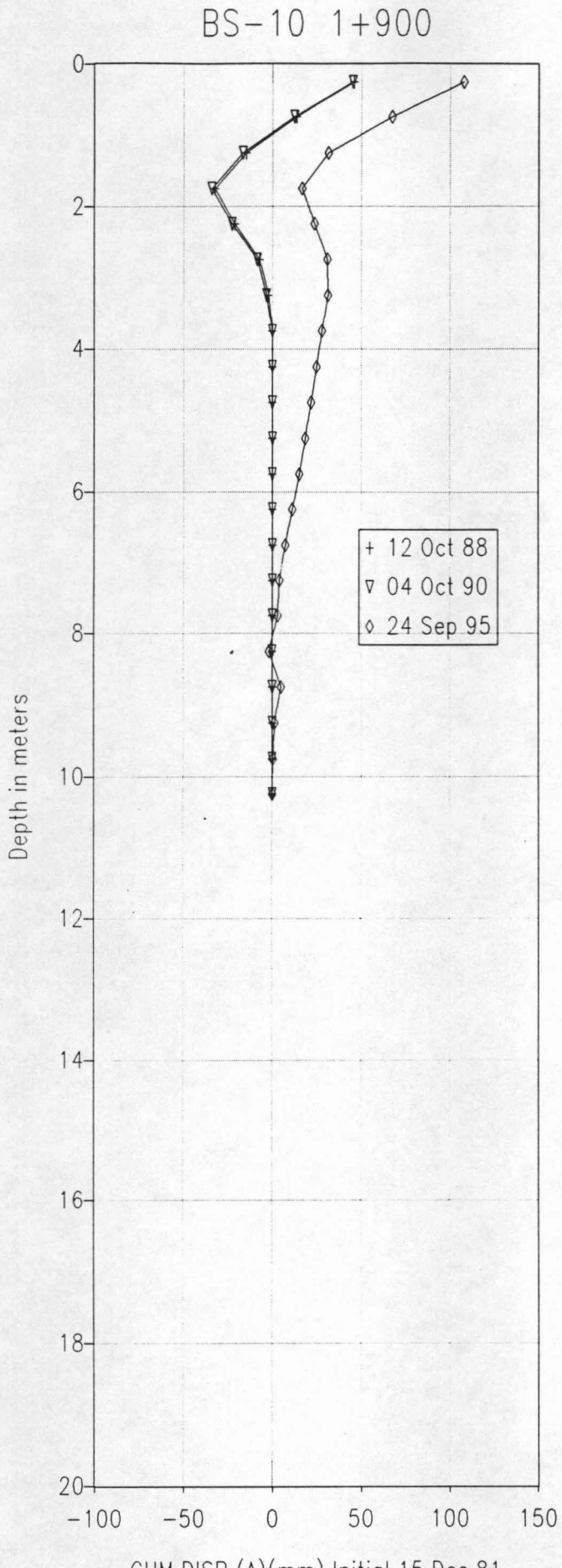

BS-5 0+960
Depth in meters
0
2
4
6
8
10
12
14
16
18
20
+ 04 Oct 90
▽ 02 Jun 94
◇ 15 Sep 94
□ 21 Sep 95
-100
-50
0
50
100
CUM.DISP.(B)(mm) Initial 15 Dec 81

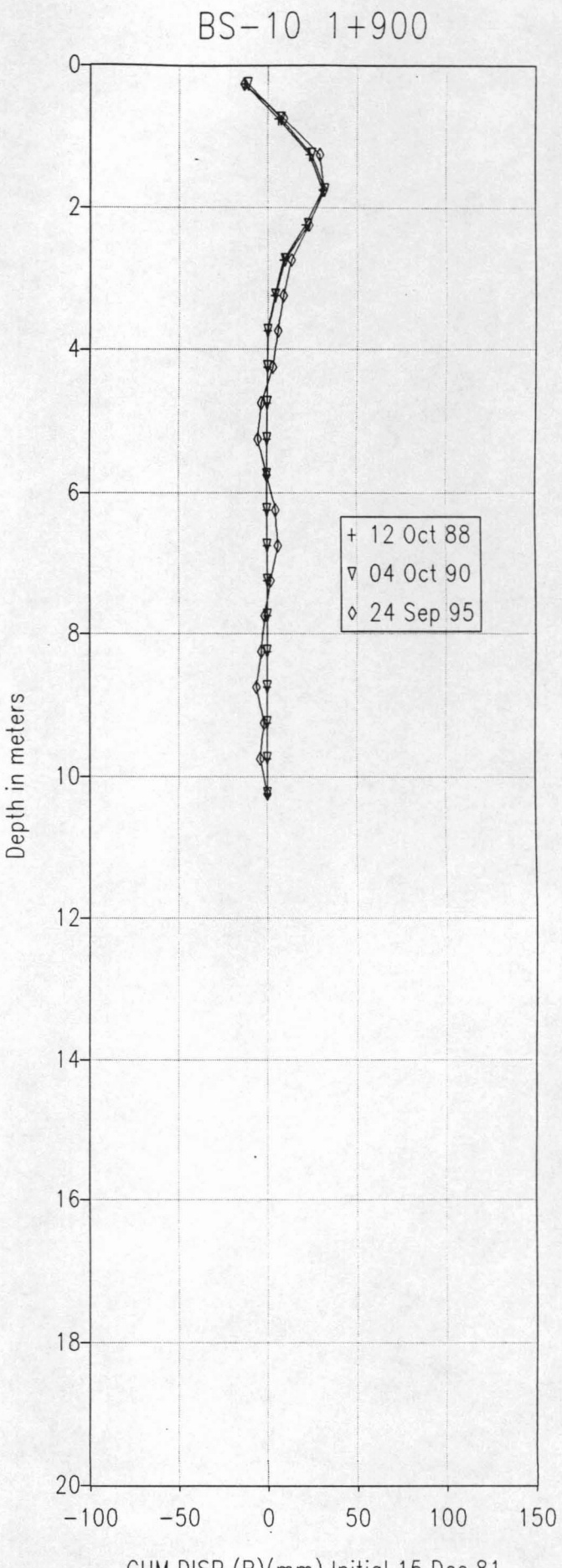
Backslope BS5 @St.0+960

	Inital Dec 15 1981				Oct 04 1990				Jun 02 1994				Sep 15 1994				Sep 21 1995			
Depth	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-
0.5	101	0	207	0	86	-88	96	-104	930	-957	1003	-1020	918	-936	974	-1001	198	-219	204	-203
1.0	116	0	190	0	86	-88	89	-93	877	-907	906	-924	887	-899	898	-923	191	-211	174	-174
1.5	121	0	158	0	72	-74	72	-76	731	-758	735	-750	739	-751	734	-752	119	-142	137	-138
2.0	114	0	141	0	52	-54	58	-62	515	-539	589	-596	522	-531	587	-603	105	-127	115	-115
2.5	112	0	116	0	54	-55	52	-57	535	-560	556	-574	539	-550	550	-580	116	-138	117	-117
3.0	122	0	111	0	59	-61	54	-60	591	-619	575	-591	595	-608	573	-598	125	-147	120	-120
3.5	127	0	117	0	65	-67	56	-61	649	-676	588	-608	654	-664	586	-615	141	-163	124	-124
4.0	140	0	118	0	70	-72	57	-62	702	-731	586	-628	707	-716	585	-624	147	-169	123	-123
4.5	147	0	117	0	83	-86	51	-57	822	-856	524	-544	833	-837	526	-546	199	-220	101	-103
5.0	212	0	91	0	112	-114	43	-48	1114	-1143	460	-489	1124	-1134	454	-491	234	-256	96	-97
5.5	238	0	88	0	120	-122	36	-43	1201	-1230	387	-409	1206	-1218	387	-401	239	-261	71	-72
6.0	244	0	59	0	120	-122	21	-28	1197	-1224	239	-260	1200	-1213	235	-257	234	-255	44	-45
6.5	244	0	37	0	123	-125	8	-14	1218	-1247	102	-121	1221	-1236	100	-121	244	-265	13	-14
7.0	258	0	6	0	131	-133	-4	-1	1296	-1324	-29	8	1299	-1314	-19	2	255	-277	1	-1
7.5	265	0	1	0	127	-129	-10	4	1284	-1308	-79	57	1274	-1291	-91	60	213	-234	-28	27
8.0	209	0	-46	0	96	-98	-31	24	969	-996	-285	263	966	-983	-296	270	166	-187	-62	61
8.5	178	0	-73	0	84	-86	-40	34	848	-872	-393	374	844	-860	-398	376	140	-161	-84	83
9.0	156	0	-92	0	73	-75	-51	45	734	-759	-497	473	730	-747	-510	475	120	-142	-102	102
9.5	138	0	-106	0	66	-68	-60	55	663	-689	-590	569	657	-678	-608	576	103	-125	-126	126
10.0	124	0	-133	0	60	-62	-75	70	598	-624	-727	709	596	-614	-748	704	91	-113	-160	159


BS-10 1+900
Depth in meters
0
2
4
6
8
10
12
14
16
18
20
+ 24 Sep 95
-100
-50
0
50
100
150
CUM.DISP.(A)(mm) Initial 15 Dec 81

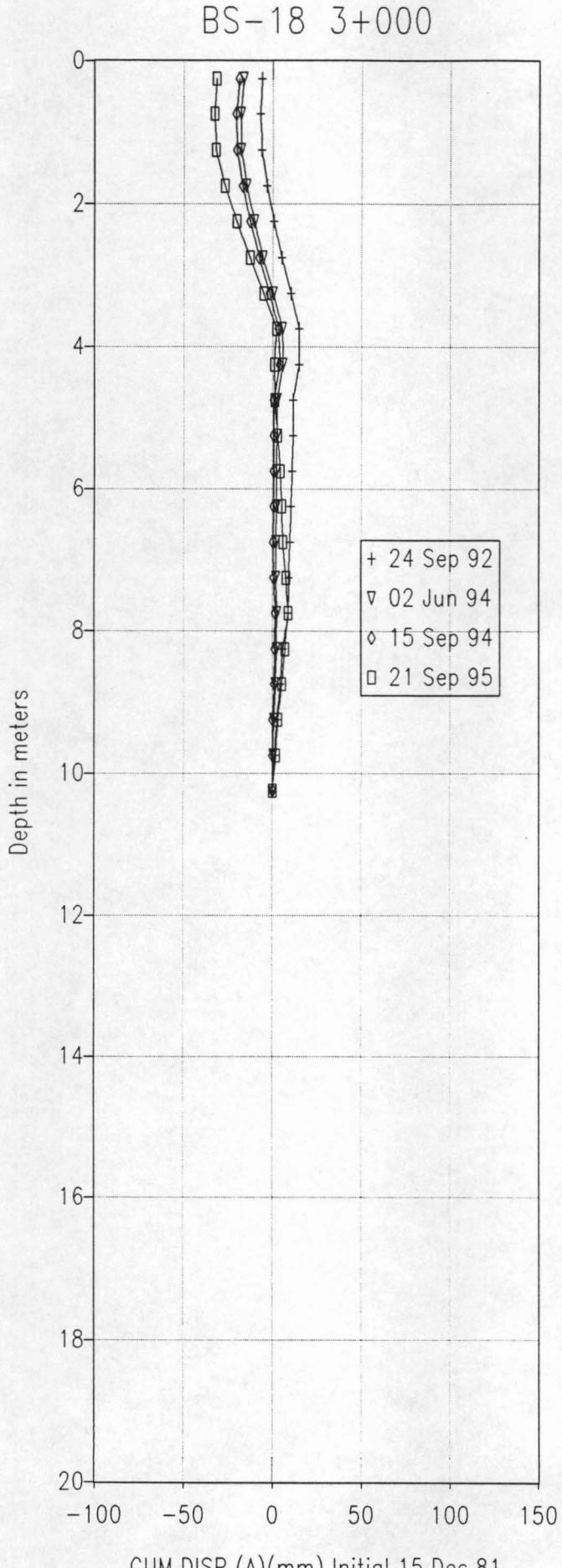

BS-10 1+900
Depth in meters
0
2
4
6
8
10
12
14
16
18
20
+ 24 Sep 95
-100
-50
0
50
100
150
CUM.DISP.(B)(mm) Initial 15 Dec 81

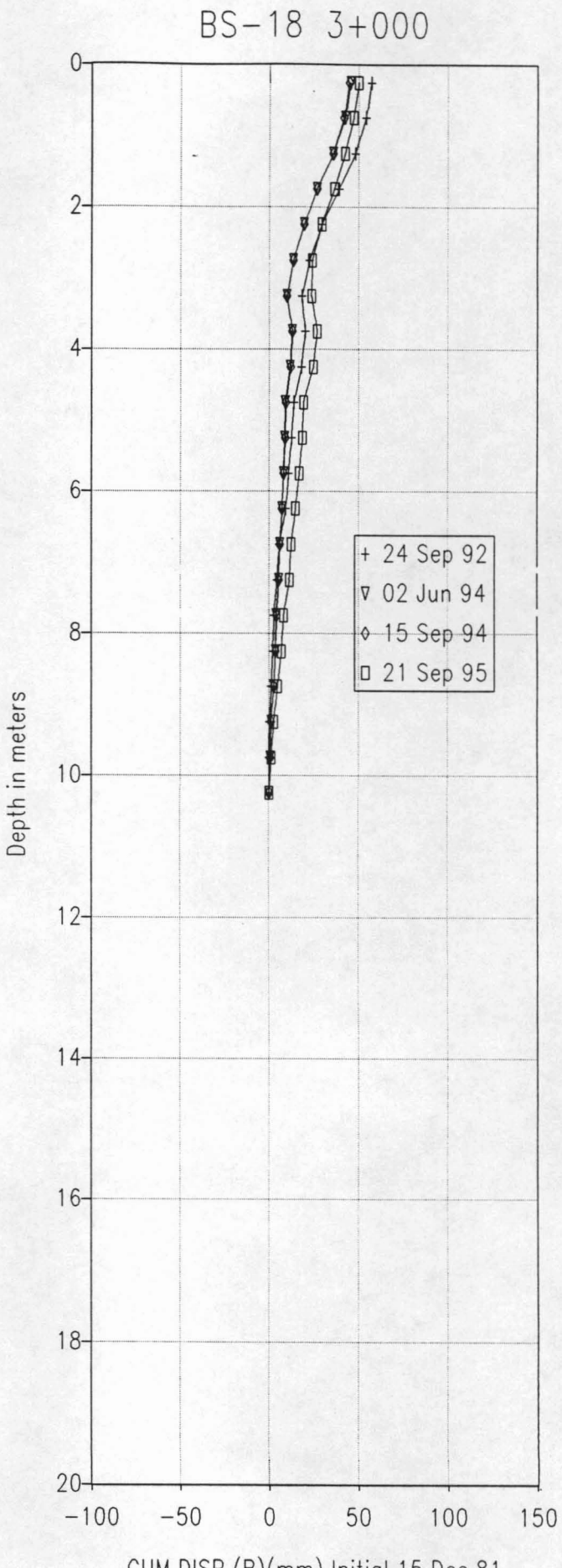

BS-10 1+900
Depth in meters
0
2
4
6
8
10
12
14
16
18
20
+ 12 Oct 88
▽ 04 Oct 90
◇ 24 Sep 95
-100
-50
0
50
100
150
CUM.DISP.(A)(mm) Initial 15 Dec 81


BS-10 1+900
Depth in meters
0
2
4
6
8
10
12
14
16
18
20
+ 12 Oct 88
▽ 04 Oct 90
◇ 24 Sep 95
-100
-50
0
50
100
150
CUM.DISP.(B)(mm) Initial 15 Dec 81

Backslope BS-10 @St.1+900

	INITIAL Dec 15 81				Oct 12 1988				Oct 04 1990				Sept 21 1995			
Depth	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-
0.5	89	0	211	0	209	-200	6	-12	212	-203	8	-14	485	-506	-17	13
1.0	98	0	214	0	197	-188	16	-21	198	-190	18	-24	443	-467	12	-14
1.5	51	0	255	0	116	-110	86	-99	116	-110	89	-92	185	-216	233	-236
2.0	1	0	318	0	-51	60	206	-207	-52	60	205	-207	-84	57	400	-399
2.5	-12	0	317	0	-71	80	218	-222	-73	81	220	-228	-97	74	417	-414
3.0	-17	0	325	0	-30	40	186	-190	-30	39	186	-193	-28	7	372	-371
3.5	-26	0	339	0	-19	28	187	-189	-20	40	188	-193	-6	-17	370	-370
4.0	-22	0	346	0									-2	-21	373	-371
4.5	-21	0	354	0									-4	-19	420	-418
5.0	-37	0	412	0									-14	-10	431	-429
5.5	-52	0	404	0									-29	6	326	-374
6.0	-67	0	376	0									-41	15	330	-328
6.5	-86	0	356	0									-59	36	344	-343
7.0	-102	0	342	0									-83	54	384	-383
7.5	-111	0	324	0									-114	92	360	-358
8.0	-63	0	347	0									-24	1	364	-363
8.5	-40	0	363	0									93	-121	391	-390
9.0	-54	0	355	0									9	30	313	-312
9.5	-80	0	342	0									-83	56	365	-363
10.0	-100	0	315	0									-108	87	276	-273


BS-18 3+000
Depth in meters
0
2
4
6
8
10
12
14
16
18
20
+ 24 Sep 92
▽ 02 Jun 94
◇ 15 Sep 94
□ 21 Sep 95
-100
-50
0
50
100
150
CUM.DISP.(A)(mm) Initial 15 Dec 81


BS-18 3+000
Depth in meters
0
2
4
6
8
10
12
14
16
18
20
+ 24 Sep 92
▽ 02 Jun 94
◇ 15 Sep 94
□ 21 Sep 95
-100
-50
0
50
100
150
CUM.DISP.(B)(mm) Initial 15 Dec 81

Backslope BS18 @St.3+000

	Inital Dec 15 1981				Sep 24 1992				Jun 02 1994				Sep 15 1994				Sep 21 1995			
Depth	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-	A+	A-	B+	B-
0.5	33	0	-46	0	39	-1	6	23	241	-259	-88	65	260	-266	-96	68	34	-57	-16	17
1.0	48	0	-101	0	39	-4	-7	32	225	-244	-181	167	210	-222	-200	181	30	-54	-53	57
1.5	74	0	-202	0	39	-4	-41	70	209	-224	-573	542	207	-215	-570	547	11	-33	-140	141
2.0	65	0	-221	0	30	5	-38	86	97	-112	-754	723	98	-107	-760	725	-14	-8	-149	151
2.5	56	0	-215	0	25	13	-60	88	27	-40	-795	766	27	-34	-793	769	-30	7	-160	162
3.0	42	0	-220	0	13	24	-74	103	-85	80	-921	912	-86	86	-925	909	-47	24	-217	220
3.5	48	0	-227	0	19	16	-107	138	-21	-4	-1299	1274	-19	3	-1302	1269	-36	14	-256	258
4.0	48	0	-238	0	42	-6	-92	123	206	-224	-1146	1127	206	-200	-1148	1133	51	-72	-214	217
4.5	31	0	-227	0	50	-14	-79	107	325	-341	-1017	976	318	-341	-1015	981	16	-38	-173	175
5.0	47	0	-158	0	43	-6	-58	87	224	-241	-789	755	225	-233	-788	752	20	-43	-149	152
5.5	42	0	-146	0	43	-5	-51	79	220	-233	-705	678	219	-225	-705	677	17	-39	-127	129
6.0	38	0	-123	0	41	-2	-39	68	185	-198	-580	561	183	-191	-577	550	17	-40	-100	103
6.5	37	0	-95	0	42	-2	-5	53	192	-207	-438	412	189	-198	-435	409	20	-43	-72	73
7.0	30	0	-71	0	37	3	-15	43	138	-149	-327	302	135	-138	-329	299	-1	-22	-60	62
7.5	16	0	-62	0	31	11	-9	36	42	-57	-263	230	39	-47	-270	232	-5	-18	-29	31
8.0	15	0	-15	0	37	-7	9	19	81	-98	-64	40	76	-87	-68	37	20	-42	-1	3
8.5	40	0	-2	0	51	-6	17	10	225	-243	27	-44	216	-228	27	-51	48	-71	20	-20
9.0	59	0	19	0	61	-16	29	-1	333	-345	151	-180	323	-335	145	-183	69	-91	40	-39
9.5	78	0	36	0	68	-22	33	-6	402	-416	201	-231	392	-406	196	-240	78	-100	53	-52
10.0	86	0	57	0	73	-25	42	-13	433	-448	296	-319	420	-435	288	-325	94	-116	67	-66

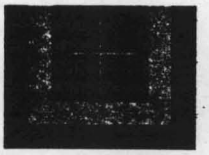
APPENDIX V

MONUMENT DEFORMATION SURVEY RESULTS REPORT (Underhill Report dated September, 1994)

KPMG ENVIRONMENTAL SERVICES INC.

Deformation Survey
Down Valley Tailings
Containment Project

EPOCH "I" (Sept. 94)



UNDERHILL
Professional Land Surveyors & Engineers

KPMG ENVIRONMENTAL SERVICES INC.

Deformation Survey
Down Valley Tailings
Containment Project

EPOCH "I" (Sept. 94)

May 19, 1995 Our File: 94169

Deformation Survey - Down-Valley Tailings Containment Project

We have performed the field survey and completed the analysis for the Deformation Survey. We performed the same survey observations and analysis as has been previously performed, utilizing modern instrumentation and data collection systems.

We utilized a Geodimeter 420 electronic theodolite, a similar but newer generation instrument than that used on the 1990 Deformation Survey. The data collection system eliminated potential error sources caused by manually handling field information.

Previous network analysis were carried out on a two year basis. This epoch (Epoch I) was performed four years after the last epoch (Oct. 1990). This fact should be considered when viewing the resulting displacements at the stations.

As was found in 1990, a number of stations on the intermediate dam and the canal dyke have been destroyed. New stations were placed on the intermediate dam for the purposes of retaining integrity of the survey and possible future monitoring. Stations were not replaced on the canal dyke. There were five new stations placed on the intermediate dam (Mon. 223, 225, 226, 227, 228), which were integrated with the existing network. These new stations assisted in maintaining the integrity of the network adjustment. Comparisons for these new stations will show up in the future epoch analysis.

The results of the survey are presented in the same format as was supplied in 1990. Contained in this report are:

1) Tabulation of the elevations determined in 1988, 1990 and 1994
2) Tabulation of Horizontal Displacements and Confidence Ellipses of Monitoring Stations from 1990 to 1994
3) Graphical Representation of Horizontal and Vertical Displacements
4) Adjustment Report and Recommendation

ELEVATIONS

TABULATED BY LOCATION

FARO DEFORMATION STUDY

CANAL DYKE

UEL STA.	STATION DESCRIPTION	OCT./88 ELEVATION	OCT./90 ELEVATION	SEPT./94 ELEVATION
	0+150 CD	1090.612	1090.614	1090.611
	0+300 CD	1089.979	1089.982	1089.980
550	0+400 CD	1089.943	1089.940	1089.940
	0+510 CD	1089.817	1089.815	1089.815
	0+610 CD	1089.824	1089.821	1089.821
	0+710 CD	1089.516	1089.517	1089.522
	0+840 CD	1089.004	1089.001	1089.006
	0+960 CD	1088.632	1088.629	1088.639
153	0+990 CD	1088.655	1088.652	1088.659
	1+110 CD	1088.230	1088.227	1088.233
	1+230 CD	1088.115	1088.110	1088.117
155	1+350 CD	1087.690	1087.684	1087.694
	1+440 CD	1087.558	1087.552	1087.561
156	1+530 CD	1087.255	1087.247	1087.255
	1+610 CD	1087.005	1086.801	1086.699
	1+705 CD	1087.017	1087.007	1087.014
	1+800 CD	1086.784	1086.748	1086.747
159	1+900 CD	1086.554	1086.432	1086.257
	2+000 CD	1086.558	1086.545	1086.544
409	2+100 CD	1086.110	1085.993	1085.826
410	2+200 CD	1085.638	1085.591	Destroyed
	2+260 CD	1085.931	1085.922	Destroyed
411	2+365 CD	1085.784	1085.774	1085.775
	2+460 CD	1085.660	1085.654	1085.657
	2+600 CD	1085.652	1085.647	1085.649
	2+765 CD	1085.347	1085.341	1085.343
419	2+900 CD	1080.704	1080.701	Destroyed
499	3+000 CD	1074.909	1074.894	Destroyed
496	3+130 CD	1068.840	1068.834	Destroyed
497	3+300 CD	1060.483	1060.481	1060.479
500	3+550 CD	1057.294	1057.295	1057.295

FARO DEFORMATION STUDY

CANAL BACKSLOPE

UEL STA.	STATION DESCRIPTION	OCT./88 ELEVATION	OCT./90 ELEVATION	SEPT./94 ELEVATION
	0+150 BS	1095.83	1095.838	1095.835
557	0+400 BS	1094.025	1094.025	1094.024
	0+610 BS	1104.404	1104.400	1104.398
555	0+960 BS	1092.572	1092.569	1092.577
	1+110 BS	1089.114	1089.109	1089.116
	1+200 BS	1098.878	1098.537	(Destroyed)
	1+300 BS	1096.788	1096.779	1096.786
840	1+530 BS	1088.501	1088.492	1088.501
414	1+900 BS	1098.042	1098.010	1097.948
559	2+100 BS	1094.946	1094.902	1094.839
	2+260 BS	1094.486	1094.484	1094.490
	2+460 BS	1094.099	1094.025	1094.011
	2+560 BS	1091.501	1091.500	1091.504
	2+760 BS	1090.446	1090.434	1090.435
553	2+900 BS(lower)	1087.844	1087.834	1087.822
552	2+900 BS(upper)	1092.543	1092.532	1092.530
551	3+000 BS	1082.814	1082.811	1082.809
	3+130 BS	1081.526	1081.512	1081.493
495	3+240 BS	1065.450	1065.452	1065.454
498	3+550 BS	1057.804	1057.804	1057.815

FARO DEFORMATION STUDY

CROSS VALLEY DAM

UEL STA.	STATION DESCRIPTION	OCT./88 ELEVATION	OCT./90 ELEVATION	SEPT./94 ELEVATION
502	0+204	1065.743	1065.737	1065.739
	SP"A"	1067.213	1067.206	1067.209
415	0+338 CVDC	1065.922	1065.911	1065.911
416	0+460 CVDC	1065.873	1065.868	1065.868
	SP"C"	1066.503	1066.498	1066.492
417	0+568 CVDC	1065.923	1065.916	1065.919
	SP"D"	1067.108	1067.098	1067.095
	0+570	1065.763	1065.755	Destroyed
223				1082.083
225				1115.084
226				1081.627
227				1081.617
228				1088.501

FARO DEFORMATION STUDY

SPOIL PILES

UEL STA.	STATION DESCRIPTION	OCT./88 ELEVATION	OCT./90 ELEVATION	SEPT./94 ELEVATION
154	0+990 SP	1088.387	1088.210	1087.835
157	1+530 SP	1092.752	1092.564	1092.417
158	1+900 SP	1082.412	1082.129	1081.798
418	2+950 SP	1079.148	1078.998	1078.740

FARO DEFORMATION STUDY

INCREMENTAL SETTLEMENT STATIONS

STATION NO.	STATION DESCRIPTION	OCT./88 ELEVATION	OCT./90 ELEVATION	SEPT./94 ELEVATION
CD-4	0+400 CD(s)	1090.08 (gone)	1090.08 ----	1090.07 ----
CD-10	0+990 CD(s)	1088.83 (1088.77)	1088.82 (1088.77)	1088.82 (1088.79)
CD-15	1+530 CD(s)	1087.51 (1087.37)	1087.50 (1087.37)	1087.50 (1087.37)
CD-19	1+900 CD(s)	1086.81 (1086.69)	1086.71 (1086.63)	1086.58 (1086.55)
CD-21	2+100 CD(s)	1086.29 (1086.24)	1086.15 (1086.20)	1085.98 (1086.10)
88-6	2+120 CD(s)	1086.54 (1086.47)	1086.38 (1086.47)	1086.14 (1086.48)
88-10	2+170 CD(s)	1086.05 (1085.91)	1085.90 (1085.90)	1085.64 (1085.85)
CD-27	2+765 CD(s)	1085.53 (gone)	1085.53 ----	1085.34 ----
CD-28	2+900 CD(s)	1080.39 (1080.31)	1080.37 (1080.31)	destroyed
CD-29	3+000 CD(s)	1075.05 (1074.99)	1075.04 (1074.98)	gone (1074.94)
BS-2	0+400 BS(s)	1094.51 (1094.51)	1094.50 (1094.51)	1094.46 (1094.51)
BS-5	0+960 BS(s)	1092.79 (1092.62)	1092.78 (1092.63)	1092.79 (1092.62)
BS-9	1+530 BS(s)	1088.44 (1088.55)	1088.44 (1088.54)	1088.42 (1088.55)
BS-10	1+900 BS(s)	1098.30 (1098.46)	1098.24 (1098.45)	1098.16 (1098.43)
BS-11	2+100 BS(s)	1095.24 (1095.40)	1095.17 (1095.41)	1095.06 (1095.48)
BS-17	2+900 BS(s)	1092.81 (1092.80)	1092.79 (1092.81)	1092.72 (1092.87)
BS-18	3+000 BS(s)	1083.28 (1083.18)	1083.27 (1083.20)	1083.26 (1083.19)
SP-2	1+530 SP(s)	1092.72C(1092.84)	1092.52 (1092.81)	1092.31 (1092.80)
SP-3	1+900 SP(s)	1082.92 (1083.21)	1082.65 (1083.15)	1082.32 (1083.02)
88-8	2+135 SP(s)	1076.84 (1076.85)	1076.76 (1076.82)	destroyed
SP-5	2+950 SP(s)	1079.39 (1079.56)	1079.19 (1079.56)	1078.79 (1079.50)

NOTE: Elevations are taken to the top of the casing caps.

C - denotes corrected elevation from last publication.

Elevations to top of Incremental Settlement Installation in brackets.

HORIZONTAL DISPLACEMENTS AND 95% RELATIVE CONFIDENCE ELLIPSES OF MONITORING STATIONS IN TABULAR FORM

Underhill & Underhill
2D Constrained Adjustment - Faro Deformation Survey - 1994

MOVEMENT -- EPOCH H TO I

STATION #		95% RELATIVE CONF ELLIPSE			DISPLACEMENT			MOVEMENT
		(mm)	(mm)	(deg)	(mm)	(deg)		
FROM	TO	SEMI-MAJ	SEMI-MIN	AZIMUTH	DIST	AZIMUTH		SIGNIFICANT ?
153I	153H	14.8	12.2	53	5.4	220		NO
154I	154H	14.6	12.6	54	85.1	58		YES
155I	155H	10.0	9.4	160	2.9	143	*	NO
156I	156H	7.2	6.5	14	14.2	202	*	YES
157I	157H	5.3	4.6	41	43.4	149	*	YES
158I	158H	16.2	10.1	44	55.8	87		YES
159I	159H	15.7	10.4	42	36.7	243		YES
290I	290H	7.7	6.0	173	6.9	328	(*)	NO
291I	291H	7.3	6.2	134	12.9	219	*	YES
292I	292H	8.3	5.1	124	6.0	341	(*)	NO
409I	409H	15.4	10.8	48	43.6	180		YES
411I	411H	11.4	10.1	141	11.6	308		YES
414I	414H	14.8	10.9	41	63.7	35		YES
415I	415H	11.7	10.4	83	14.7	219	*	YES
416I	416H	11.1	10.5	90	12.9	167		YES
417I	417H	10.8	10.1	144	5.3	81	(*)	NO
418I	418H	6.9	6.5	42	94.1	198		YES
495I	495H	15.7	9.2	39	4.3	314		NO
497I	497H	14.9	8.9	43	29.7	273	*	YES
498I	4988H	17.3	10.7	47	3.9	+/-209		NO
500I	500H	14.1	8.5	42	12.8	231	*	NO
502I	502H	13.7	11.7	25	9.3	163		NO
550I	550H	11.7	10.5	24	5.0	328		NO
551I	551H	11.4	9.5	171	2.0	160		NO
552I	552H	14.9	9.5	142	21.9	39		YES
553I	5533H	9.0	7.5	8	0.9	+/-205		NO
555I	555H	16.0	12.2	63	1.4	9	(*)	NO
557I	557H	12.0	8.7	24	11.8	20		NO
559I	559H	14.6	11.4	49	32.6	356	*	YES
840I	840H	9.7	7.3	21	3.0	328		NO
223I								N/A
225I								N/A
226I								N/A
227I								N/A
228I								N/A

* Change in status from last epoch

(*) Change in status from last epoch, but, amount of movement is only marginally significant.

Adjustment Report

The network of 38 stations was observed in the field by measuring the angles (6 sets each) and the distances (both directions) between all inter-visible stations. The entire data set of observations constitutes one epoch for that given year. This epoch is then adjusted with the previous epoch of observations using the GEOLAB Least Squares Adjustment Software. The resulting network analysis gives the relative differences in the network between successive epochs.

Given the four year period between the two epochs (Oct. 90 & Sept 94), the resulting displacements (movements) at the stations are greater in magnitude then the results of previous epochs (see Epoch H report). With the exception of a couple of points, the general trend is consistent with the previous analysis. The observations themselves are free of any systematic errors and a minimum constraints adjustment of these observations is very good.

The survey field notes also indicate significant changes at the dam site. This is consistent with the fact that five new stations were needed to maintain the integrity of the network for analysis purposes.

Recommendation

Future epochs of observations should maintain a consistent time frame between re-observations. Extended delays between observations result in difficulties evaluating the significance of movements at the network stations.

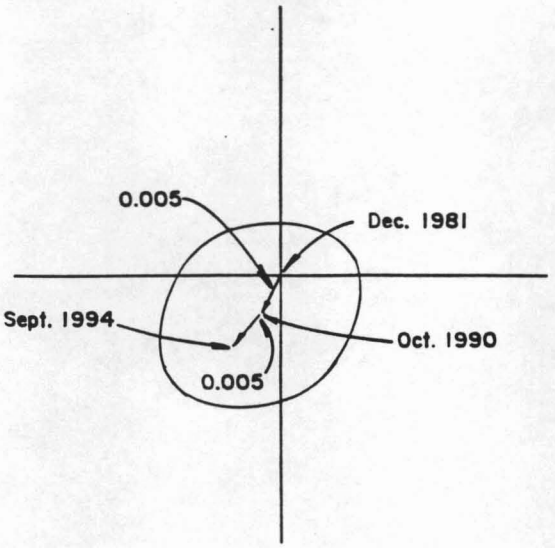
GRAPHICAL REPRESENTATION

OF

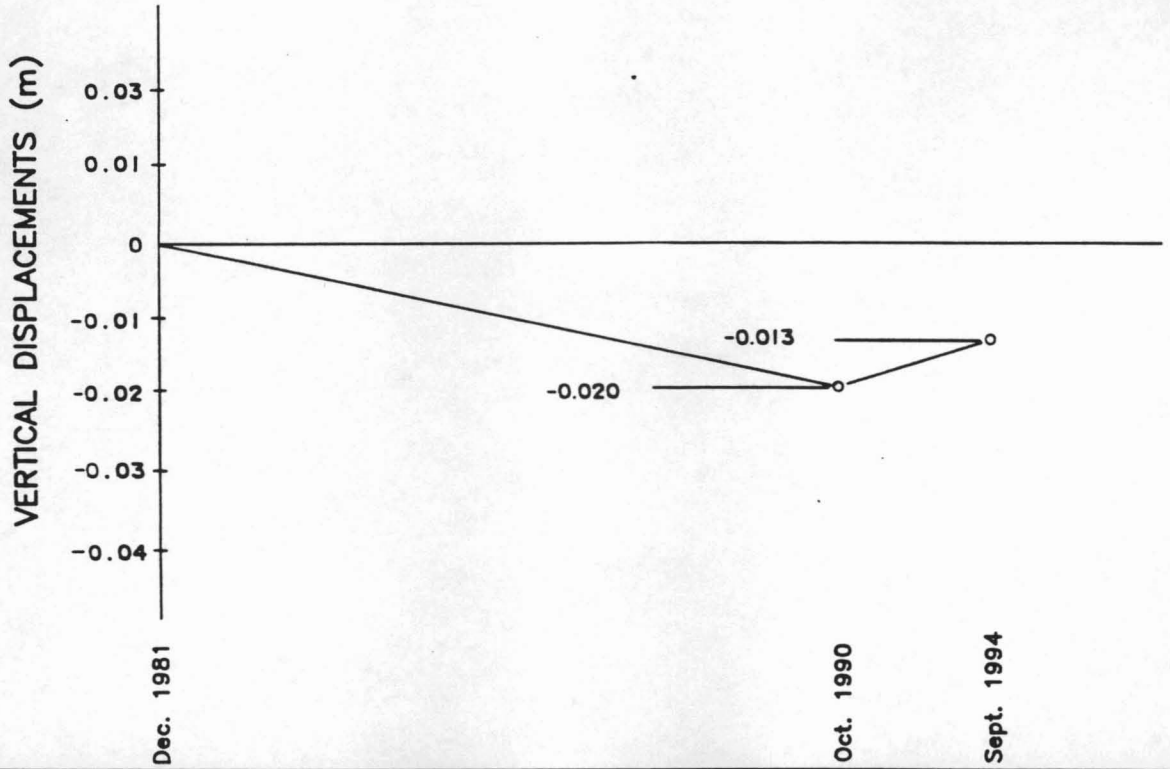
HORIZONTAL AND VERTICAL DISPLACEMENTS

DISPLACEMENT VECTORS AND 95% RELATIVE ERROR ELLIPSES

INSTRUMENT STATION NUMBER	SURVEY STATION NUMBER
0+990 C.D.	153



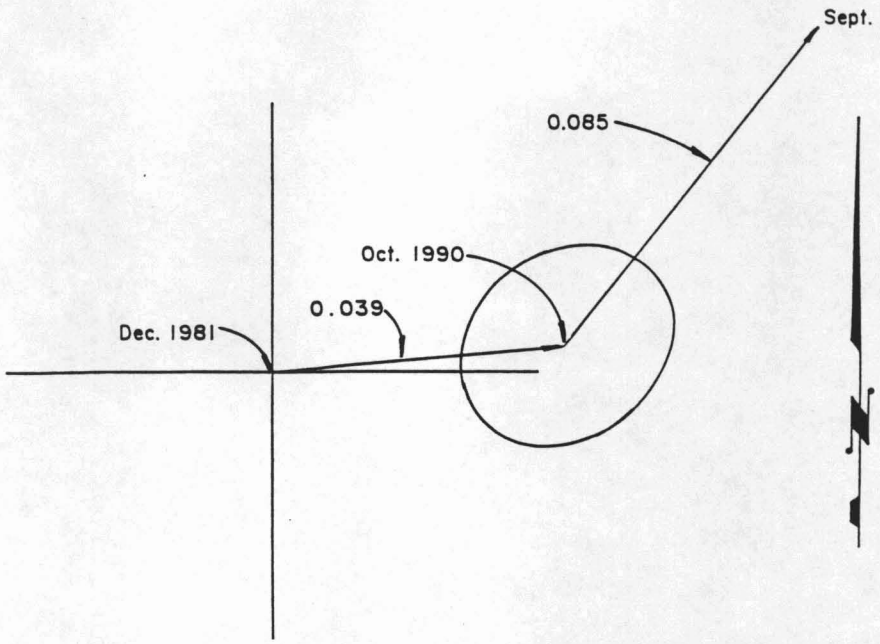


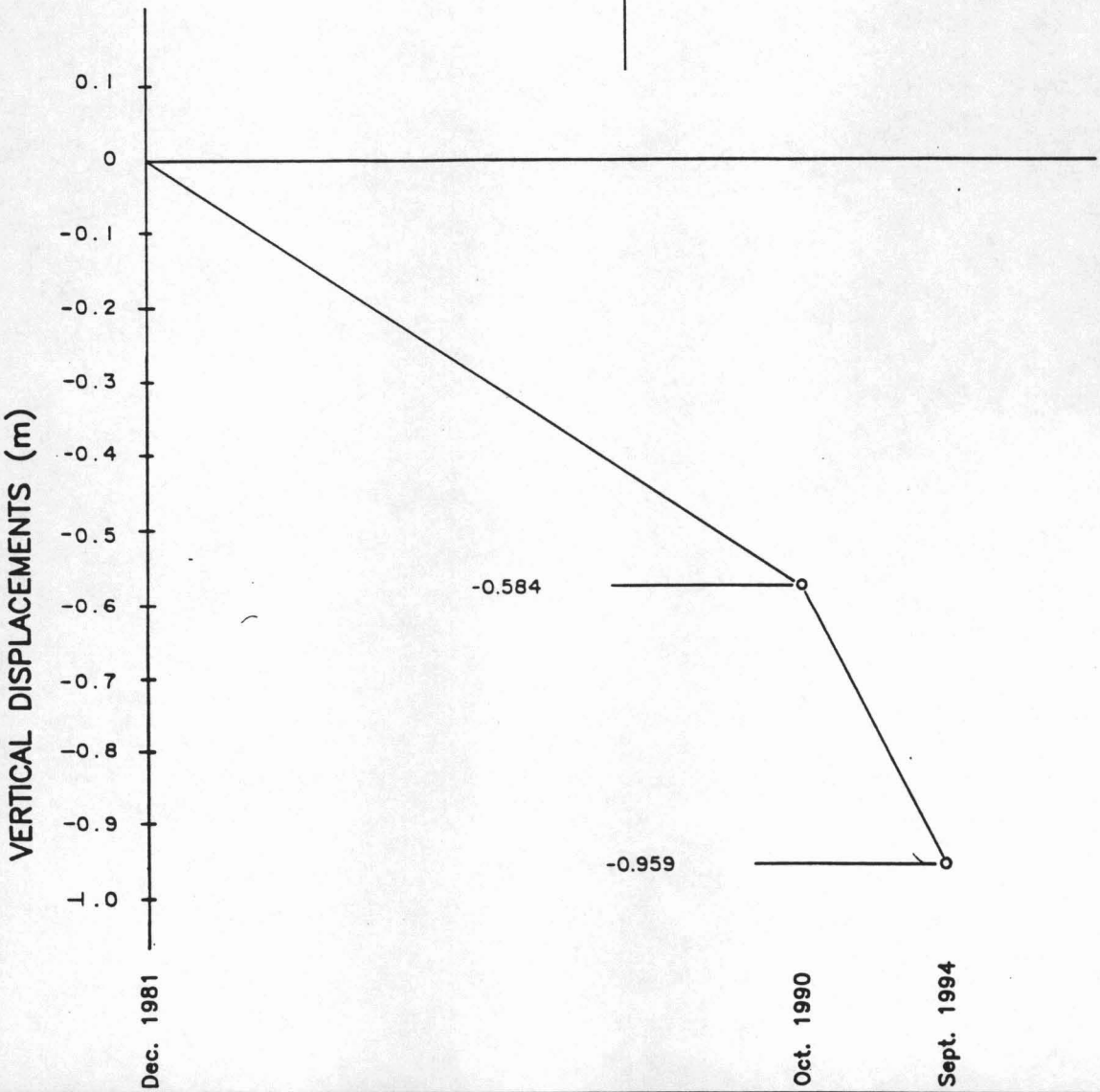


CLIENT: KPMG ENVIRONMENTAL SERVICES INC.	UNDERHILL ENGINEERING LTD.	
PROJECT: DOWN VALLEY TAILINGS CONTAINMENT PROJECT	JOB No.: 94169	SHEET 1 of 33
	DATE: SEPTEMBER 1994	DRAWING No.: 134-3C
	SCALE: HOR. 1 : 1 VER. 1 : 1	

DISPLACEMENT VECTORS AND 95% RELATIVE ERROR ELLIPSES

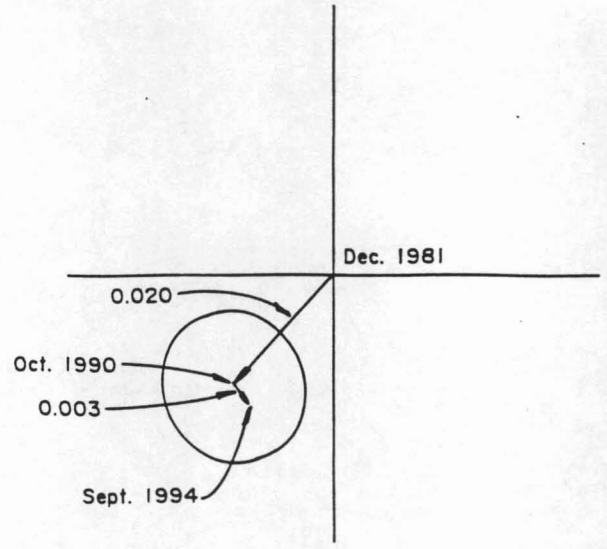
INSTRUMENT STATION NUMBER	SURVEY STATION NUMBER
0+990 S.P.	154

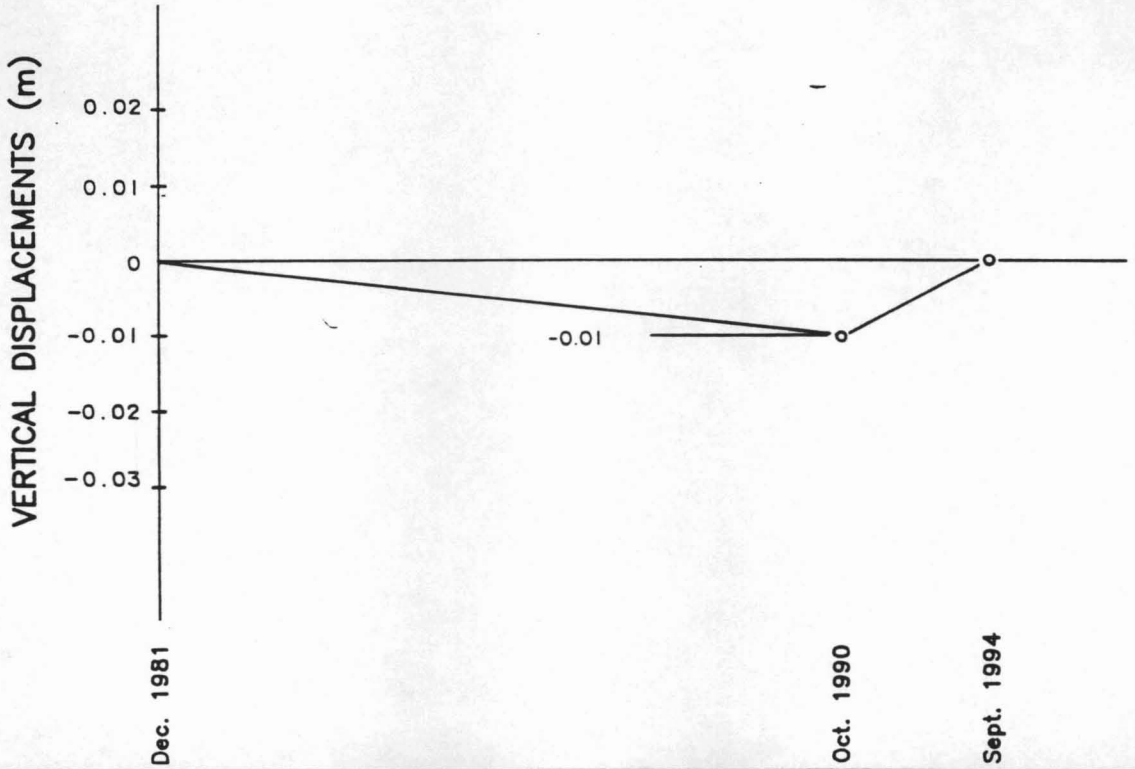




CLIENT: KPMG ENVIRONMENTAL SERVICES INC.	UNDERHILL ENGINEERING LTD.	
PROJECT: DOWN VALLEY TAILINGS CONTAINMENT PROJECT	JOB No.: 94169	SHEET ...2..... of ...33...
	DATE: SEPTEMBER 1994	DRAWING No.: 134-3C
	SCALE: HOR. 1 : 1 VER. 1 : 10	

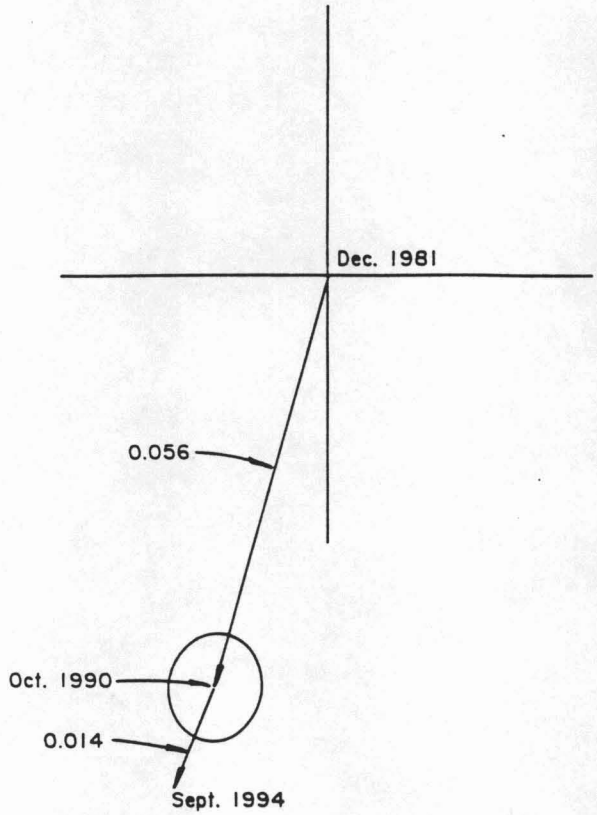
DISPLACEMENT VECTORS AND 95% RELATIVE ERROR ELLIPSES	
INSTRUMENT STATION NUMBER 1+350 C.D.	SURVEY STATION NUMBER 155

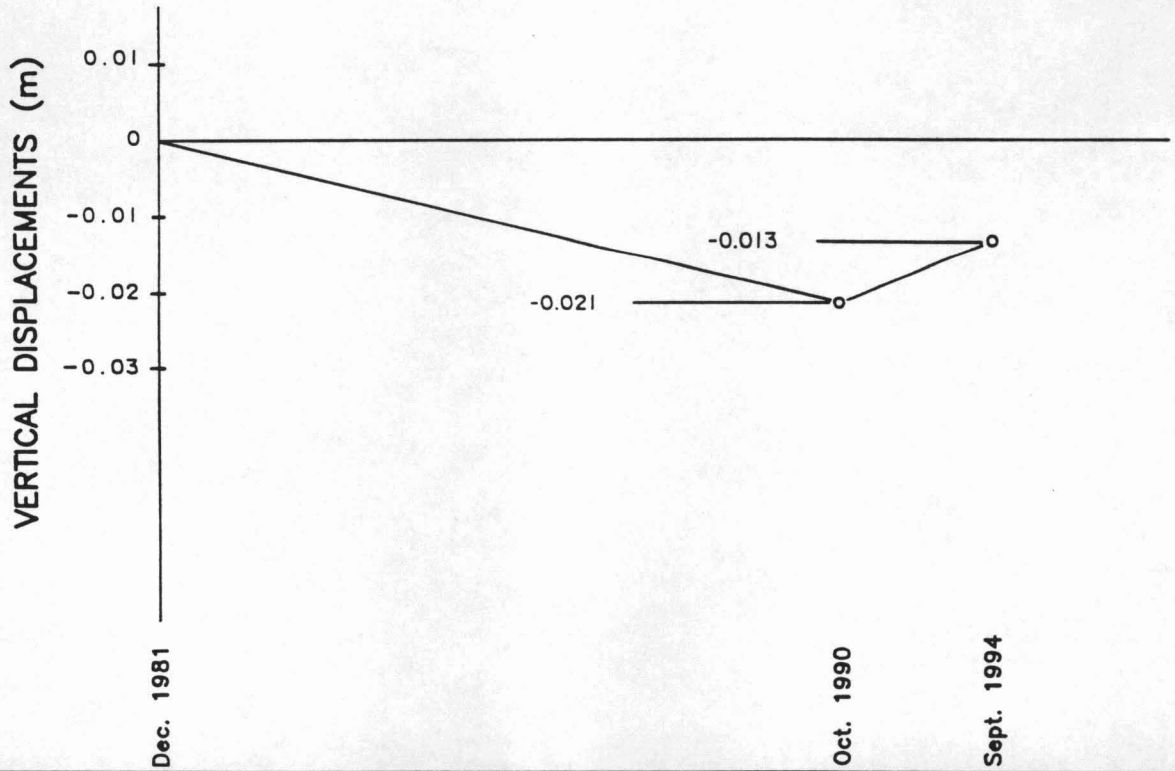




CLIENT: KPMG ENVIRONMENTAL SERVICES INC.	UNDERHILL ENGINEERING LTD.	
PROJECT: DOWN VALLEY TAILINGS CONTAINMENT PROJECT	JOB No.: 94169	SHEET 3 of 33
	DATE: SEPTEMBER 1994	DRAWING No.: 134-3C
	SCALE: HOR. 1 : 1 VER. 1 : 1	

DISPLACEMENT VECTORS AND 95% RELATIVE ERROR ELLIPSES	
INSTRUMENT STATION NUMBER 1+530 C.D.	SURVEY STATION NUMBER 156

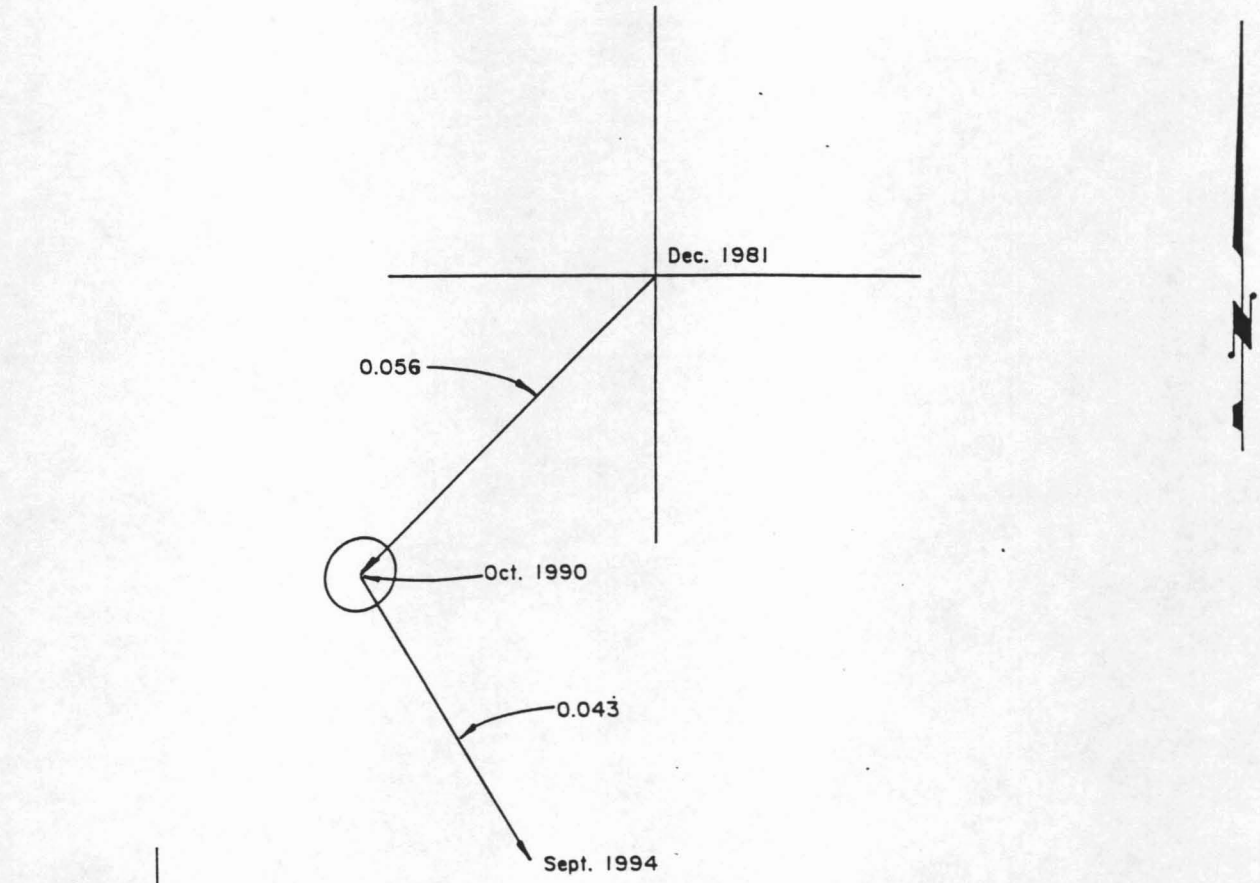


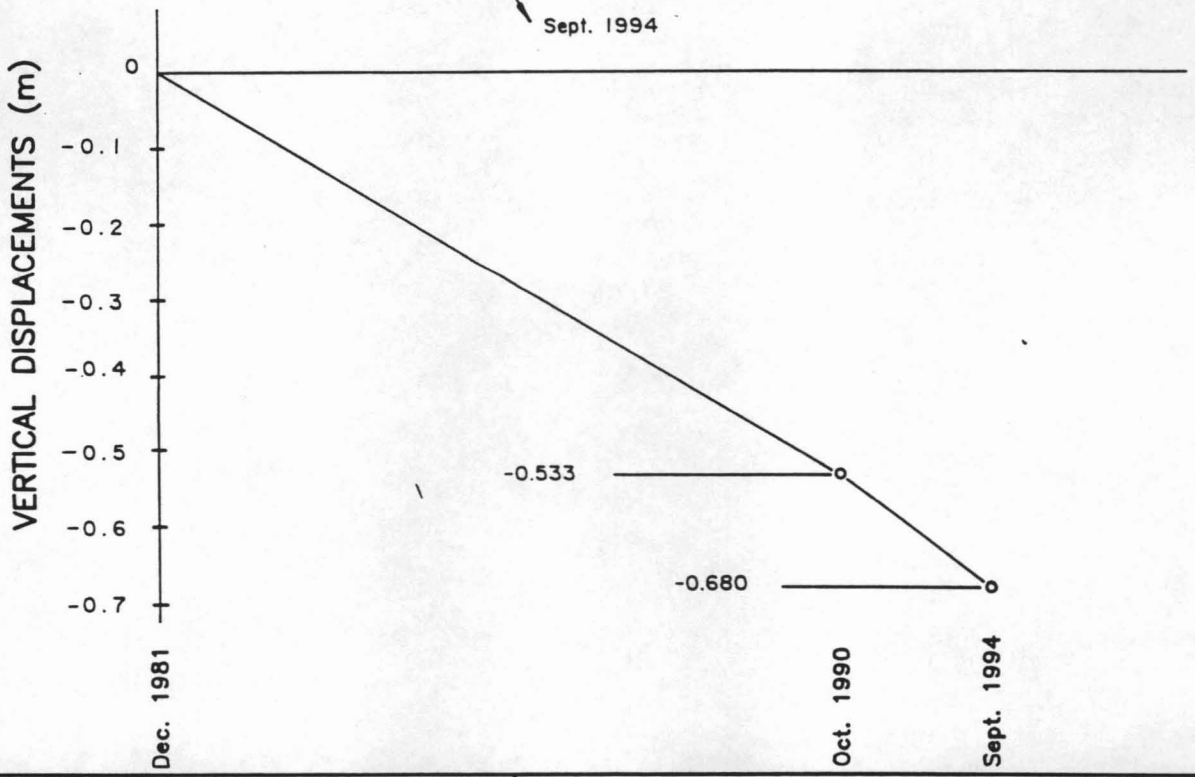


CLIENT: KPMG ENVIRONMENTAL SERVICES INC.	UNDERHILL ENGINEERING LTD.	
PROJECT: DOWN VALLEY TAILINGS CONTAINMENT PROJECT	JOB No.: 94169	SHEET ...4..... of ..33....
	DATE: SEPTEMBER 1994	DRAWING No.: 134-3C
	SCALE: HOR. 1 : 1 VER. 1 : 1	

DISPLACEMENT VECTORS AND 95% RELATIVE ERROR ELLIPSES

INSTRUMENT STATION NUMBER	SURVEY STATION NUMBER
1+530 S.P.	157

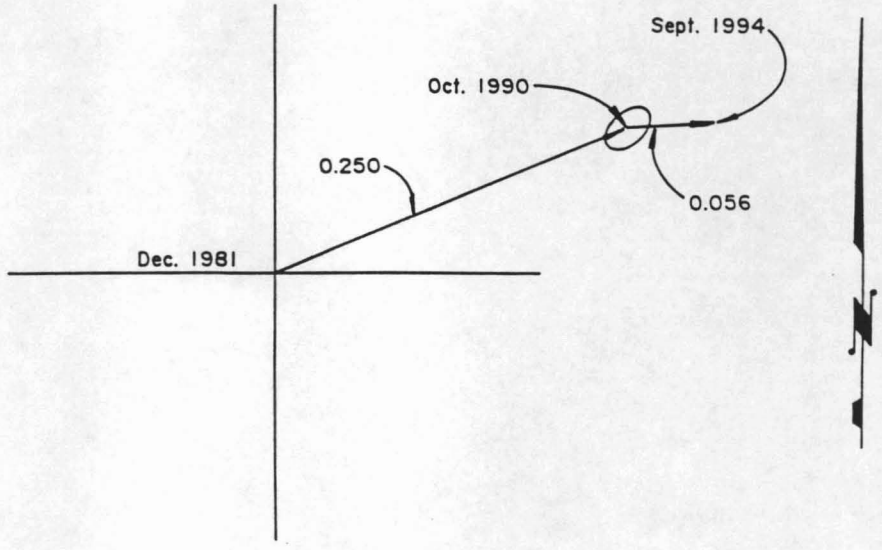


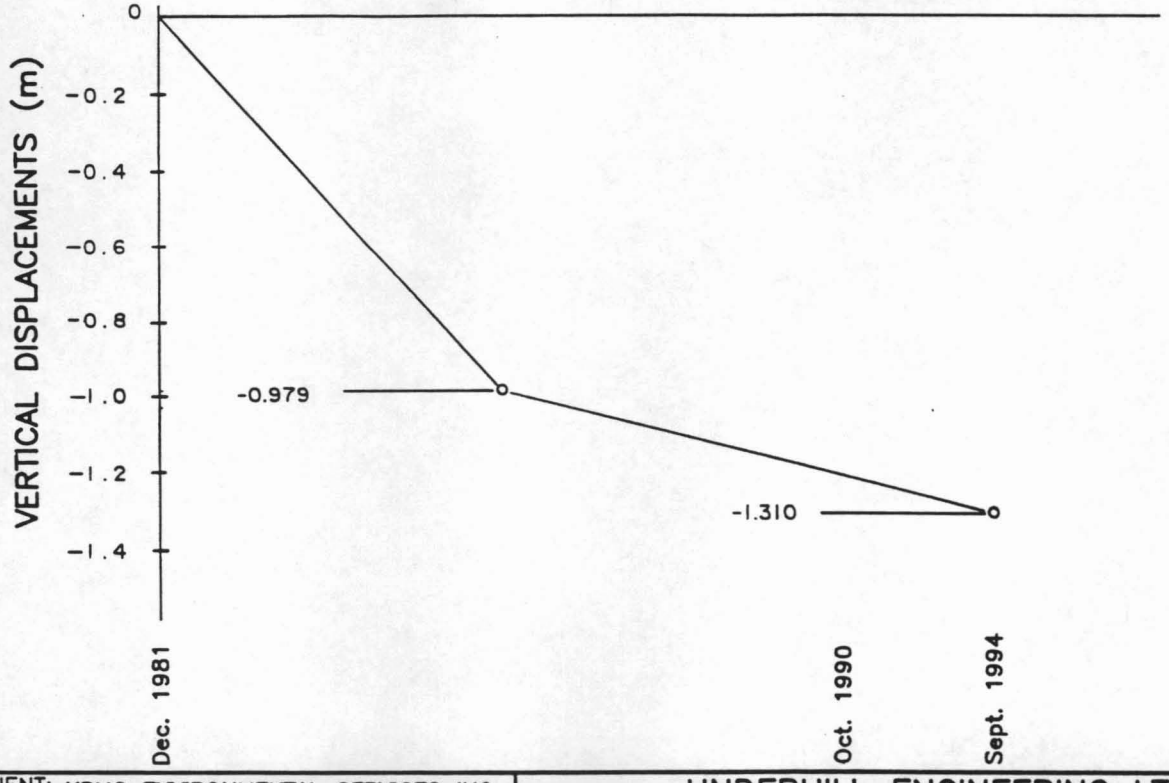


CLIENT: KPMG ENVIRONMENTAL SERVICES INC.	UNDERHILL ENGINEERING LTD.	
PROJECT: DOWN VALLEY TAILINGS CONTAINMENT PROJECT	JOB No.: 94169	SHEET ...5..... of ...33...
	DATE: SEPTEMBER 1994	DRAWING No.: 134-3C
	SCALE: HOR. 1 : 1 VER. 1 : 10	

DISPLACEMENT VECTORS AND 95% RELATIVE ERROR ELLIPSES

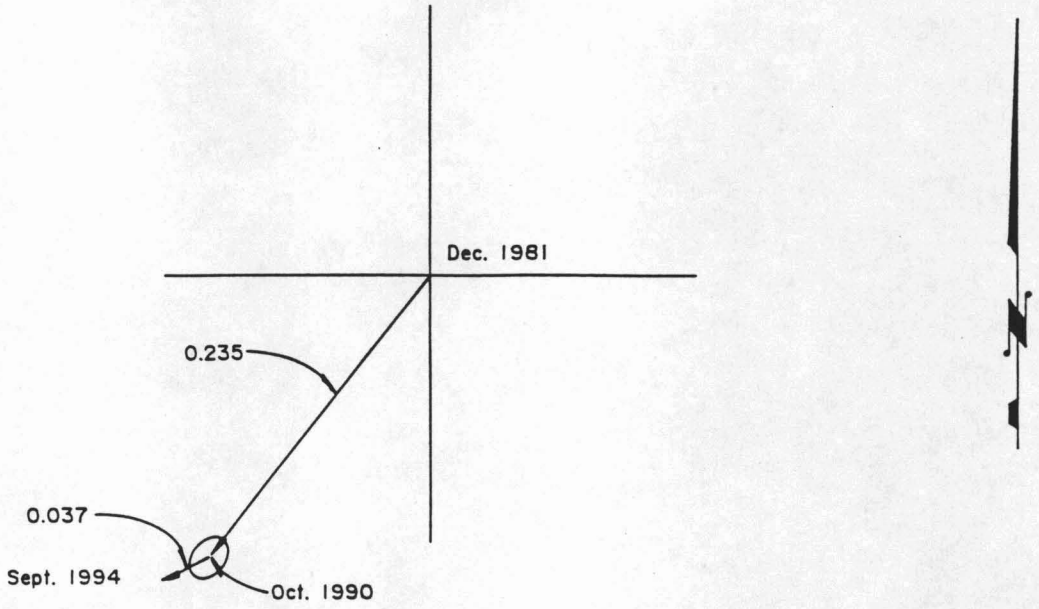
INSTRUMENT STATION NUMBER	SURVEY STATION NUMBER
1+900 S.P.	158

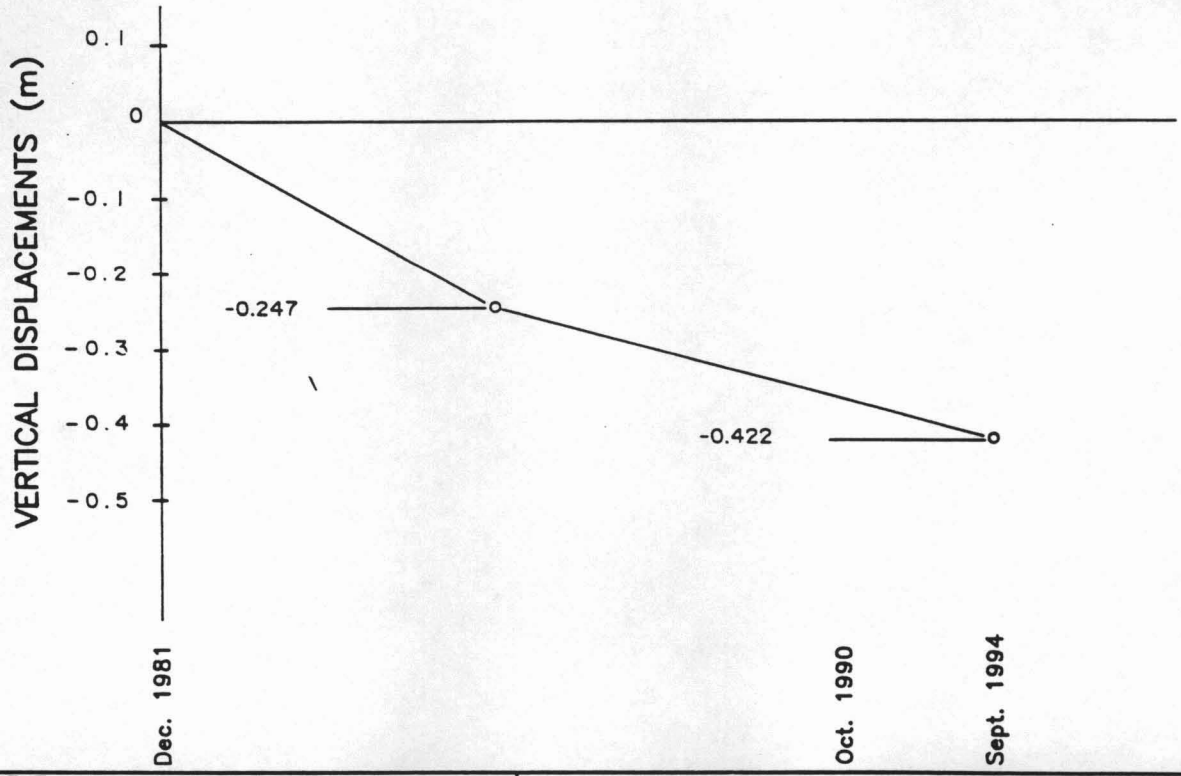




CLIENT: KPMG ENVIRONMENTAL SERVICES INC.	UNDERHILL ENGINEERING LTD.	
PROJECT: DOWN VALLEY TAILINGS CONTAINMENT PROJECT	JOB No.: 94169	SHEET ...6..... of ..33.....
	DATE: SEPTEMBER 1994	DRAWING No.: 134-3C
	SCALE: HOR. 1 : 5 VER. 1 : 20	

DISPLACEMENT VECTORS AND 95% RELATIVE ERROR ELLIPSES	
INSTRUMENT STATION NUMBER 1+900 C.D.	SURVEY STATION NUMBER 159

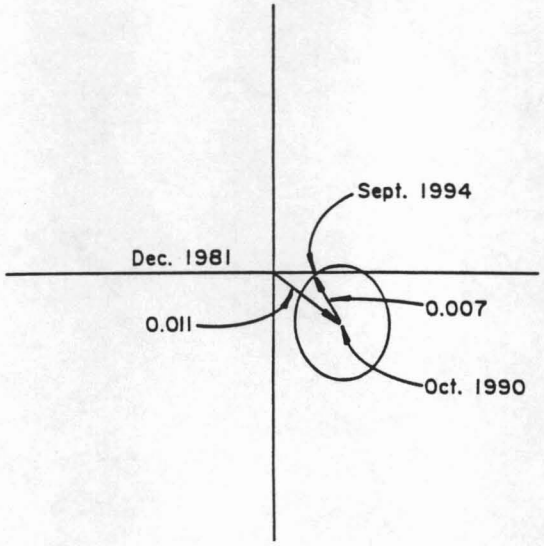




CLIENT: KPMG ENVIRONMENTAL SERVICES INC.	UNDERHILL ENGINEERING LTD.	
PROJECT: DOWN VALLEY TAILINGS CONTAINMENT PROJECT	JOB No.: 94169	SHEET 7 of 33
	DATE: SEPTEMBER 1994	DRAWING No.: 134-3C
	SCALE: HOR. 1 : 5 VER. 1 : 10	

DISPLACEMENT VECTORS AND 95% RELATIVE ERROR ELLIPSES

INSTRUMENT STATION NUMBER	SURVEY STATION NUMBER
	290



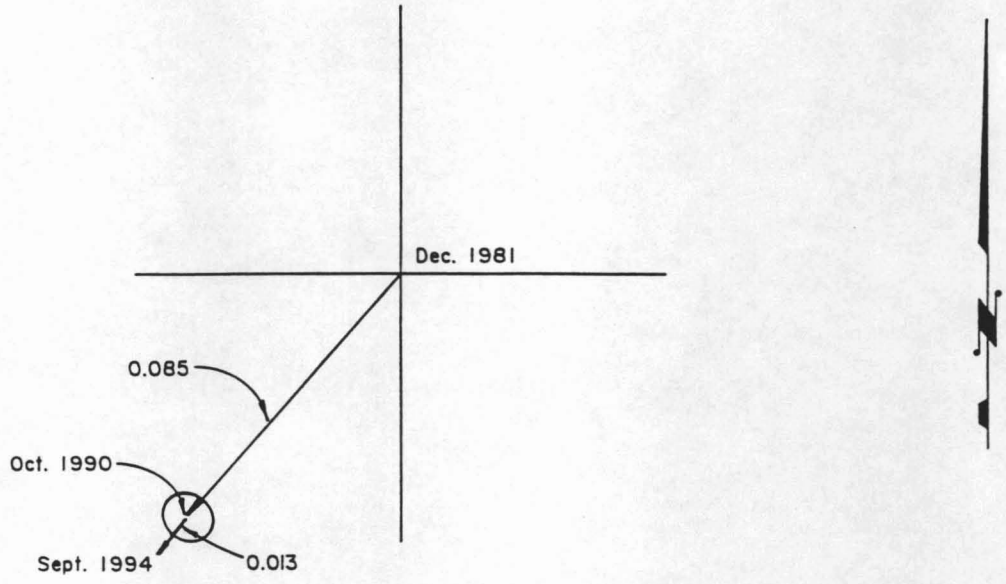


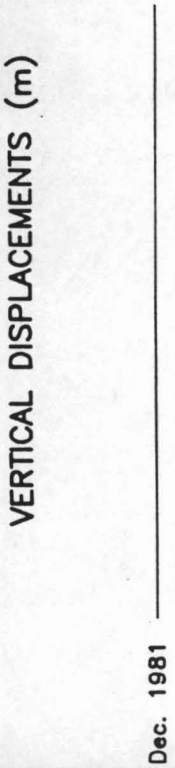
VERTICAL DISPLACEMENTS (m)

Dec. 1981 Oct. 1990 Sept. 1994

CLIENT: KPMG ENVIRONMENTAL SERVICES INC.	UNDERHILL ENGINEERING LTD.	
PROJECT: DOWN VALLEY TAILINGS CONTAINMENT PROJECT	JOB No.: 94169	SHEET ....8..... of ..33.....
	DATE: SEPTEMBER 1994	DRAWING No.: 134-3C
	SCALE: HOR. 1 : 1 VER. 1 :	

DISPLACEMENT VECTORS AND 95% RELATIVE ERROR ELLIPSES	
INSTRUMENT STATION NUMBER	SURVEY STATION NUMBER 291

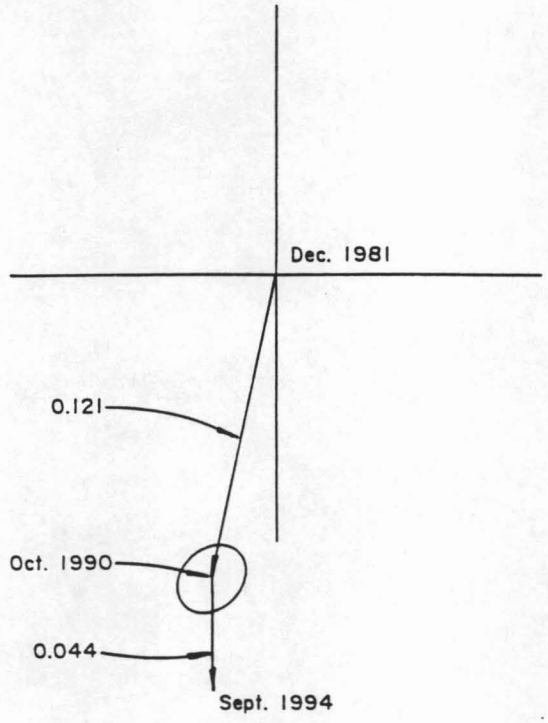


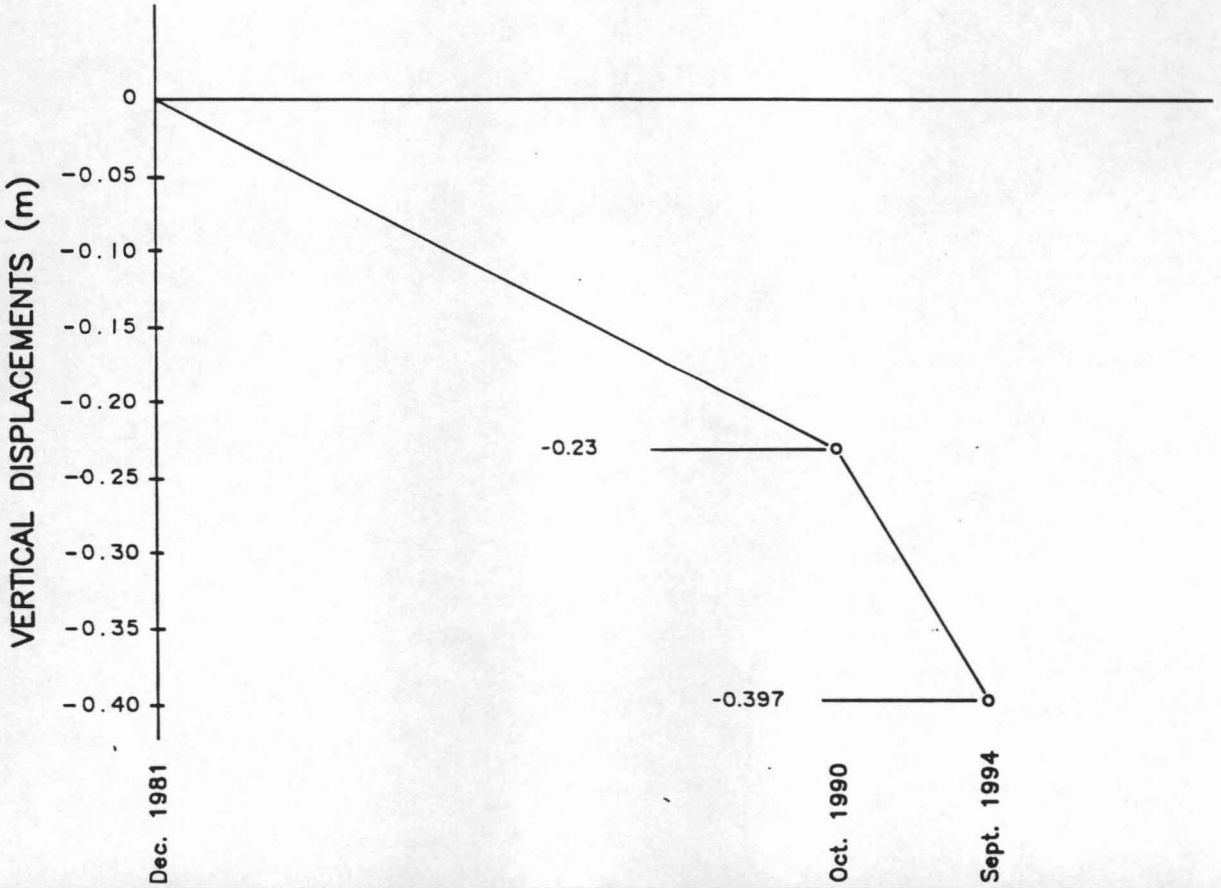


CLIENT: KPMG ENVIRONMENTAL SERVICES INC.	UNDERHILL ENGINEERING LTD.	
PROJECT: DOWN VALLEY TAILINGS CONTAINMENT PROJECT	JOB No.: 94169	SHEET ...9..... of ..33.....
	DATE: SEPTEMBER 1994	DRAWING No.: 134–3C
	SCALE: HOR. 1 : 2 VER. 1 :	

DISPLACEMENT VECTORS AND 95% RELATIVE ERROR ELLIPSES

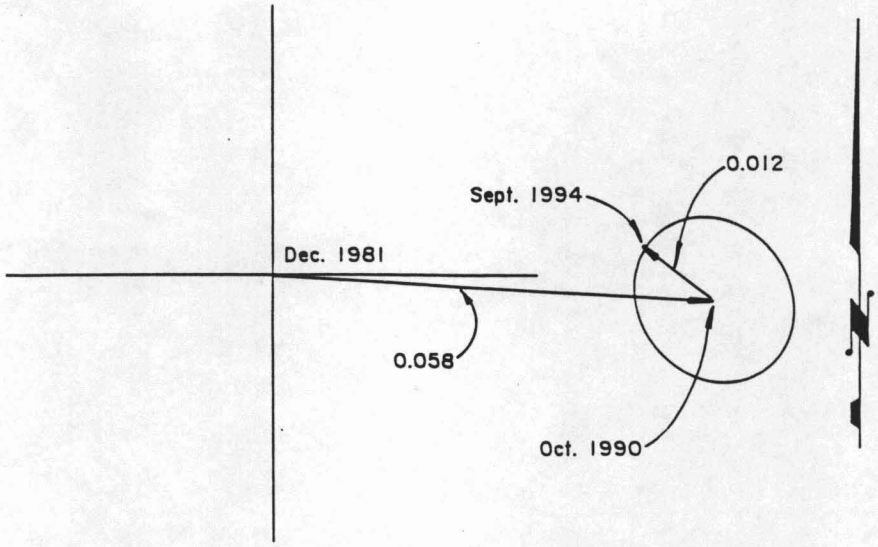
INSTRUMENT STATION NUMBER	SURVEY STATION NUMBER
2+100 C.D.	409

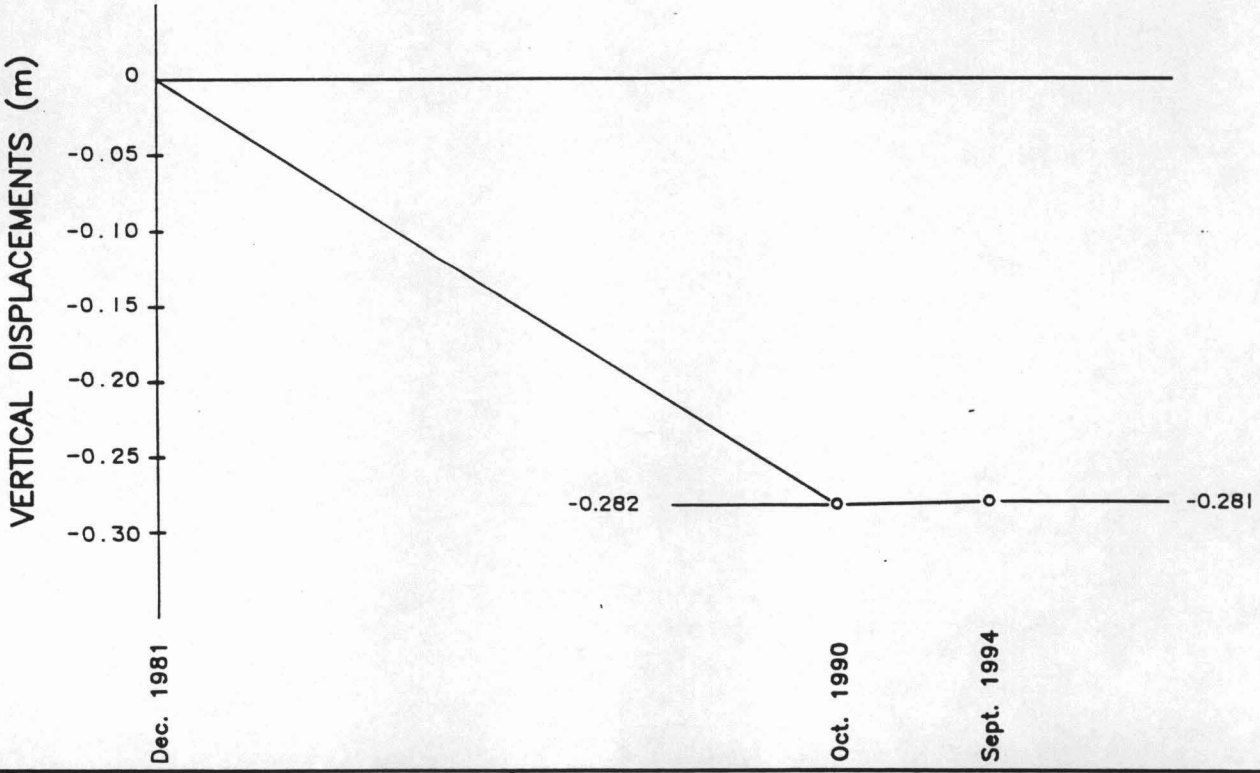




CLIENT: KPMG ENVIRONMENTAL SERVICES INC.	UNDERHILL ENGINEERING LTD.	
PROJECT: DOWN VALLEY TAILINGS CONTAINMENT PROJECT	JOB No.: 94169	SHEET ..10..... of ..33....
	DATE: SEPTEMBER 1994	DRAWING No.: 134-3C
	SCALE: HOR. 1 : 3 VER. 1 : 5	

DISPLACEMENT VECTORS AND 95% RELATIVE ERROR ELLIPSES	
INSTRUMENT STATION NUMBER 2+365 C.D.	SURVEY STATION NUMBER 411

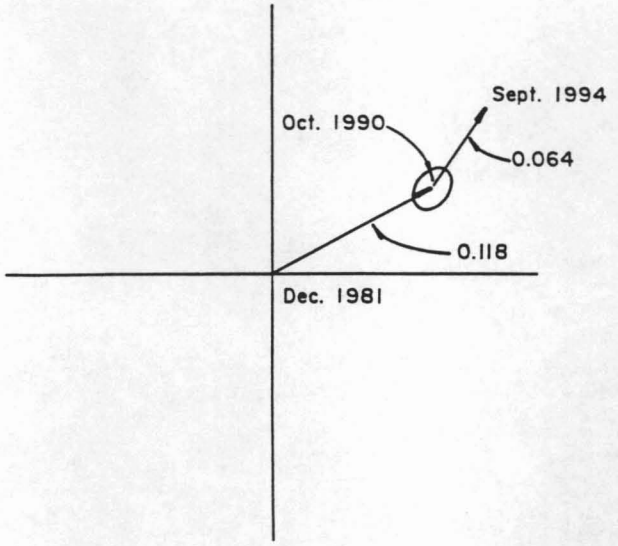


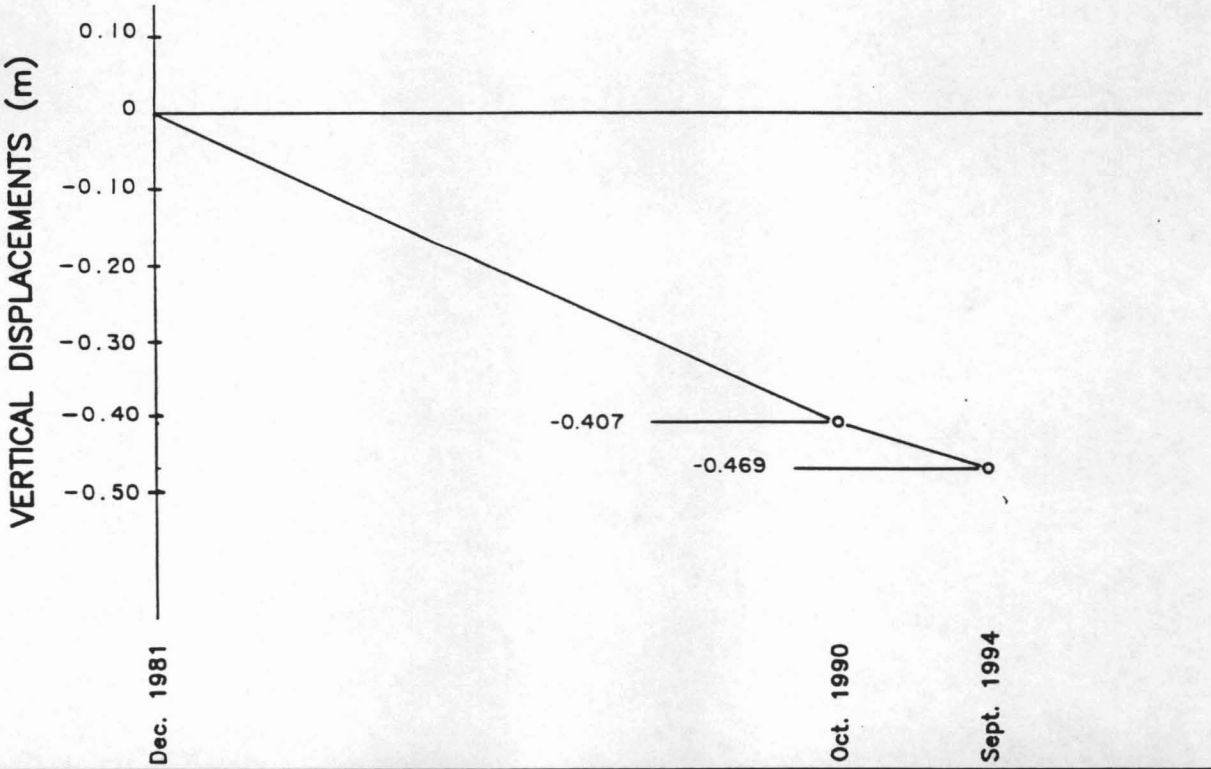


CLIENT: KPMG ENVIRONMENTAL SERVICES INC.	UNDERHILL ENGINEERING LTD.	
PROJECT: DOWN VALLEY TAILINGS CONTAINMENT PROJECT	JOB No.: 94169	SHEET ...12..... of ..33....
	DATE: SEPTEMBER 1994	DRAWING No.: 134-3C
	SCALE: HOR. 1 : 1 VER. 1 : 5	

DISPLACEMENT VECTORS AND 95% RELATIVE ERROR ELLIPSES

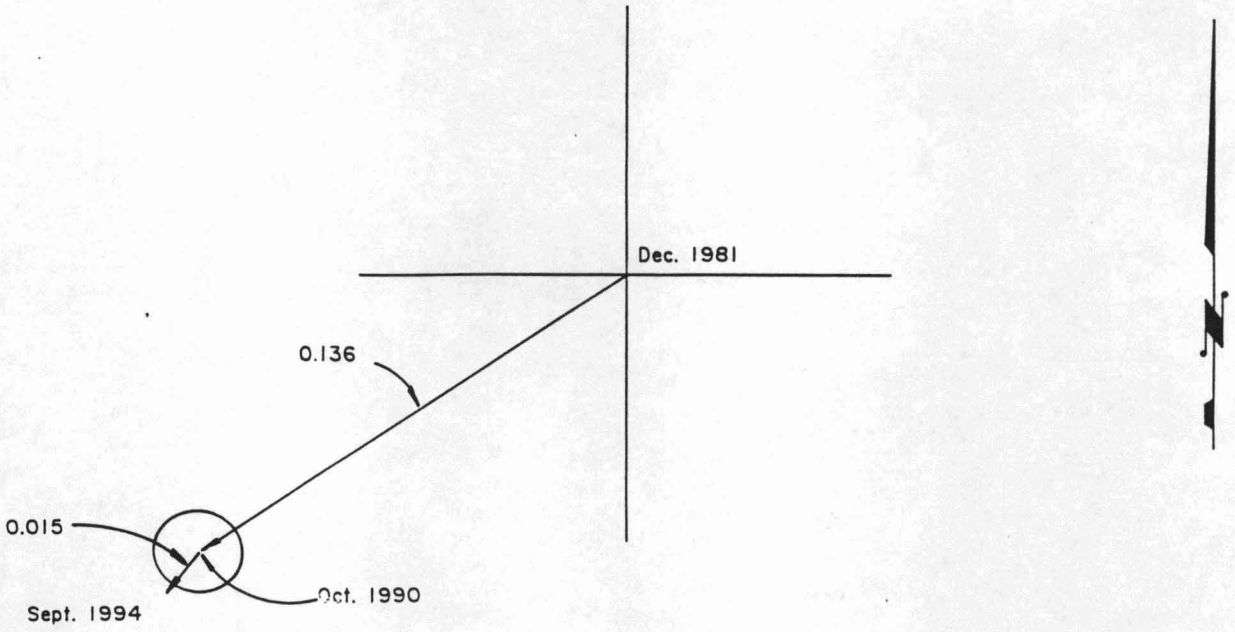
INSTRUMENT STATION NUMBER	SURVEY STATION NUMBER
1+900 B.S.	414

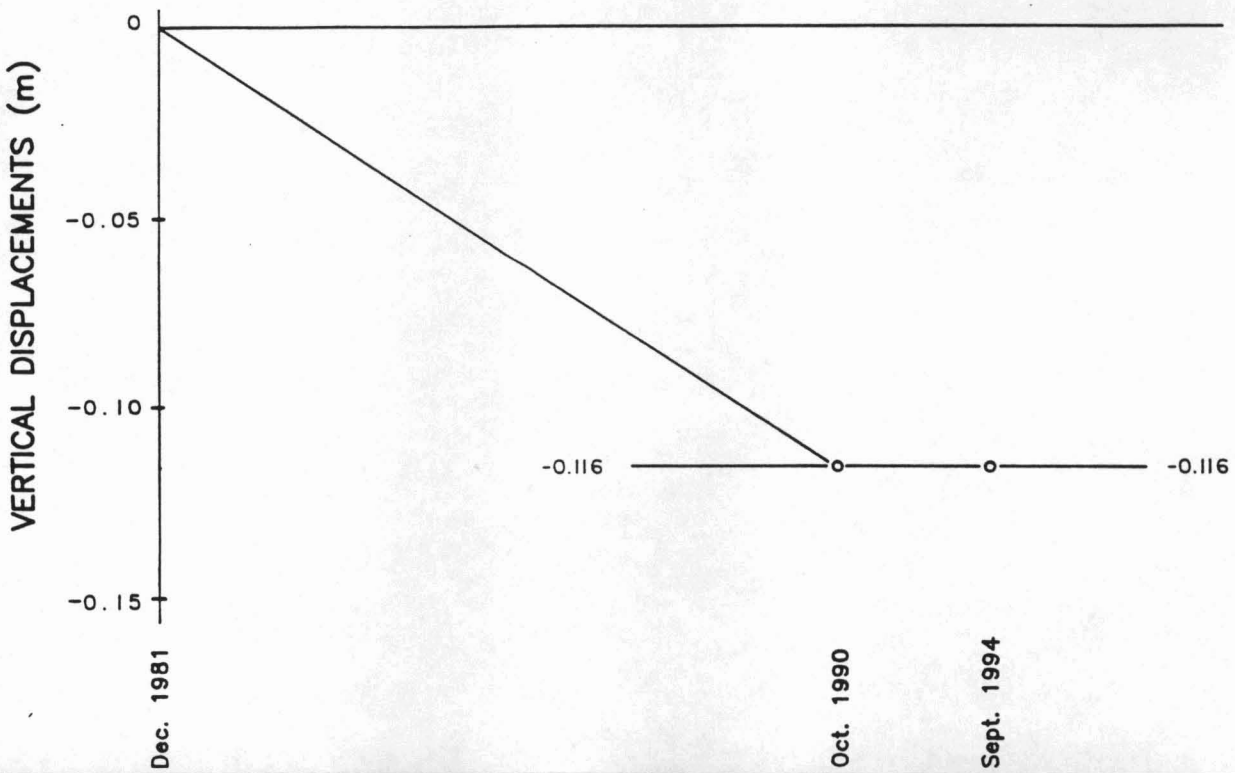




CLIENT: KPMG ENVIRONMENTAL SERVICES INC.	UNDERHILL ENGINEERING LTD.	
PROJECT: DOWN VALLEY TAILINGS CONTAINMENT PROJECT	JOB No.: 94169	SHEET ...13... of ..33....
	DATE: SEPTEMBER 1994	DRAWING No.: 134-3C
	SCALE: HOR. 1 : 5 VER. 1 : 10	

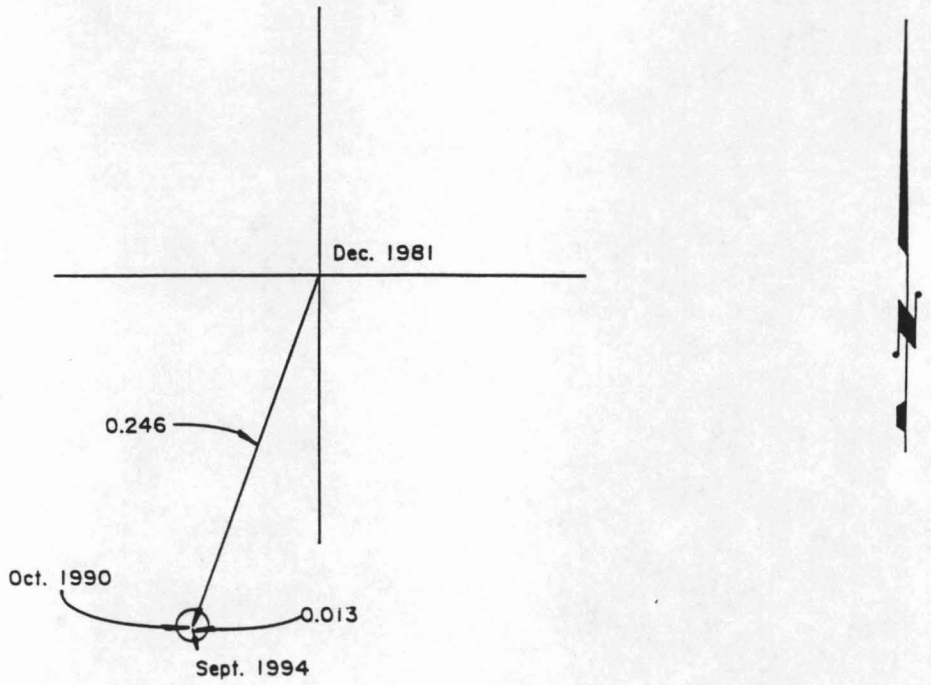
DISPLACEMENT VECTORS AND 95% RELATIVE ERROR ELLIPSES	
INSTRUMENT STATION NUMBER 0+338 C.V.D.C.	SURVEY STATION NUMBER 415

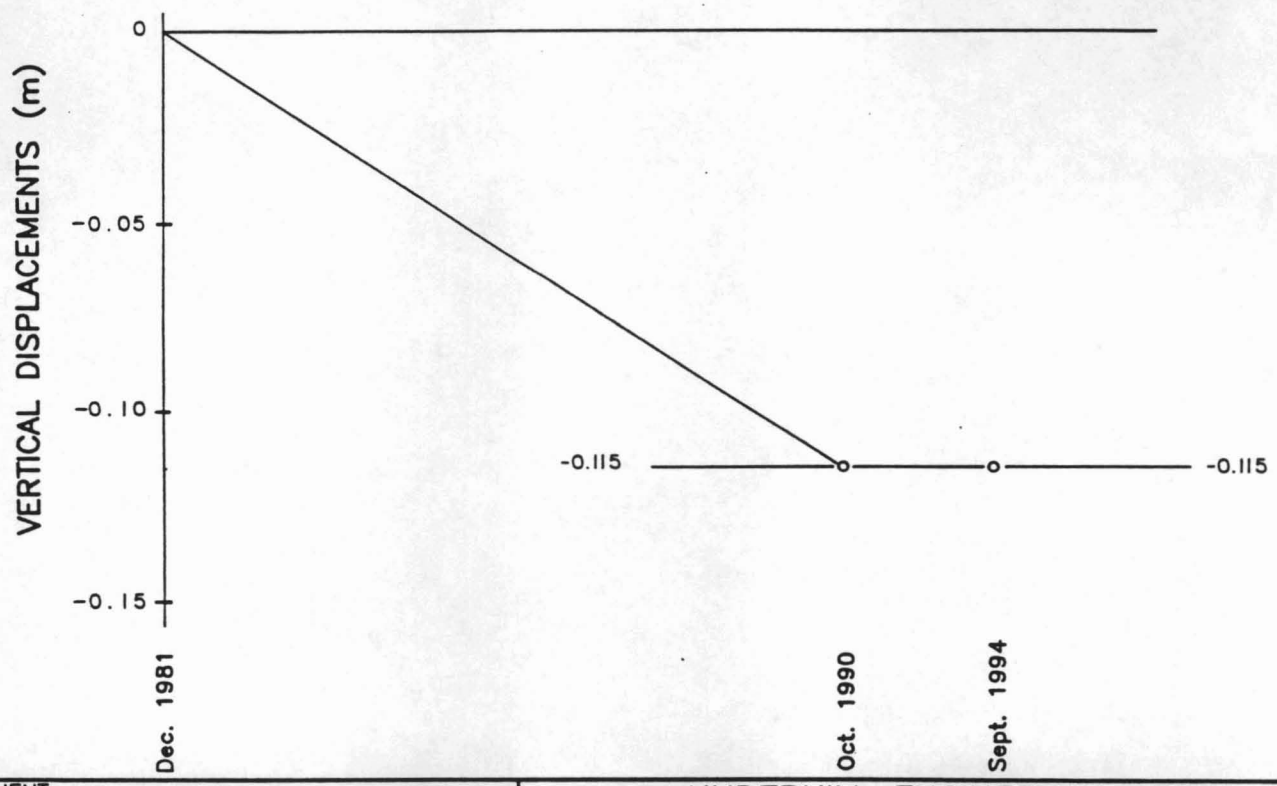




CLIENT: KPMG ENVIRONMENTAL SERVICES INC.	UNDERHILL ENGINEERING LTD.	
PROJECT: DOWN VALLEY TAILINGS CONTAINMENT PROJECT	JOB No.: 94169	SHEET ...14.... of ...33....
	DATE: SEPTEMBER 1994	DRAWING No.: 134-3C
	SCALE: HOR. 1 : 2 VER. 1 : 2	

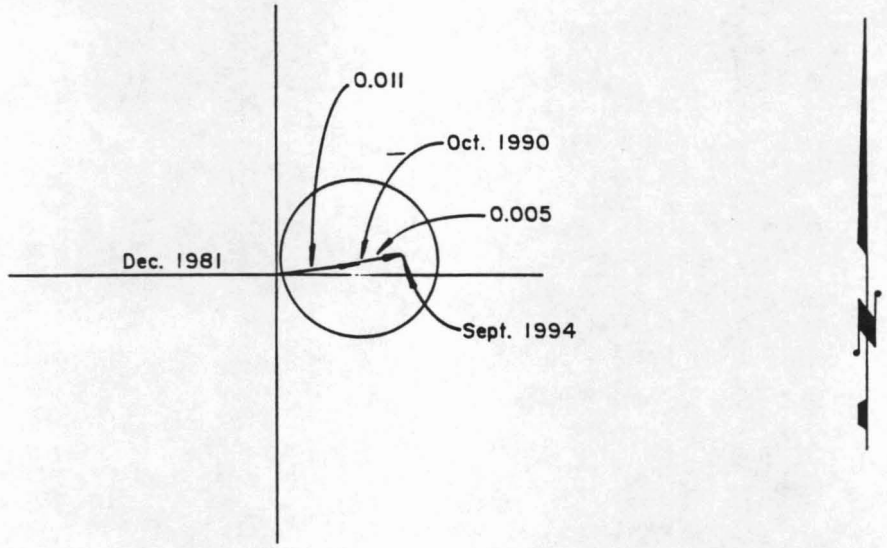
DISPLACEMENT VECTORS AND 95% RELATIVE ERROR ELLIPSES	
INSTRUMENT STATION NUMBER 0+460 C.V.D.C.	SURVEY STATION NUMBER 416

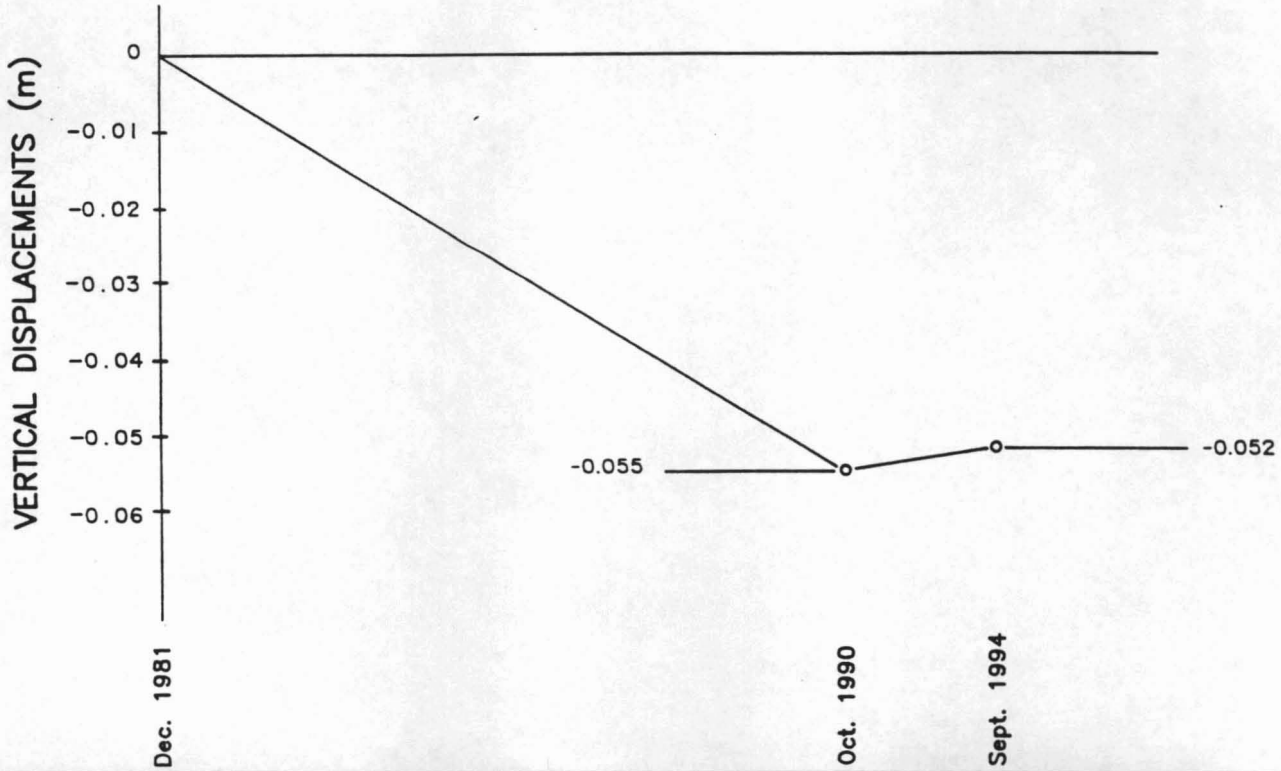




CLIENT: KPMG ENVIRONMENTAL SERVICES INC.	UNDERHILL ENGINEERING LTD.	
PROJECT: DOWN VALLEY TAILINGS CONTAINMENT PROJECT	JOB No.: 94169	SHEET ...15.... of ..33....
	DATE: SEPTEMBER 1994	DRAWING No.: 134-3C
	SCALE: HOR. 1 : 5 VER. 1 : 2	

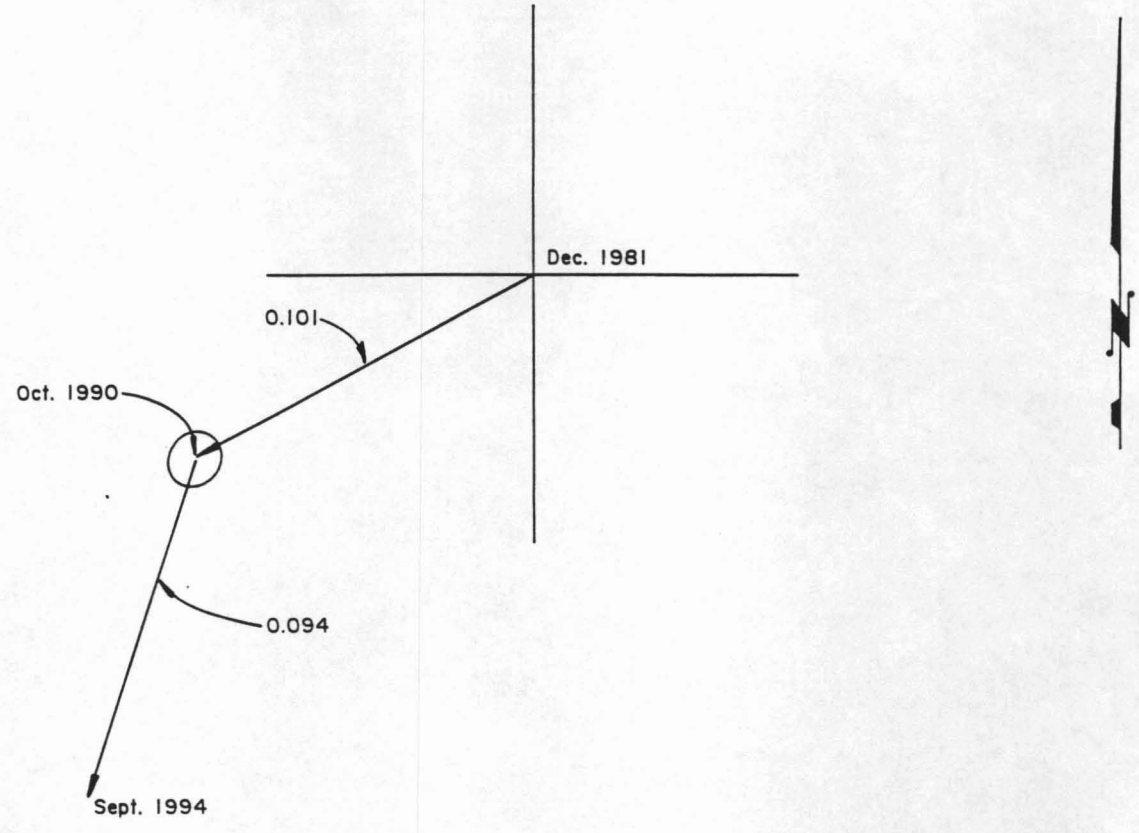
DISPLACEMENT VECTORS AND 95% RELATIVE ERROR ELLIPSES	
INSTRUMENT STATION NUMBER 0568 C.V.D.C.	SURVEY STATION NUMBER 417

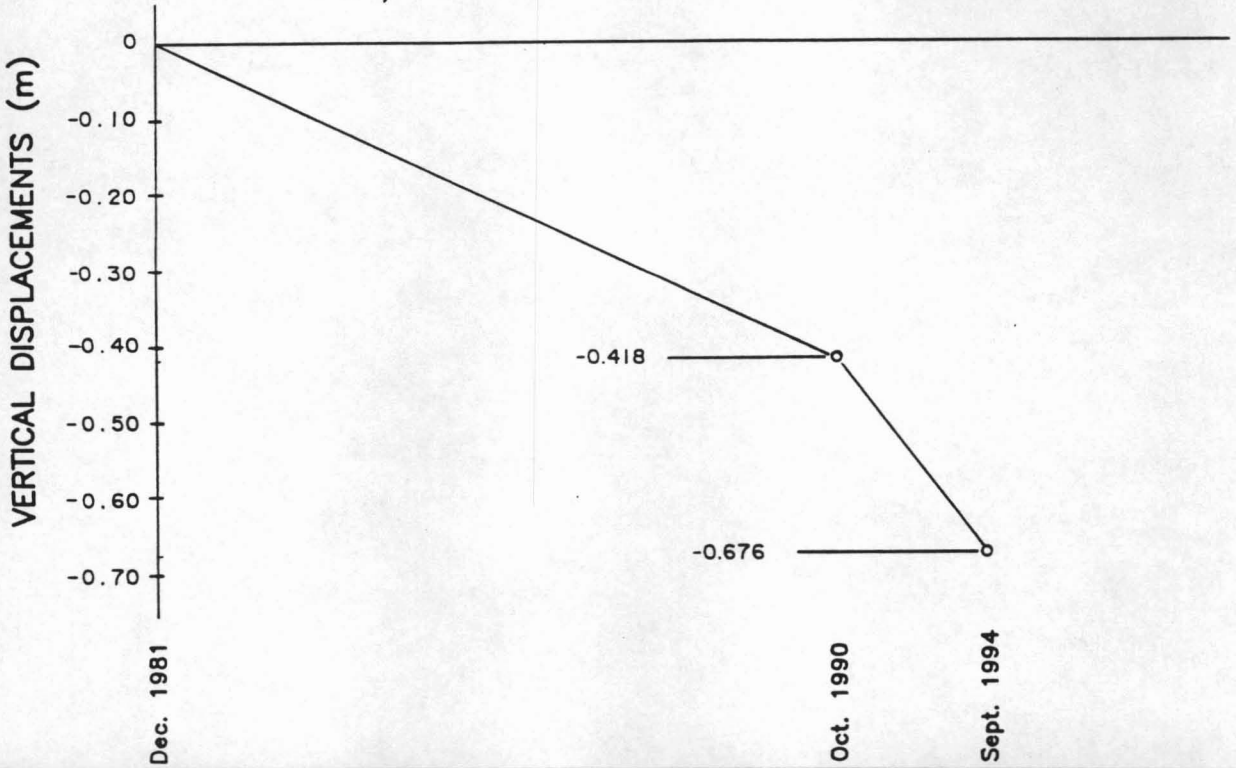




CLIENT: KPMG ENVIRONMENTAL SERVICES INC.	UNDERHILL ENGINEERING LTD.	
PROJECT: DOWN VALLEY TAILINGS CONTAINMENT PROJECT	JOB No.: 94169	SHEET ..16..... of ..33....
	DATE: SEPTEMBER 1994	DRAWING No.: 134-3C
	SCALE: HOR. 1 : 1 VER. 1 : 1	

DISPLACEMENT VECTORS AND 95% RELATIVE ERROR ELLIPSES	
INSTRUMENT STATION NUMBER 2+950 S.P.	SURVEY STATION NUMBER 418

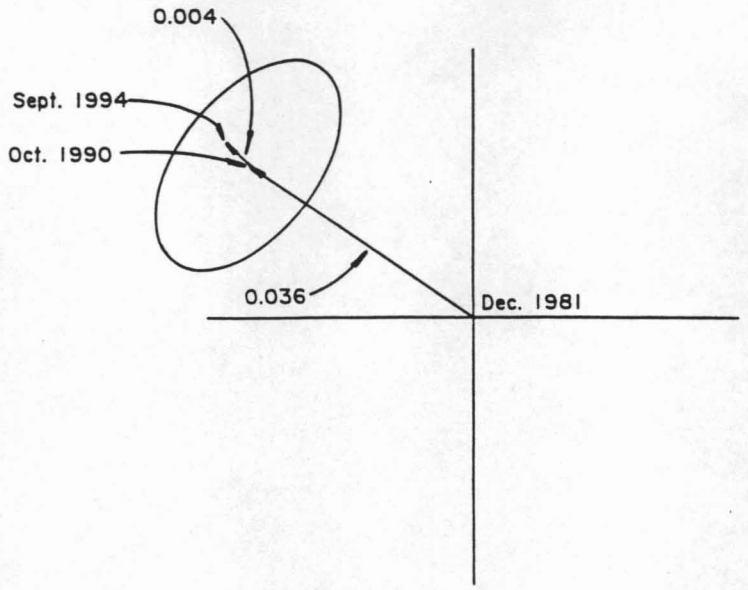


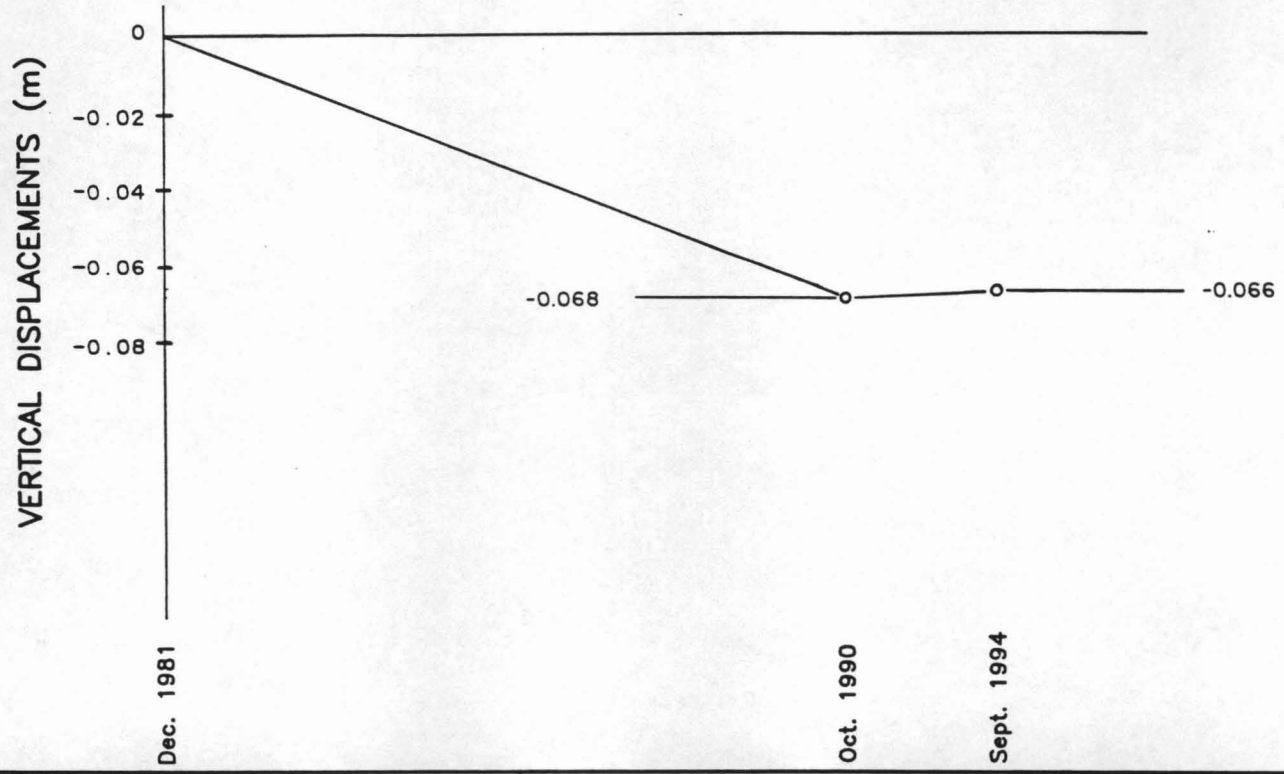


CLIENT: KPMG ENVIRONMENTAL SERVICES INC.	UNDERHILL ENGINEERING LTD.	
PROJECT: DOWN VALLEY TAILINGS CONTAINMENT PROJECT	JOB No.: 94169	SHEET ..17..... of ..33....
	DATE: SEPTEMBER 1994	DRAWING No.: 134–3C
	SCALE: HOR. 1 : 2 VER. 1 : 10	

DISPLACEMENT VECTORS AND 95% RELATIVE ERROR ELLIPSES

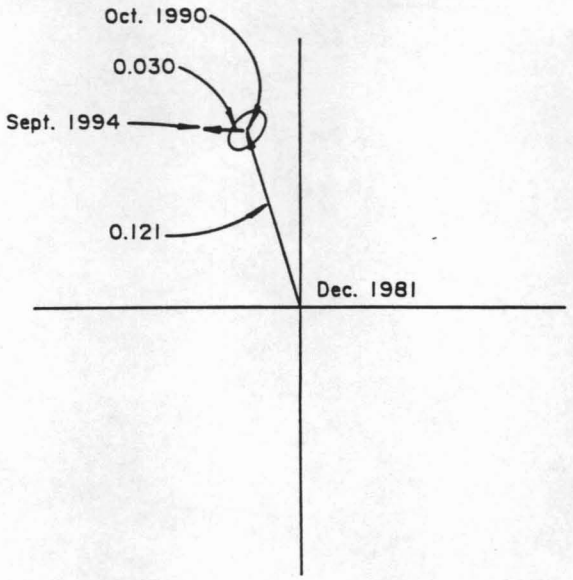
INSTRUMENT STATION NUMBER	SURVEY STATION NUMBER
3+240 B.S.	495



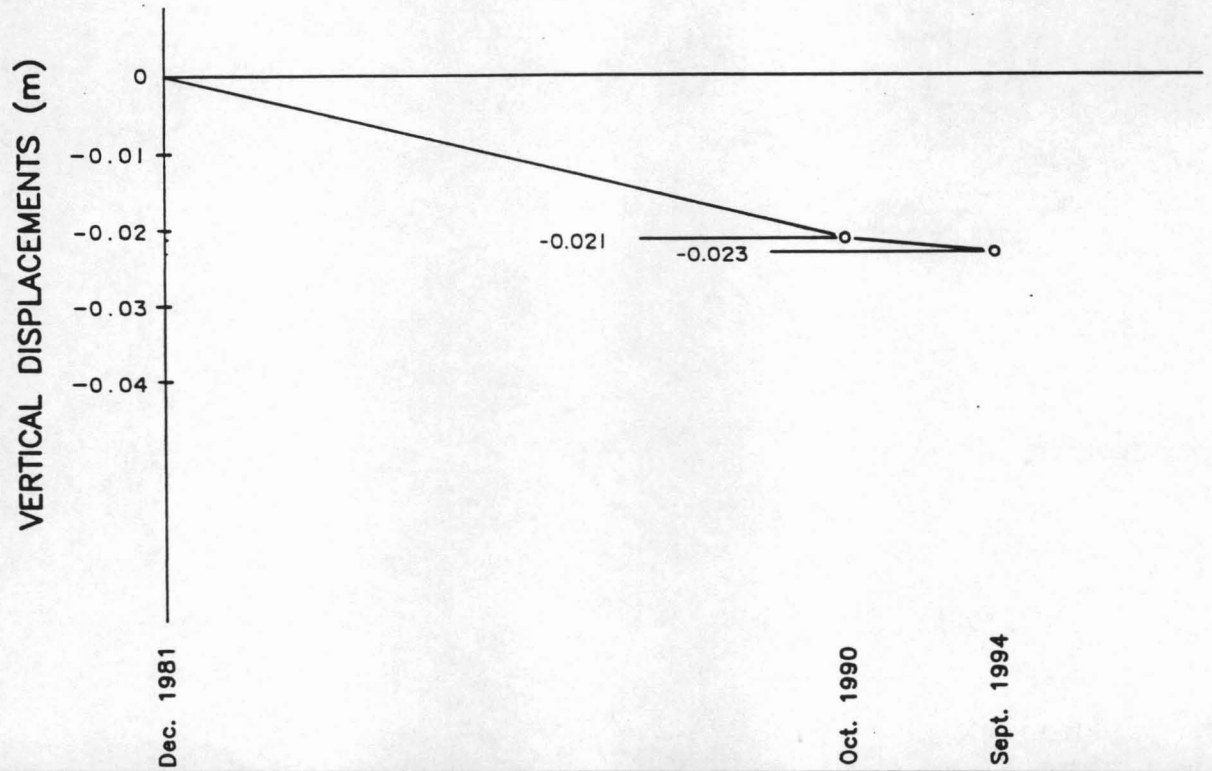


CLIENT: KPMG ENVIRONMENTAL SERVICES INC.	UNDERHILL ENGINEERING LTD.	
PROJECT: DOWN VALLEY TAILINGS CONTAINMENT PROJECT	JOB No.: 94169	SHEET ....19... of ...33....
	DATE: SEPTEMBER 1994	DRAWING No.: 134-3C
	SCALE: HOR. 1 : 1 VER. 1 : 2	

DISPLACEMENT VECTORS AND 95% RELATIVE ERROR ELLIPSES	
INSTRUMENT STATION NUMBER 3+300 C.D.	SURVEY STATION NUMBER 497



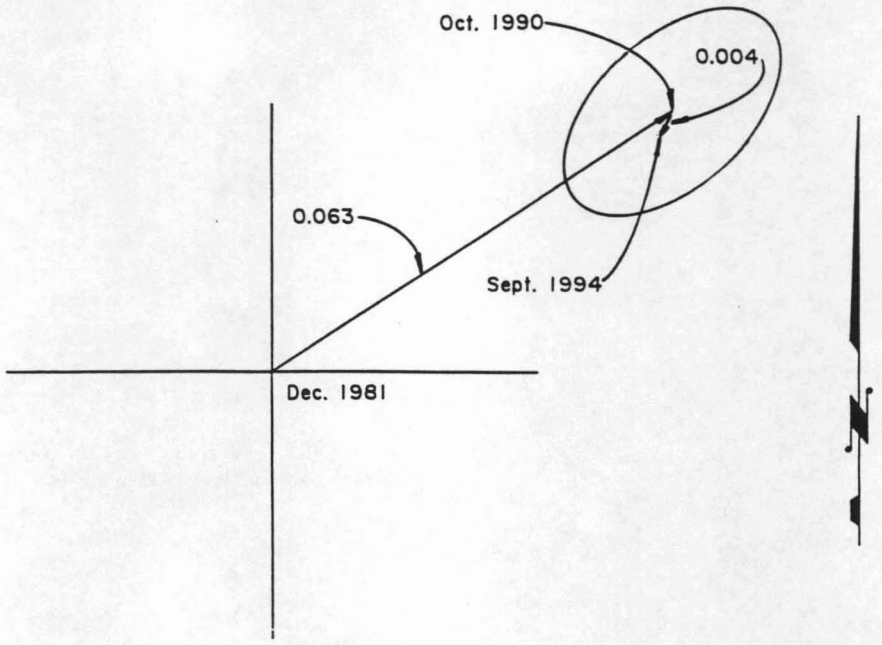


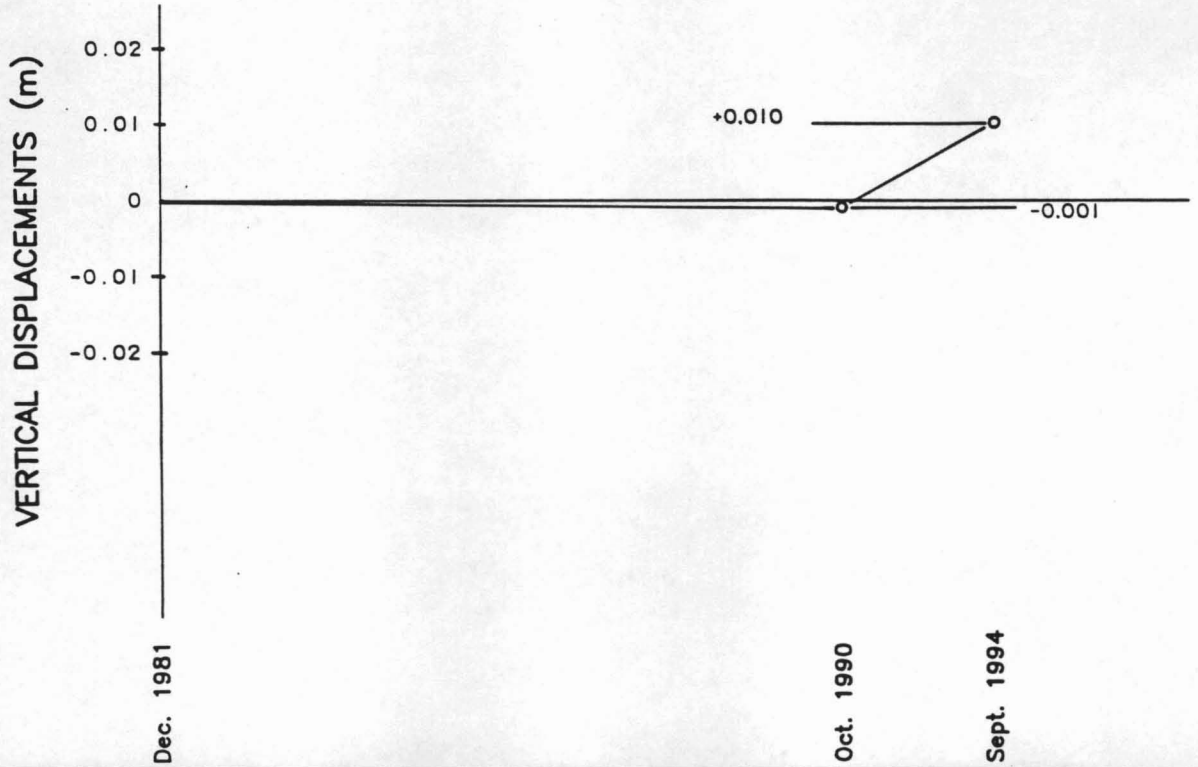


CLIENT: KPMG ENVIRONMENTAL SERVICES INC.	UNDERHILL ENGINEERING LTD.	
PROJECT: DOWN VALLEY TAILINGS CONTAINMENT PROJECT	JOB No.: 94169	SHEET ...21.... of ...33....
	DATE: SEPTEMBER 1994	DRAWING No.: 134-3C
	SCALE: HOR. 1 : 5 VER. 1 : 1	

DISPLACEMENT VECTORS AND 95% RELATIVE ERROR ELLIPSES

INSTRUMENT STATION NUMBER	SURVEY STATION NUMBER
3+550 B.S.	498

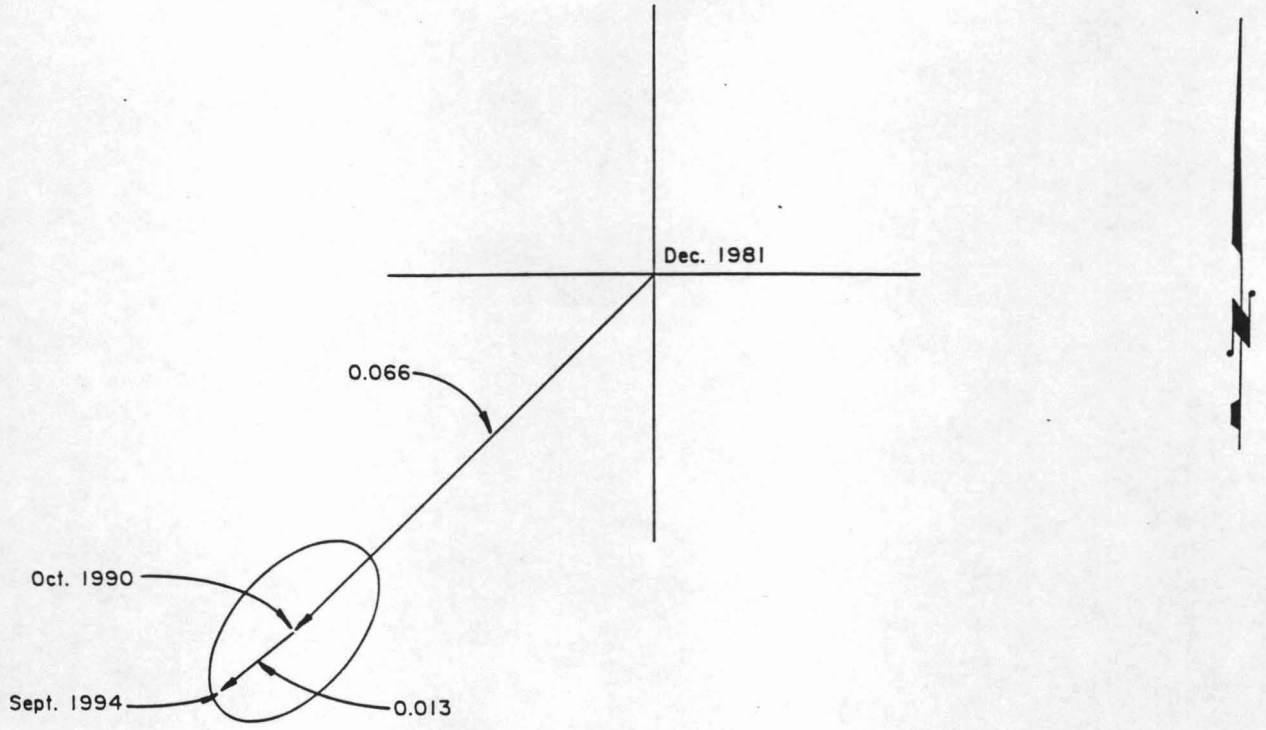


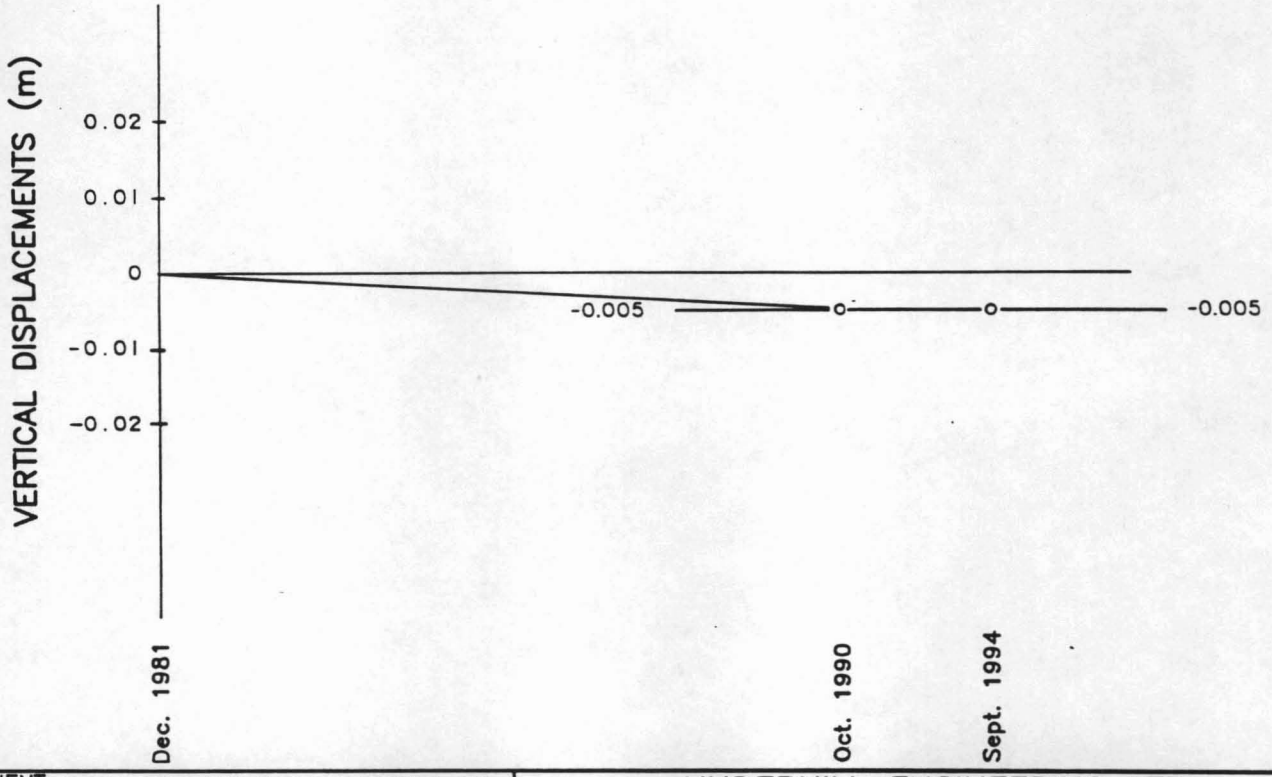


CLIENT: KPMG ENVIRONMENTAL SERVICES INC.	UNDERHILL ENGINEERING LTD.	
PROJECT: DOWN VALLEY TAILINGS CONTAINMENT PROJECT	JOB No.: 94169	SHEET ..22.... of ..33.....
	DATE: SEPTEMBER 1994	DRAWING No.: 134–3C
	SCALE: HOR. 1 : 1 VER. 1 : 1	

DISPLACEMENT VECTORS AND 95% RELATIVE ERROR ELLIPSES

INSTRUMENT STATION NUMBER	SURVEY STATION NUMBER
3+550 C.D.	500

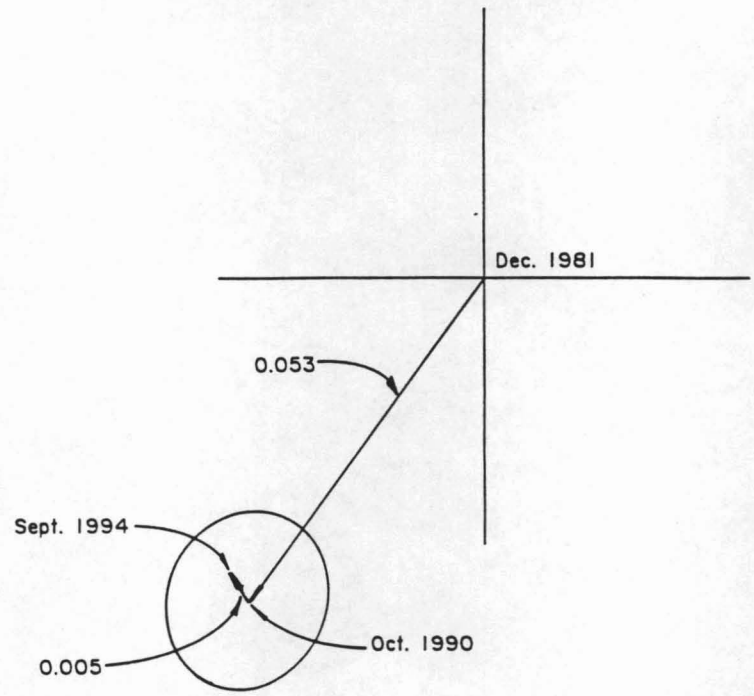


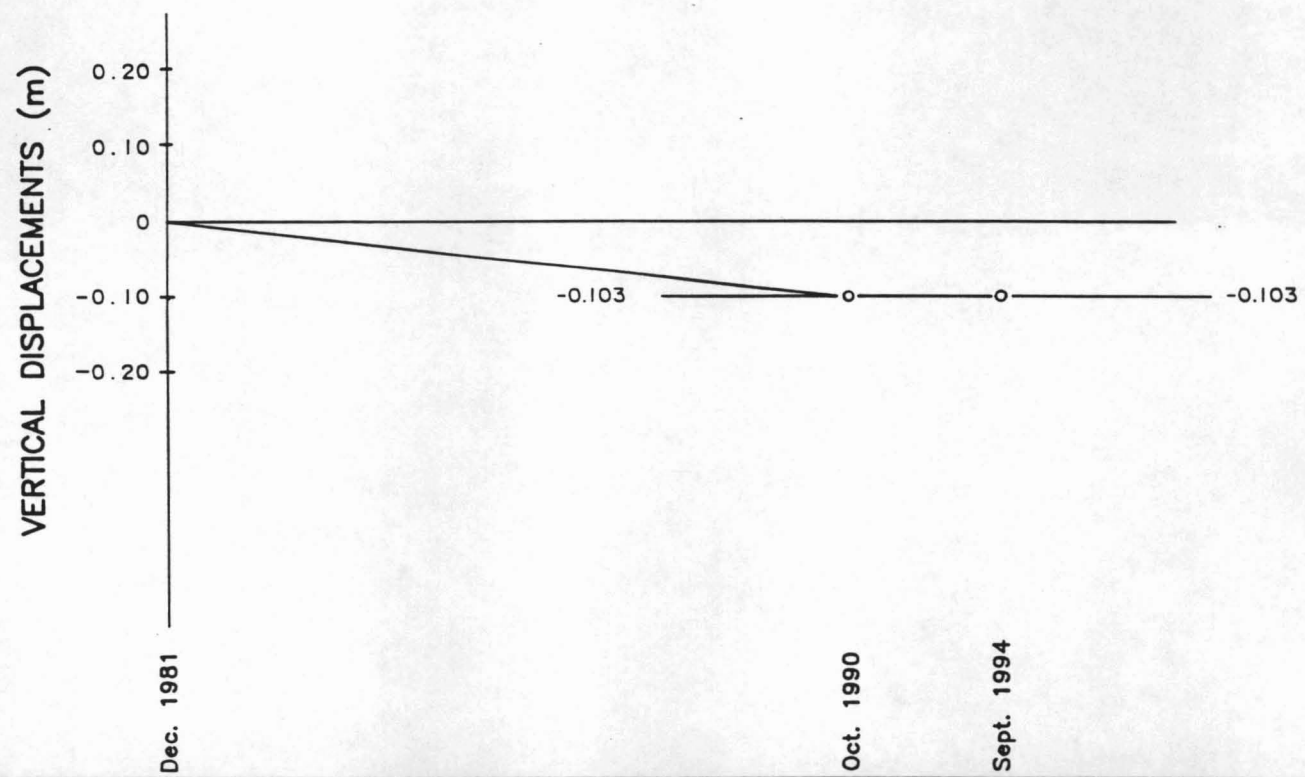


CLIENT: KPMG ENVIRONMENTAL SERVICES INC.	UNDERHILL ENGINEERING LTD.	
PROJECT: DOWN VALLEY TAILINGS CONTAINMENT PROJECT	JOB No.: 94169	SHEET 24 of 33
	DATE: SEPTEMBER 1994	DRAWING No.: 134-3C
	SCALE: HOR. 1 : 1 VER. 1 : 1	

DISPLACEMENT VECTORS AND 95% RELATIVE ERROR ELLIPSES

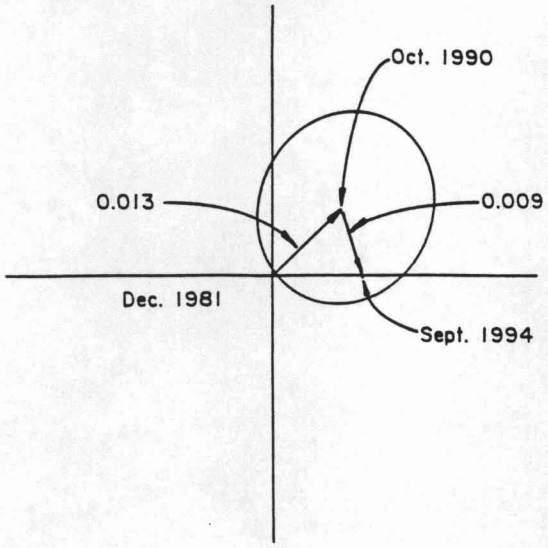
INSTRUMENT STATION NUMBER	SURVEY STATION NUMBER
0+400 C.D.	550

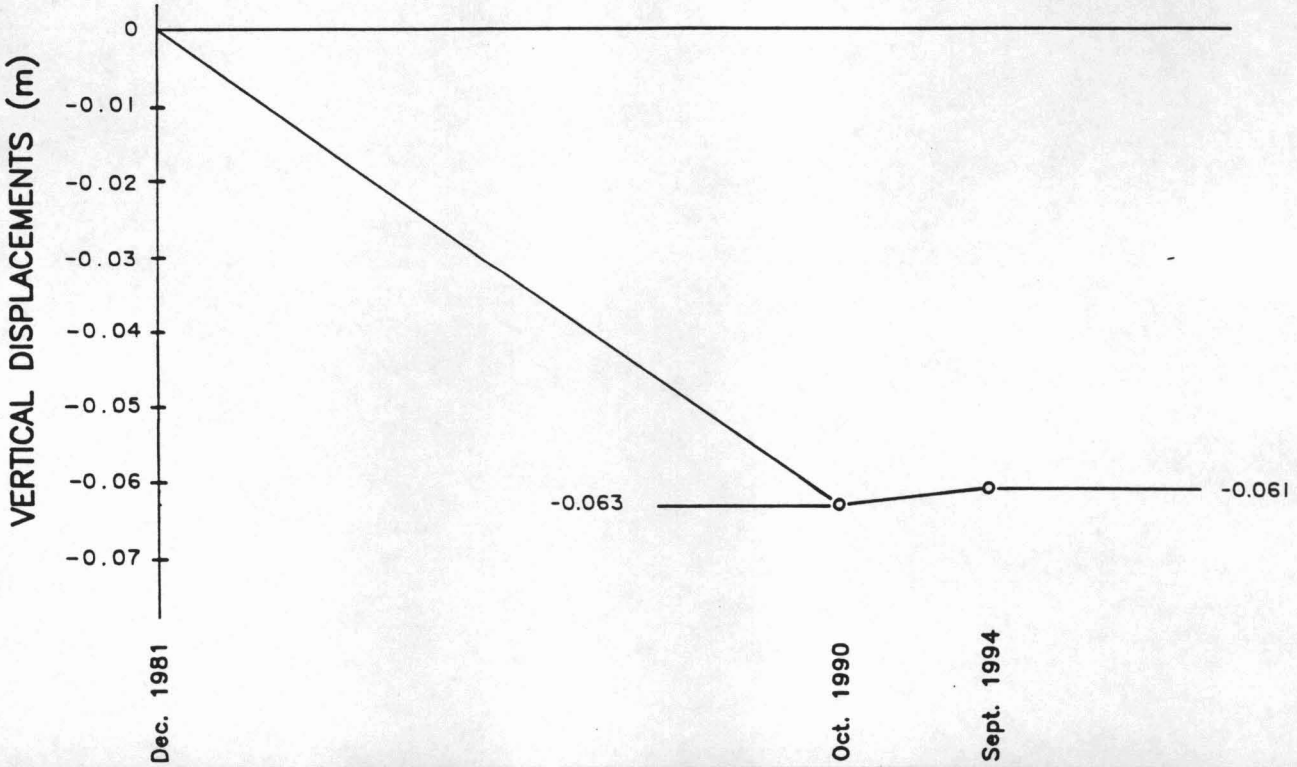




CLIENT: KPMG ENVIRONMENTAL SERVICES INC.	UNDERHILL ENGINEERING LTD.	
PROJECT: DOWN VALLEY TAILINGS CONTAINMENT PROJECT	JOB No.: 94169	SHEET 26 of 33
	DATE: SEPTEMBER 1994	DRAWING No.: 134-3C
	SCALE: HOR. 1 : 1 VER. 1 : 10	

DISPLACEMENT VECTORS AND 95% RELATIVE ERROR ELLIPSES	
INSTRUMENT STATION NUMBER 0+204 C.V.D.C.	SURVEY STATION NUMBER 502

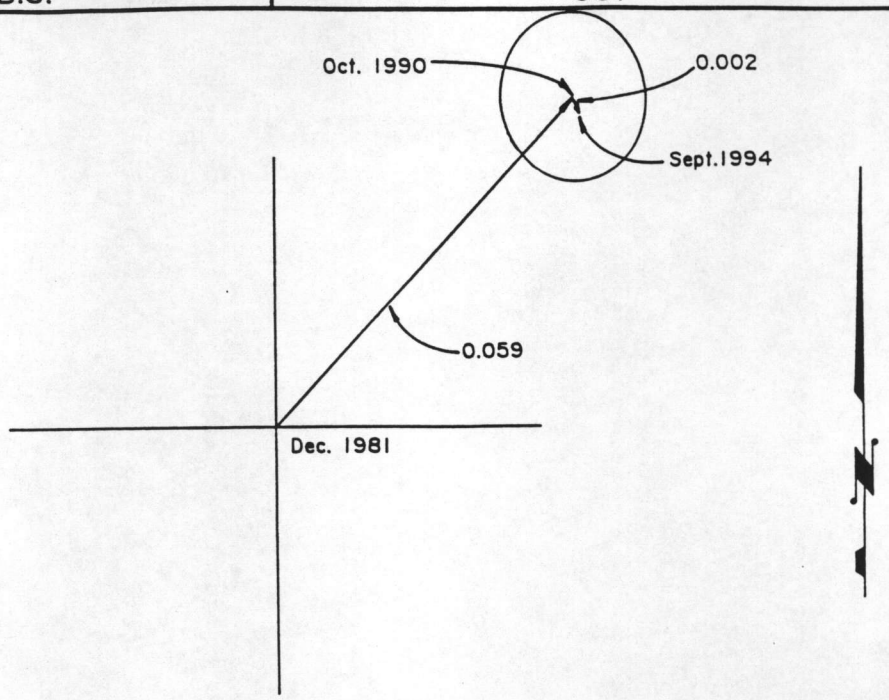


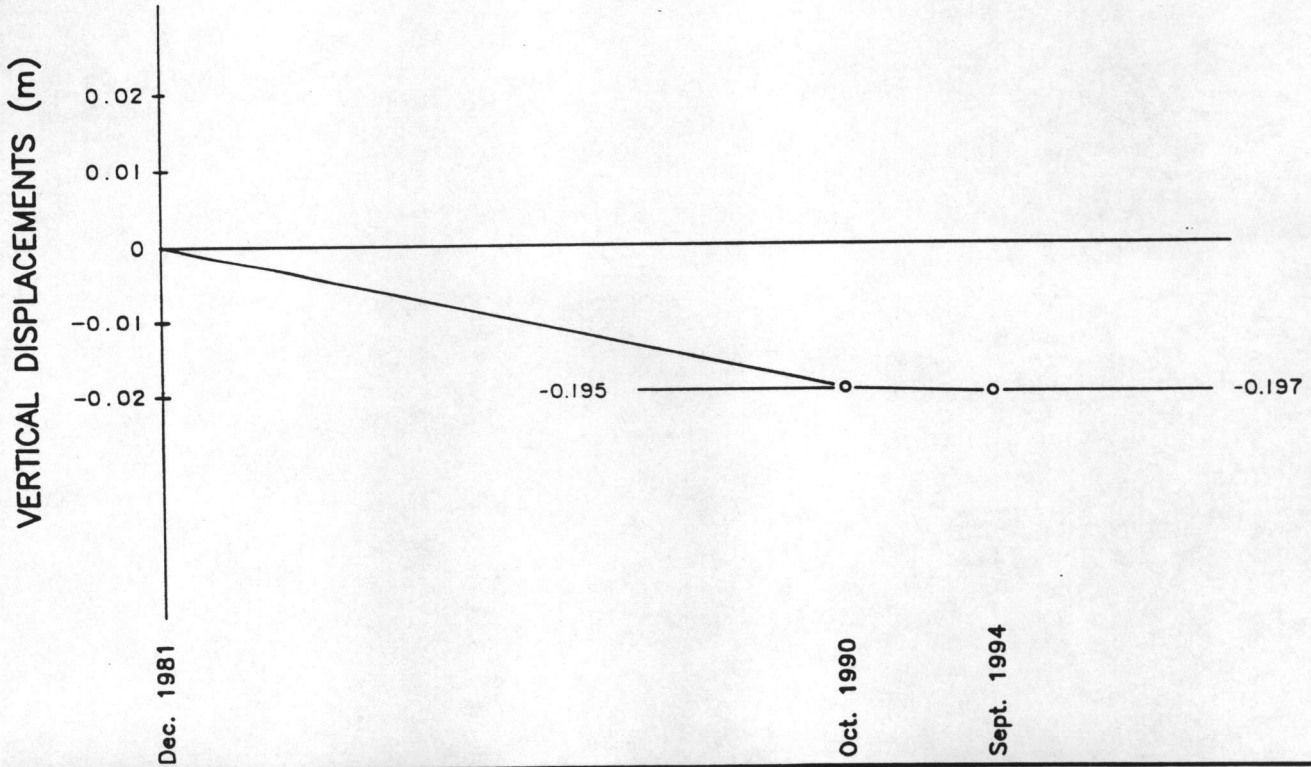


CLIENT: KPMG ENVIRONMENTAL SERVICES INC.	UNDERHILL ENGINEERING LTD.	
PROJECT: DOWN VALLEY TAILINGS CONTAINMENT PROJECT	JOB No.: 94169	SHEET ..25.... of ...33...
	DATE: SEPTEMBER 1994	DRAWING No.: 134–3C
	SCALE: HOR. 1 : 1 VER. 1 : 1	

DISPLACEMENT VECTORS AND 95% RELATIVE ERROR ELLIPSES

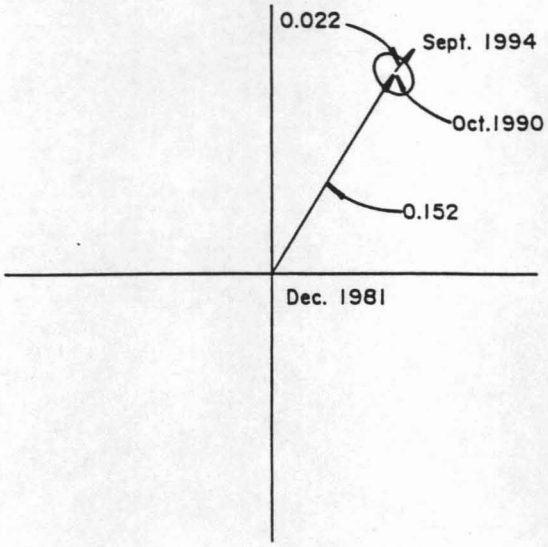
INSTRUMENT STATION NUMBER	SURVEY STATION NUMBER
3+000 B.S.	551



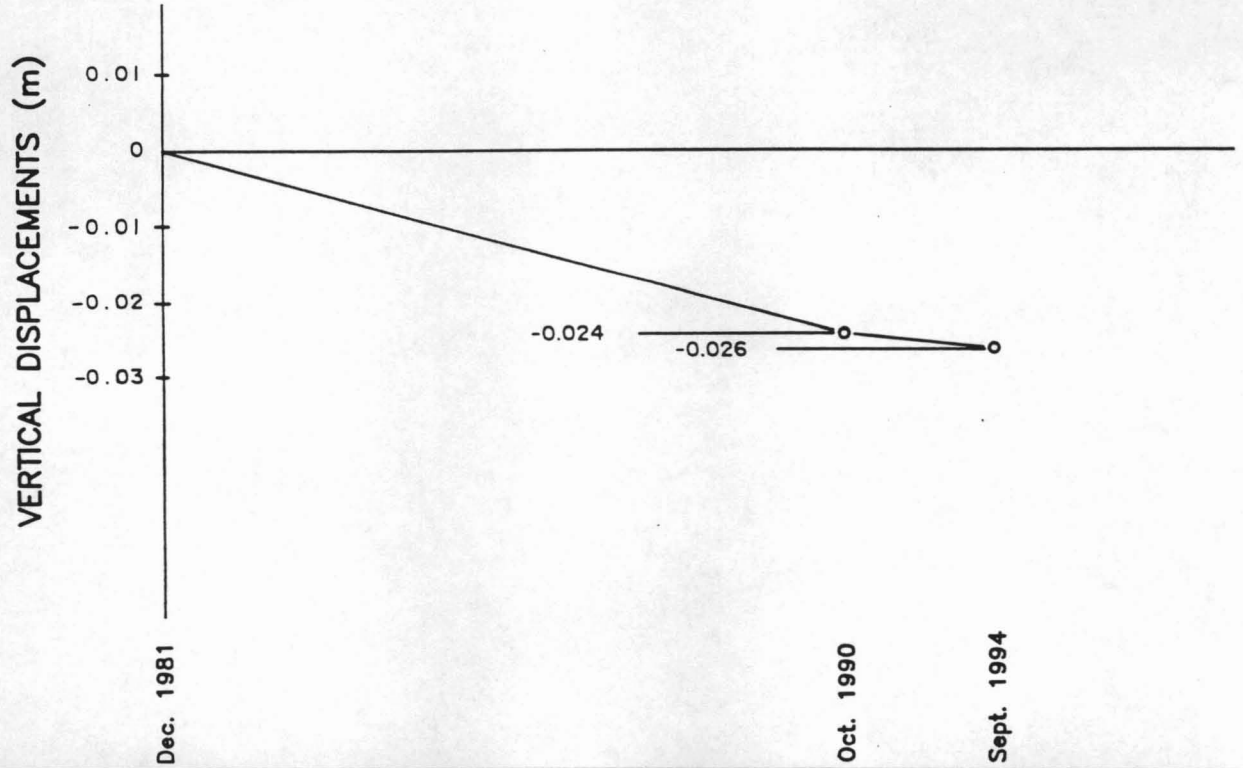


CLIENT: KPMG ENVIRONMENTAL SERVICES INC.	UNDERHILL ENGINEERING LTD.	
PROJECT: DOWN VALLEY TAILINGS CONTAINMENT PROJECT	JOB No.: 94169	SHEET ..27..... of ...33....
	DATE: SEPTEMBER 1994	DRAWING No.: 134-3C
	SCALE: HOR. 1 : 1 VER. 1 : 10	

DISPLACEMENT VECTORS AND 95% RELATIVE ERROR ELLIPSES	
INSTRUMENT STATION NUMBER 2+900 B.S. (Upper)	SURVEY STATION NUMBER 552



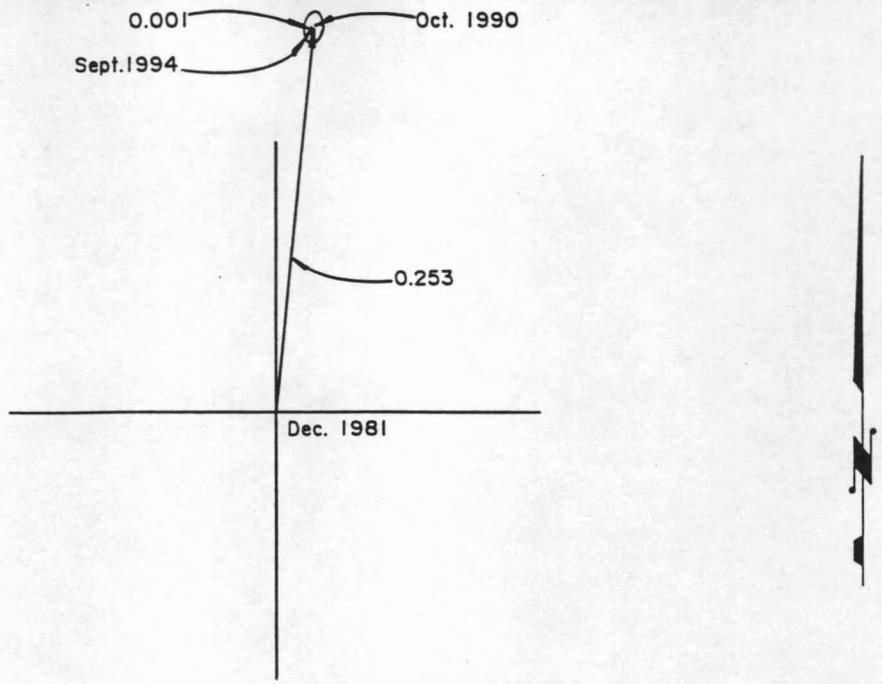


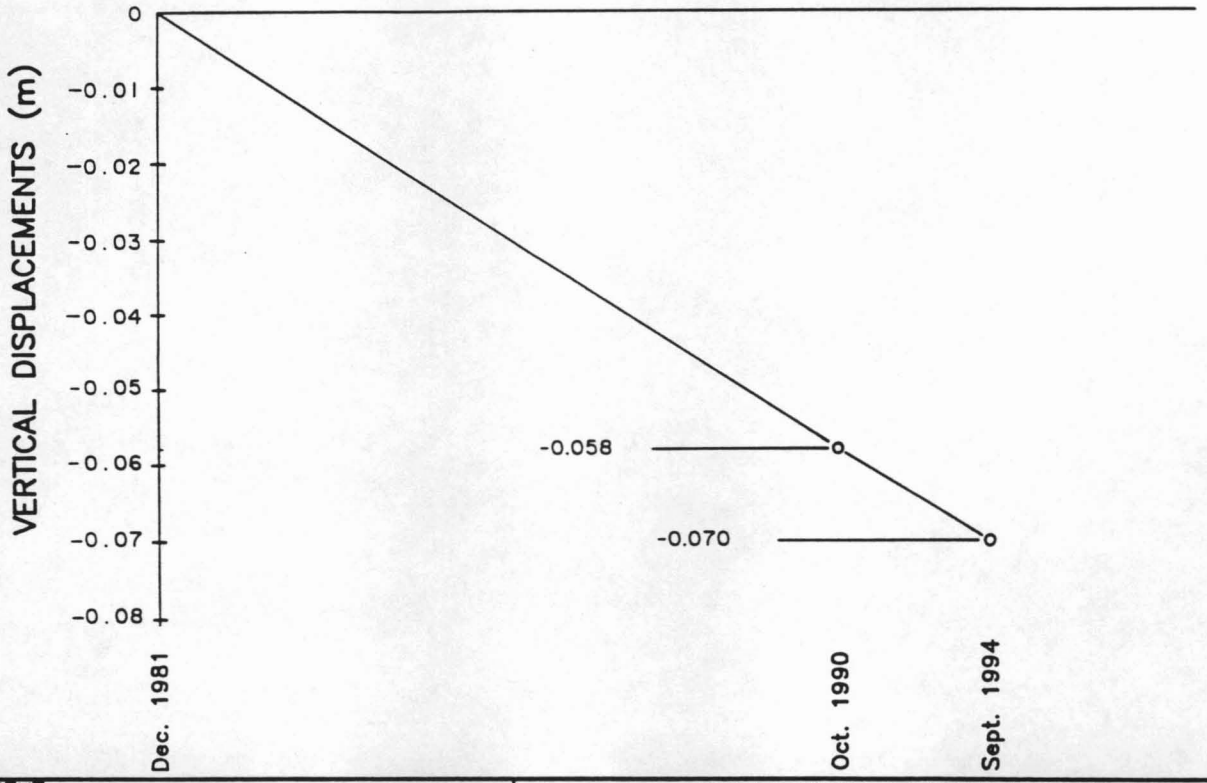


CLIENT: KPMG ENVIRONMENTAL SERVICES INC.	UNDERHILL ENGINEERING LTD.	
PROJECT: DOWN VALLEY TAILINGS CONTAINMENT PROJECT	JOB No.: 94169	SHEET ..28.... of ...33...
	DATE: SEPTEMBER 1994	DRAWING No.: 134–3C
	SCALE: HOR. 1 : 5 VER. 1 : 1	

DISPLACEMENT VECTORS AND 95% RELATIVE ERROR ELLIPSES

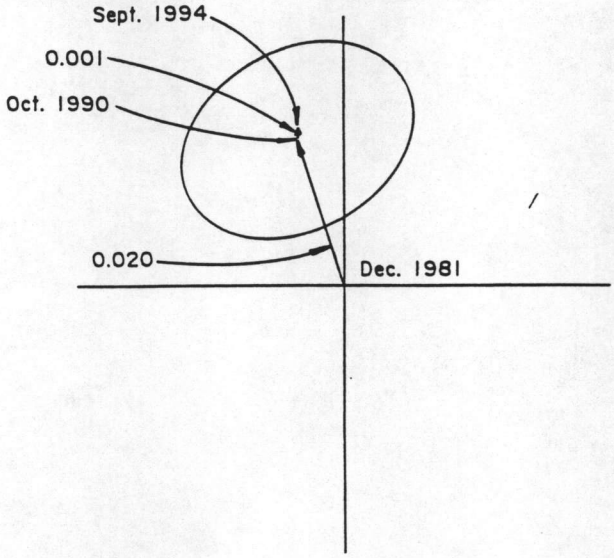
INSTRUMENT STATION NUMBER	SURVEY STATION NUMBER
2+900 B.S.(Upper)	553

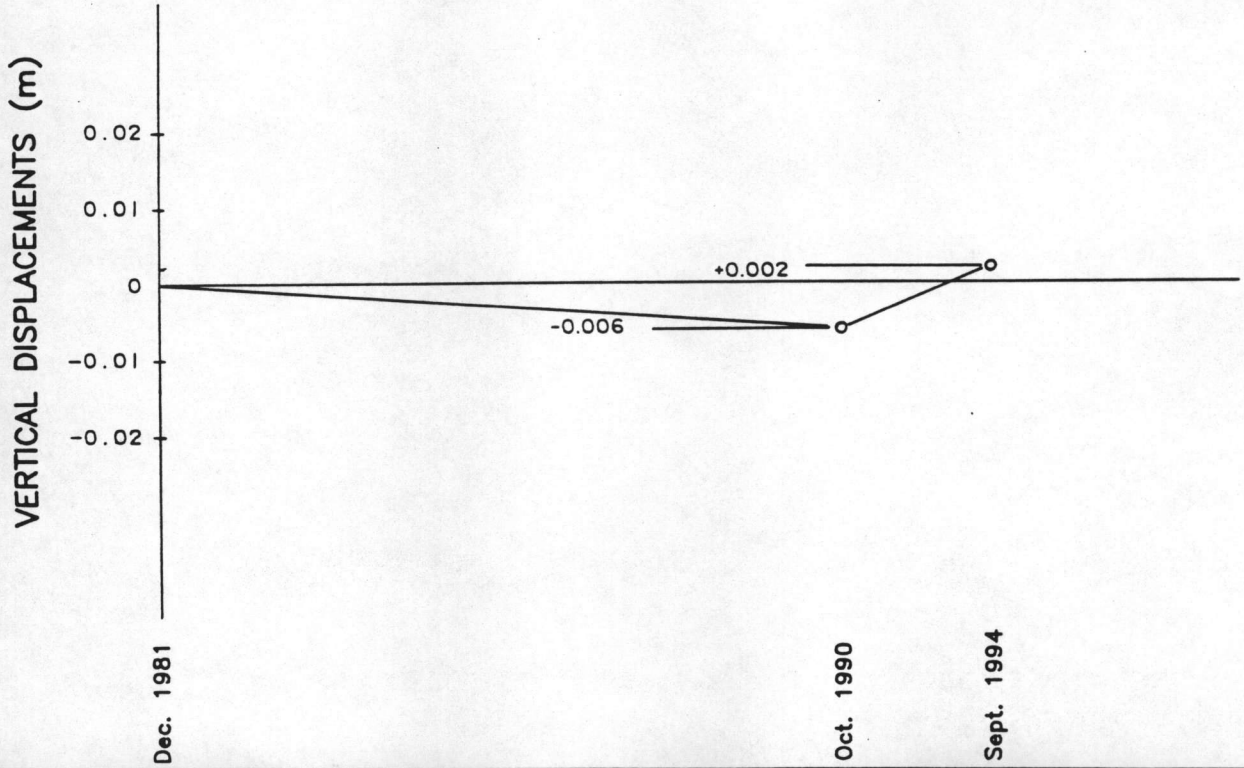




CLIENT: KPMG ENVIRONMENTAL SERVICES INC.	UNDERHILL ENGINEERING LTD.	
PROJECT: DOWN VALLEY TAILINGS CONTAINMENT PROJECT	JOB No.: 94169	SHEET ...29... of ...33...
	DATE: SEPTEMBER 1994	DRAWING No.: 134-3C
	SCALE: HOR. 1 : 5 VER. 1 : 1	

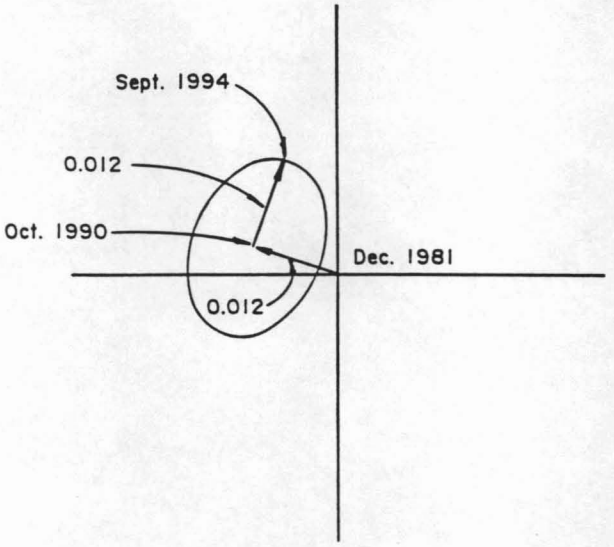
DISPLACEMENT VECTORS AND 95% RELATIVE ERROR ELLIPSES	
INSTRUMENT STATION NUMBER 0+960 B.S.	SURVEY STATION NUMBER 555



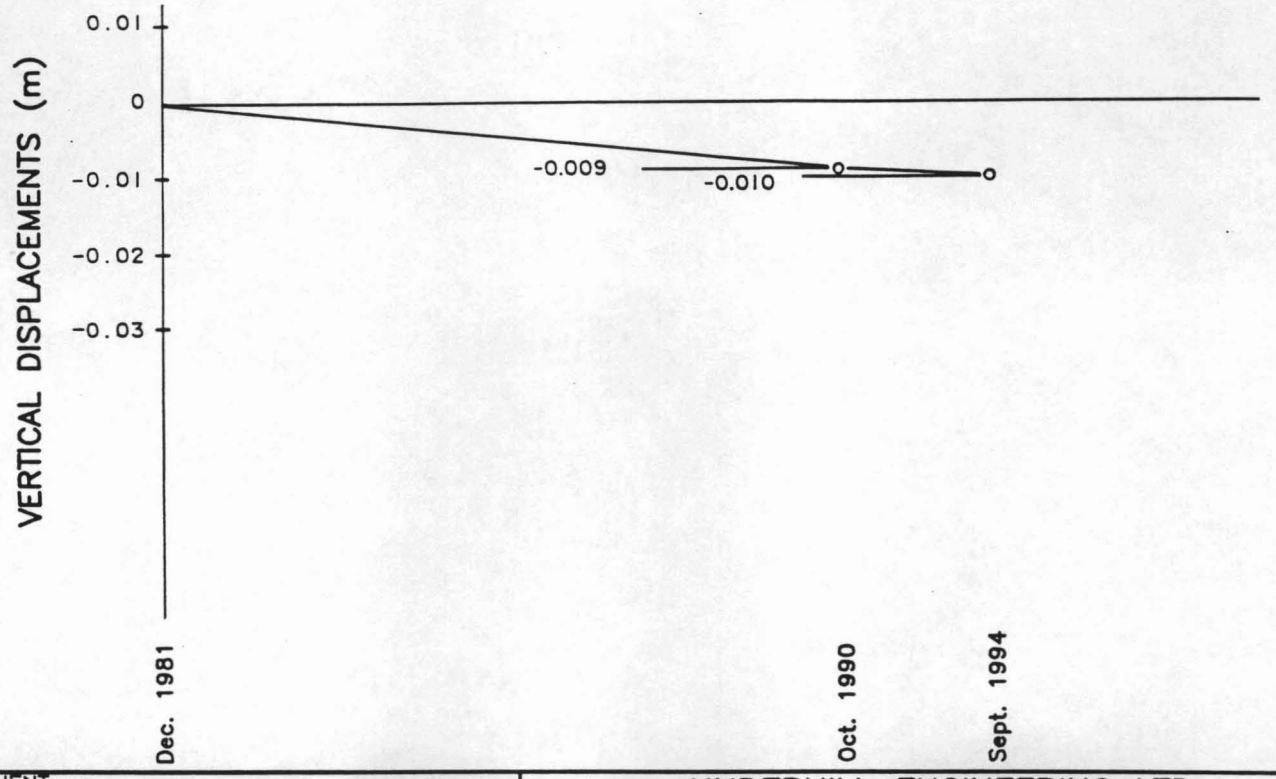


CLIENT: KPMG ENVIRONMENTAL SERVICES INC.	UNDERHILL ENGINEERING LTD.	
PROJECT: DOWN VALLEY TAILINGS CONTAINMENT PROJECT	JOB No.: 94169	SHEET ...30.... of ...33...
	DATE: SEPTEMBER 1994	DRAWING No.: 134-3C
	SCALE: HOR. 1 : 1 VER. 1 : 1	

DISPLACEMENT VECTORS AND 95% RELATIVE ERROR ELLIPSES	
INSTRUMENT STATION NUMBER 0+400 B.S.	SURVEY STATION NUMBER 557

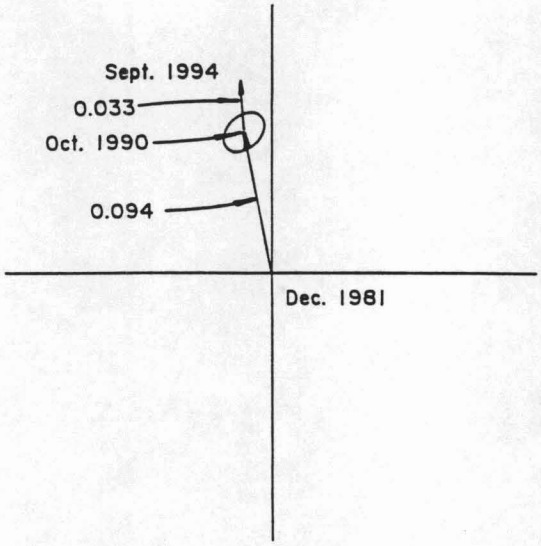




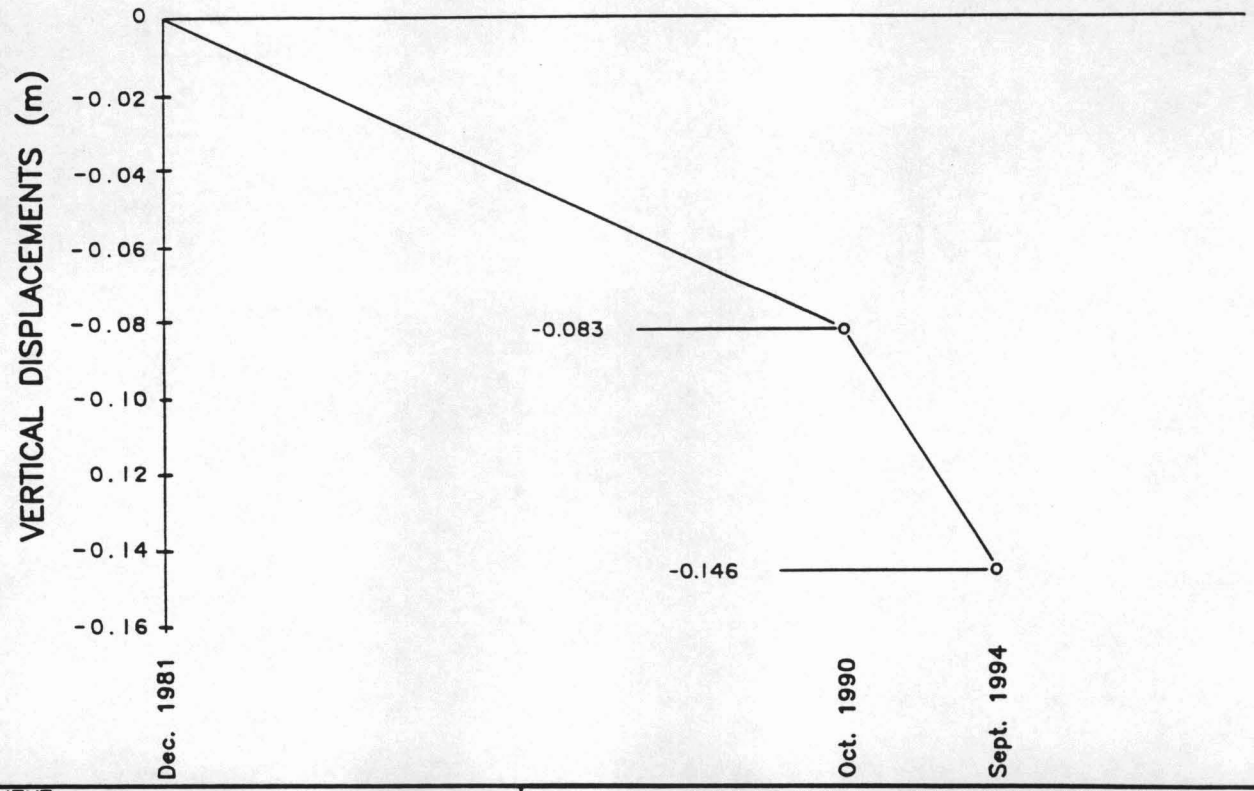


CLIENT: KPMG ENVIRONMENTAL SERVICES INC.	UNDERHILL ENGINEERING LTD.	
PROJECT: DOWN VALLEY TAILINGS CONTAINMENT PROJECT	JOB No.: 94169	SHEET ...31.... of ...33....
	DATE: SEPTEMBER 1994	DRAWING No.: 134-3C
	SCALE: HOR. 1 : 1 VER. 1 : 1	

DISPLACEMENT VECTORS AND 95% RELATIVE ERROR ELLIPSES	
INSTRUMENT STATION NUMBER 2+100 B.S.	SURVEY STATION NUMBER 559

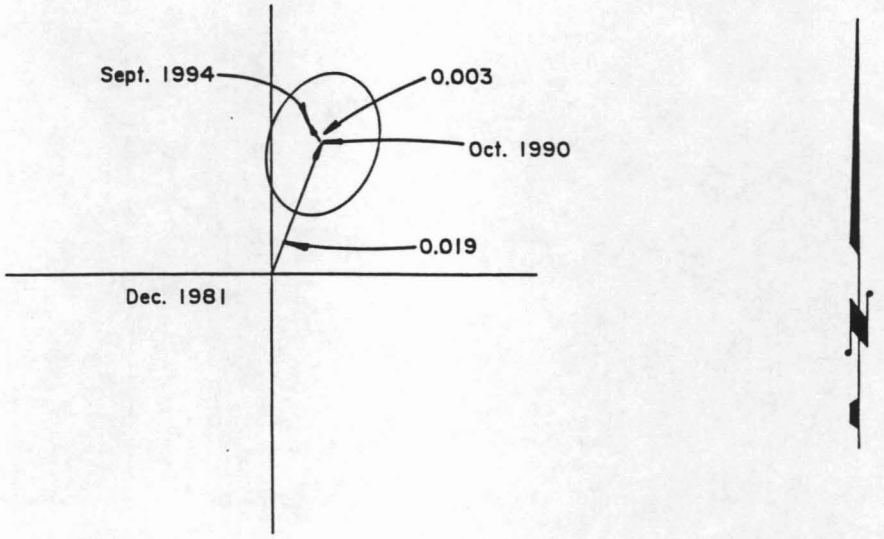


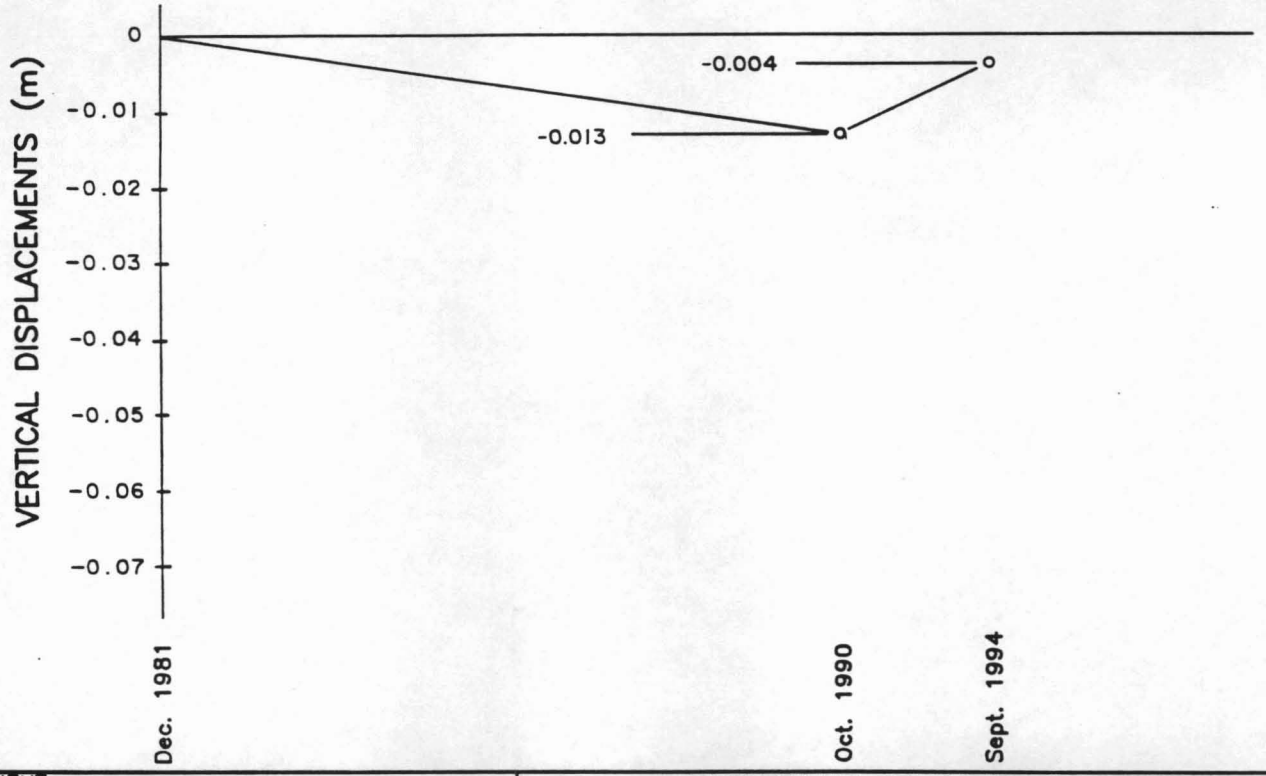




CLIENT: KPMG ENVIRONMENTAL SERVICES INC.	UNDERHILL ENGINEERING LTD.	
PROJECT: DOWN VALLEY TAILINGS CONTAINMENT PROJECT	JOB No.: 94169	SHEET ..32.... of ..33....
	DATE: SEPTEMBER 1994	DRAWING No.: 134–3C
	SCALE: HOR. 1 : 5 VER. 1 : 2	

DISPLACEMENT VECTORS AND 95% RELATIVE ERROR ELLIPSES	
INSTRUMENT STATION NUMBER 1+530 B.S.	SURVEY STATION NUMBER 840





CLIENT: KPMG ENVIRONMENTAL SERVICES INC.	UNDERHILL ENGINEERING LTD.	
PROJECT: DOWN VALLEY TAILINGS CONTAINMENT PROJECT	JOB No.: 94169	SHEET ..33.... of ..33....
	DATE: SEPTEMBER 1994	DRAWING No.: 134-3C
	SCALE: HOR. 1 : 1 VER. 1 : 1	

APPENDIX VI

INSTRUMENT READINGS, INSTRUCTION AND ONGOING DATA PRESENTATION

TABLE OF CONTENTS

OPERATION OF INSTRUMENTS

1.1 Hydraulic Piezometer

1.2 Pneumatic Piezometer

1.3 Thermistor

1.4 Slope Indicator

1.0 Operation of Instruments

1.1 Hydraulic Piezometer

- Lower down the probe until light and buzzer indicate water level. Depth to water measurement is read from tape at top of casing.

1.2 Pneumatic Piezometer

- Using the Petur model C-102 readout instrument, turn the pressure tank on. Connect piezo line (black) to quick connect piezo input of the readout. Place the piezo return line (white) end under a bottle of water. Lift piezo by-pass valve and the return line will bubble at a constant rate. Record the reading of the dial gauge.

1.3 Thermistor

- Connect thermistor coupler to amphenol splitter box and measure resistance of each string with a voltmeter in kΩ.

1.4 Slope Indicator

1. See enclosed manual of model 50309-M Indicator with model 50325-M Sensor.

SINCA.

Find... ...value for the TD2A

File Name TD2SIMON.MCD
Dated Nov 02, 1995

$N := 6$ $i := 0..N-1$

$y_i :=$

20
10
0
-10
-13
20

Equation derived from the Micro Switch Book
Revised equation dated 12/12/89

$$x_i := R + \left[3.84\cdot10^{-3}\cdot R\cdot y_i + 4.94\cdot10^{-6}\cdot R\cdot (y_i)^2\right] \qquad R := 1854$$

RECEIVED
NOV 07 1995

Using client values for A203

$r_i :=$

1999
1908
1874
1790
1781
1734

The above equation can be expressed in ax^2+bx+c form

Where if $A := 3.84\cdot10^{-3}$ $B := 4.94\cdot10^{-6}$

Then $a := B\cdot R$ $b := A\cdot R$ $c_i := R - r_i$

Compute discriminant:

-> If discriminant is positive, both roots real.
-> If discriminant is negative, roots are complex conjugates.
-> If discriminant is zero, double root.

$discrim := b^2 - 4\cdot a\cdot c$ $discrim_i$

55.9974
52.6636
51.418
48.3406
48.0109
46.2891

Compute roots:

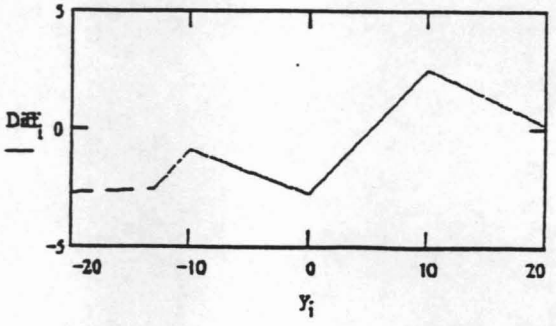
$$x1_i := \frac{-b + \sqrt{discrim_i}}{2\cdot a} \qquad x1 = \begin{bmatrix} 19.8596 \\ 7.5123 \\ 2.7992 \\ -9.096 \\ -10.3927 \\ -17.2377 \end{bmatrix}$$

$$x2_i := \frac{-b - \sqrt{discrim_i}}{2\cdot a} \qquad x2 = \begin{bmatrix} -797.1875 \\ -784.8403 \\ -780.1271 \\ -768.2319 \\ -766.9353 \\ -760.0902 \end{bmatrix}$$

$Diff_i := y_i - x1_i$

$Diff_i$

0.1404
2.4877
-2.7992
0.904
-2.6073
-2.7623



YSI PRECISION THERMISTOR
1215

YSI 44007

RESISTANCE 5000 OHMS @25°C

Interchangeability: ±0.2°C (See Tolerance Curves).

Max. Operating Temp: 150°C (300°F).

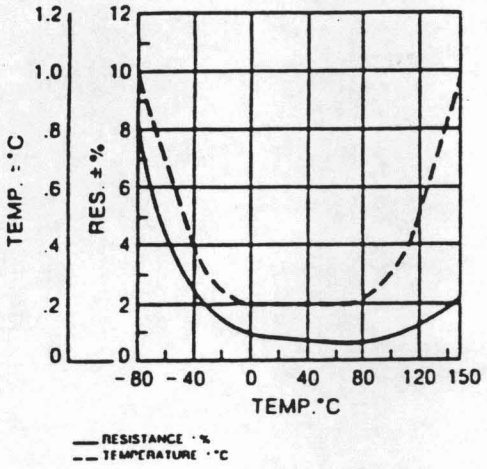
Time Constant, Max: 1 sec. in well stirred oil, 10 sec. in still air. Time constant is the time required for a thermistor to indicate 63% of a newly impressed temperature.

Dissipation Constant, Min: 8mW/°C in well stirred oil, 1mW/°C in still air. Dissipation constant is the power in milliwatts to raise a thermistor 1°C above surrounding temperature.

Color Code: Black epoxy body, violet end.

Storage Temperature: -80° to +120°C (-112° to +250°F).

Tolerance Curves: The following curves indicate conformance to standard resistance temperature values as a % of resistance, and as a maximum interchangeability error expressed as temperature.

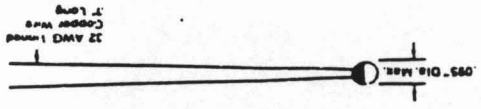


WARNING

Use heat sinks when soldering or welding to thermistor leads.

RESISTANCE VERSUS TEMPERATURE —80° to +150°C

TEMP°C	RES	TEMP°C	RES	TEMP°C	RES	TEMP°C	RES	TEMP°C	RES	TEMP°C	RES
-80	366.1K	-50	336.3K	-20	48.16K	+10	9951	+40	2943	+70	875.7
-79	337.1K	-49	312.3K	-19	45.83K	+11	9448	+41	2559	+71	844.4
-78	309.6K	-48	289.4K	-18	43.62K	+12	8974	+42	2359	+72	814.3
-77	282.7K	-47	268.4K	-17	40.53K	+13	8528	+43	2159	+73	785.1
-76	259.2K	-46	249.0K	-16	39.04K	+14	8109	+44	2112	+74	757.0
-75	237.8K	-45	231.0K	-15	37.26K	+15	7715	+45	1967	+75	729.9
-74	218.2K	-44	214.5K	-14	35.57K	+16	7345	+46	1824	+76	703.7
-73	200.5K	-43	199.2K	-13	33.96K	+17	6997	+47	1691	+77	678.4
-72	184.3K	-42	185.0K	-12	32.43K	+18	6670	+48	1571	+78	654.0
-71	169.5K	-41	180.0K	-11	29.99K	+19	6361	+49	1459	+79	630.3
-70	156.0K	-40	168.3K	-10	29.78K	+20	6247	+50	1301	+80	628.1
-69	143.4K	-39	157.5K	-9	28.61K	+21	5710	+51	1254	+81	608.2
-68	132.3K	-38	147.5K	-8	27.49K	+22	5448	+52	1210	+82	588.9
-67	122.0K	-37	138.2K	-7	26.42K	+23	5235	+53	1166	+83	570.4
-66	112.8K	-36	129.5K	-6	25.39K	+24	5000	+54	1125	+84	552.6
-65	103.9K	-35	121.4K	-5	24.41K	+25	4787	+55	1083	+85	535.4
-64	95.9K	-34	113.8K	-4	23.46K	+26	4585	+56	1048	+86	518.8
-63	88.7K	-33	106.8K	-3	22.55K	+27	4393	+57	1013	+87	502.8
-62	82.2K	-32	100.3K	-2	21.68K	+28	4209	+58	979.1	+88	487.4
-61	76.2K	-31	94.22K	-1	20.84K	+29	4034	+59	946.3	+89	472.6
-60	70.7K	-30	88.53K	0	20.03K	+30	4029	+60	914.9	+90	458.2
-59	65.6K	-29	83.22K	+1	19.26K	+31	3702	+61	884.8	+91	444.4
-58	60.9K	-28	78.26K	+2	18.51K	+32	3548	+62	856.0	+92	431.0
-57	56.6K	-27	73.62K	+3	17.80K	+33	3404	+63	828.4	+93	418.2
-56	52.6K	-26	69.29K	+4	17.12K	+34	3268	+64	801.9	+94	405.7
-55	48.9K	-25	65.24K	+5	16.47K	+35	3134	+65	776.4	+95	393.7
-54	45.5K	-24	61.45K	+6	15.85K	+36	3008	+66	751.9	+96	382.1
-53	42.3K	-23	57.90K	+7	15.25K	+37	2886	+67	728.3	+97	370.9
-52	39.3K	-22	54.58K	+8	14.68K	+38	2773	+68	705.6	+98	360.1
-51	36.6K	-21	51.47K	+9	14.13K	+39	2663	+69	683.8	+99	349.7
										+100	339.6
										+101	329.8
										+102	320.4
										+103	311.3
										+104	302.3
										+105	293.6
										+106	285.2
										+107	277.1
										+108	269.2
										+109	261.6
										+110	254.4
										+111	247.4
										+112	240.6
										+113	234.1
										+114	227.8
										+115	221.7
										+116	215.7
										+117	210.0
										+118	204.5
										+119	199.0
										+120	193.7
										+121	188.6
										+122	183.7
										+123	178.9
										+124	174.3
										+125	169.8
										+126	165.4
										+127	161.2
										+128	157.1
										+129	153.1
										+130	149.3
										+131	145.5
										+132	141.9
										+133	138.4
										+134	135.0
										+135	131.8
										+136	128.6
										+137	125.5
										+138	122.5
										+139	119.6
										+140	116.8
										+141	114.1
										+142	111.4
										+143	108.8
										+144	106.3
										+145	103.8
										+146	101.4
										+147	99.10
										+148	96.87
										+149	94.69
										+150	92.70



YSI PRECISION THERMISTOR

Industrial Division
Yellow Springs Instrument Co.
Yellow Springs, Ohio 45387, U.S.A.
Phone 513-767-7241

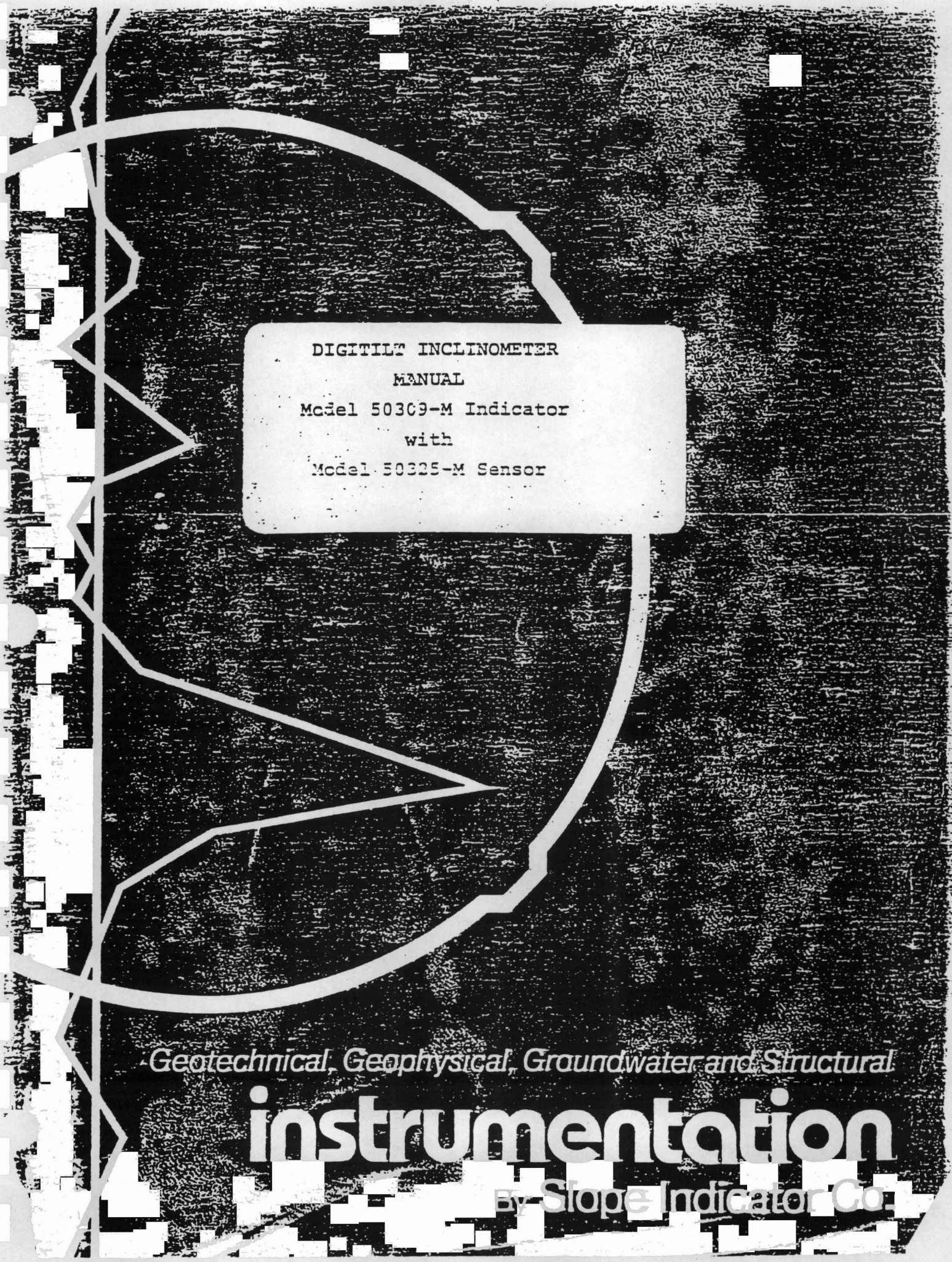
Golder probe

DIGITILT INCLINOMETER MANUAL

Model 50309-M Indicator

with

Model 50325-M Sensor



DIGITILT INCLINOMETER MANUAL
Model 50309-M Indicator
with
Model 50325-M Sensor

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INTRODUCTION

The Digitilt Inclinometer is a high precision surveying instrument for measuring subsurface displacement or deformation. Lateral movements within landslides, earth dams, slopes and foundation soil or rock can generally be measured more precisely and economically than with other types of instruments. Other typical applications include measurement of lateral movement of walls and structures surrounding excavations and tunnels, and lateral component of subsidence movement above underground mines. Since the instrument is designed to operate in deep borehole installations and is waterproof, it may be used on projects where direct measurements or conventional surveying would not be practical, such as the displacement of the lower portion of a pipe pile.

The instrument is normally lowered down a grooved plastic or aluminum inclinometer casing[1] installed in the ground near vertical. The grooves control the orientation (azimuth) of the instrument in a predetermined direction. Inclination readings are taken at frequent intervals of depth and are subsequently converted to displacements. Consecutive readings at the same depths, taken at periodic intervals of time, are used to determine depth and rate of ground movement. The components of the inclinometer system and its principle of operation are illustrated in Figure 1.

Horizontal Digitilt Inclinometer probes are used for measuring settlement or heave in near horizontal casing.

[1]See "Installation of Inclinometer Casing" for procedures.

DESCRIPTION

General

The Digitilt Inclinometer System consists of four units: The movable borehole sensor, the portable digital indicator, the interconnecting electrical cable and the Slope Indicator inclinometer guide casing permanently installed in the structure or earth mass to be surveyed. Figure 1 illustrates the components of the inclinometer system and its principle of operation.

Sensor

The movable sensor provides an electrical signal proportional to the angle of inclination from its vertical axis. It contains two servo-accelerometers mounted with the sensitive axes 90 degrees apart. The sensor is operated within either aluminum or plastic Slope Indicator Casing which is installed in boreholes drilled into the ground, constructed in embankments, or attached to structures. The sensor is supported laterally in the casing by means of guide wheels and is suspended vertically by means of the interconnecting cable. The guide wheels are guided by four longitudinal grooves spaced equally around the inside circumference of the casing to control directional orientation of the measurements. The wheels of the sensor travel in opposite grooves in the guide casing for directional control. The Model 50325-M sensor will operate in all available sizes of Slope Indicator Casing.

Digital Indicator

The Digital Indicator is a portable instrument which contains a rechargeable 6-volt battery power supply, electrical controls and digital data display. (See Figure 2.)

The data display is provided by a 4-1/2 digit back-lighted Liquid Crystal Display (LCD). The LCD display shows the angle of inclination from vertical in terms of 2.5 times the sine of that angle (2.5 x sine θ) with four significant digits. θ is the angle of inclination of the guide casing in the A and B sensor directions. Sensitivity is 1 in 20,000 parts over $\pm 53^{\circ}$ (8.25 Arc Sec sensitivity). The system accuracy for a near vertical ($\pm 3^{\circ}$) casing installation

is ±0.25 inch per 100 feet (±6 mm per 30 m), or better.

For example, at an inclination of 1 degree, sine 1^{o} = 0.0175, for which the reading is 2.5 x 0.0175 = 0.0436. This value may also be interpreted as horizontal deflection of the guide casing for the segment between the upper and lower wheels of the borehole sensor. Since the distance between wheels is 0.5 meter, the reading displayed is five times the displacement in meters, i.e., 0.00872 m = 8.72 mm in the example above. This method, however, is normally not used in routine calculations of deflection, as will be described later.

Polarity (±) of the angle of inclination is displayed to the left side of the digital display. See Figure 2 for orientation of the borehole sensor body, wheels, direction of tilt angle, and polarity (±) of the displayed reading.

Power for the Digitilt is provided by a rechargeable 6 volt, 6 anr lead-acid battery. An external charger is supplied. When fully charged, the battery provides a nominal operating time of approximately 8 hours. The system should not be operated when the battery is below 5.7 volts.

Since this is a scientific instrument, measurements should be taken, recorded and interpreted by qualified personnel. SINCO is not responsible for errors or omissions of such personnel.

Electrical Cable

The cable is 10.7 mm O.D. with six (insulated) multiple strand, copper conductors and neoprene jacket. It has a 1.6 mm O.D. stranded steel core with adhesion between conductors, core and jacket to minimize length changes when suspended. Colored neoprene markers are vulcanized to the cable each 0.5-meter distance along the length with red at 1-meter intervals, yellow at 0.5-meter intervals in between, and numerical markers every 5 meters. These markers indicate distance to the mid-point between the wheels of the sensor. The cable is attached to the sensor by means of a waterproof connector.

Casing

The Digitilt Inclinometer System is compatible with, interrelated to, and dependent upon operation in guide casing manufactured by the Slope Indicator Company. The described system specifications apply only when the sensors are operated in SINCO Casing. To realize the sensitivity and accuracy potential of the Digitilt, careful quality and dimensional control of the casing is required. The following types and sizes of casing manufactured by the Slope Indicator Company are available.

Aluminum Casing

A special full-round aluminum alloy extrusion with four longitudinal grooves equally spaced around the inside circumference. Available in two sizes:

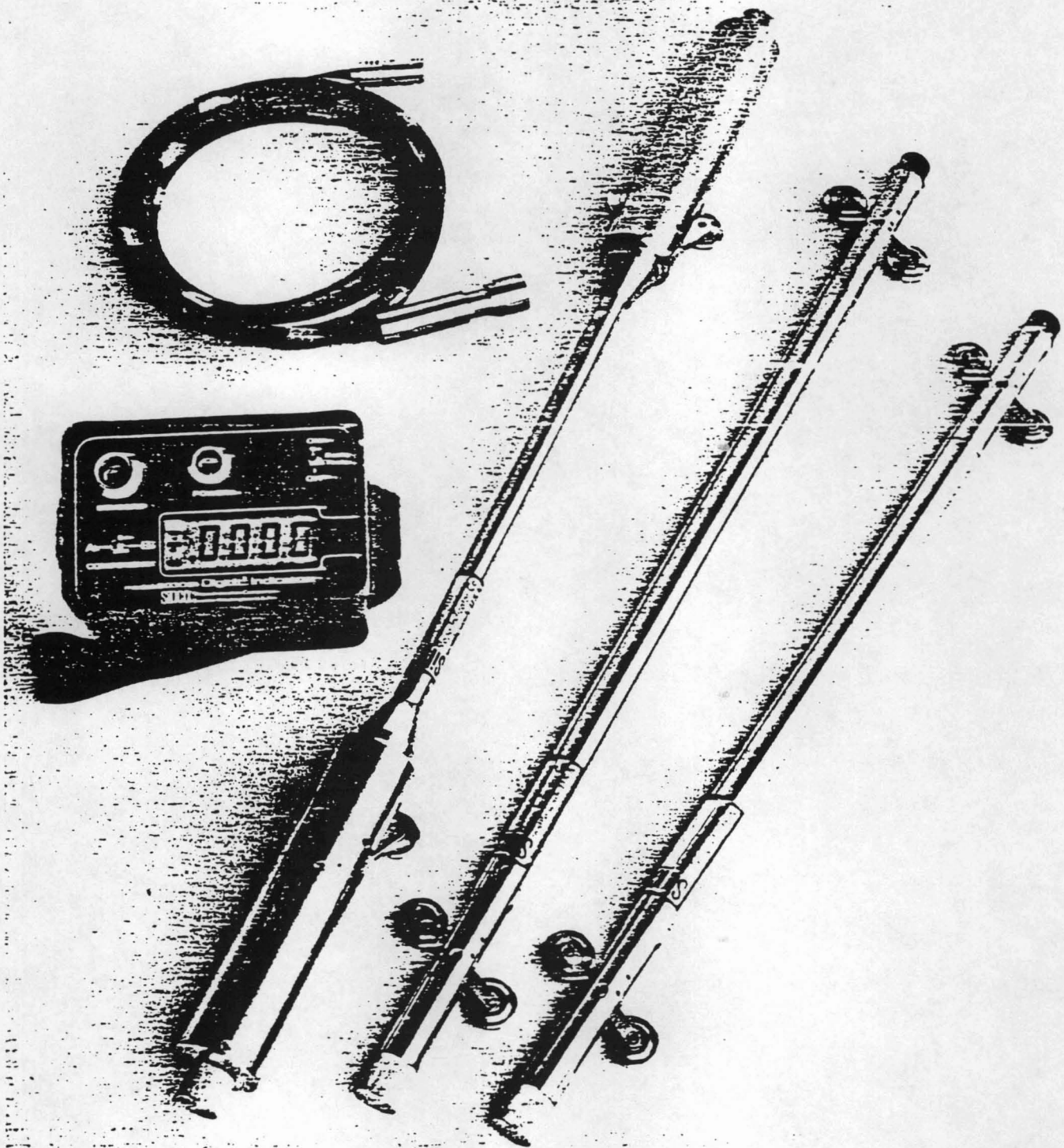
85.8 mm max. O.D. x 2.5 mm wall x 1.52 m or 3.05 m long,
70.9 mm max. O.D. x 2.0 mm wall x 1.52 m or 3.05 m long.

Plastic Casing

ABS plastic casing with four machined, longitudinal grooves equally spaced around the inside circumference. Available in three sizes:

84.8 mm O.D. x 72.9 mm I.D. x 1.52 m or 3.05 m long,
69.8 mm O.D. x 58.9 mm I.D. x 1.52 m or 3.05 m long,
48.3 mm O.D. x 38.1 mm I.D. x 1.52 m long.

The larger diameter casing allows a greater range of casing deformation and generally provides higher accuracy. The smallest casing is suited for measuring very small deformations in rock and structures, but is generally not suited for soil deformation monitoring.



Model 50309 DIGITILT® Indicator with Control Cable & Sensors

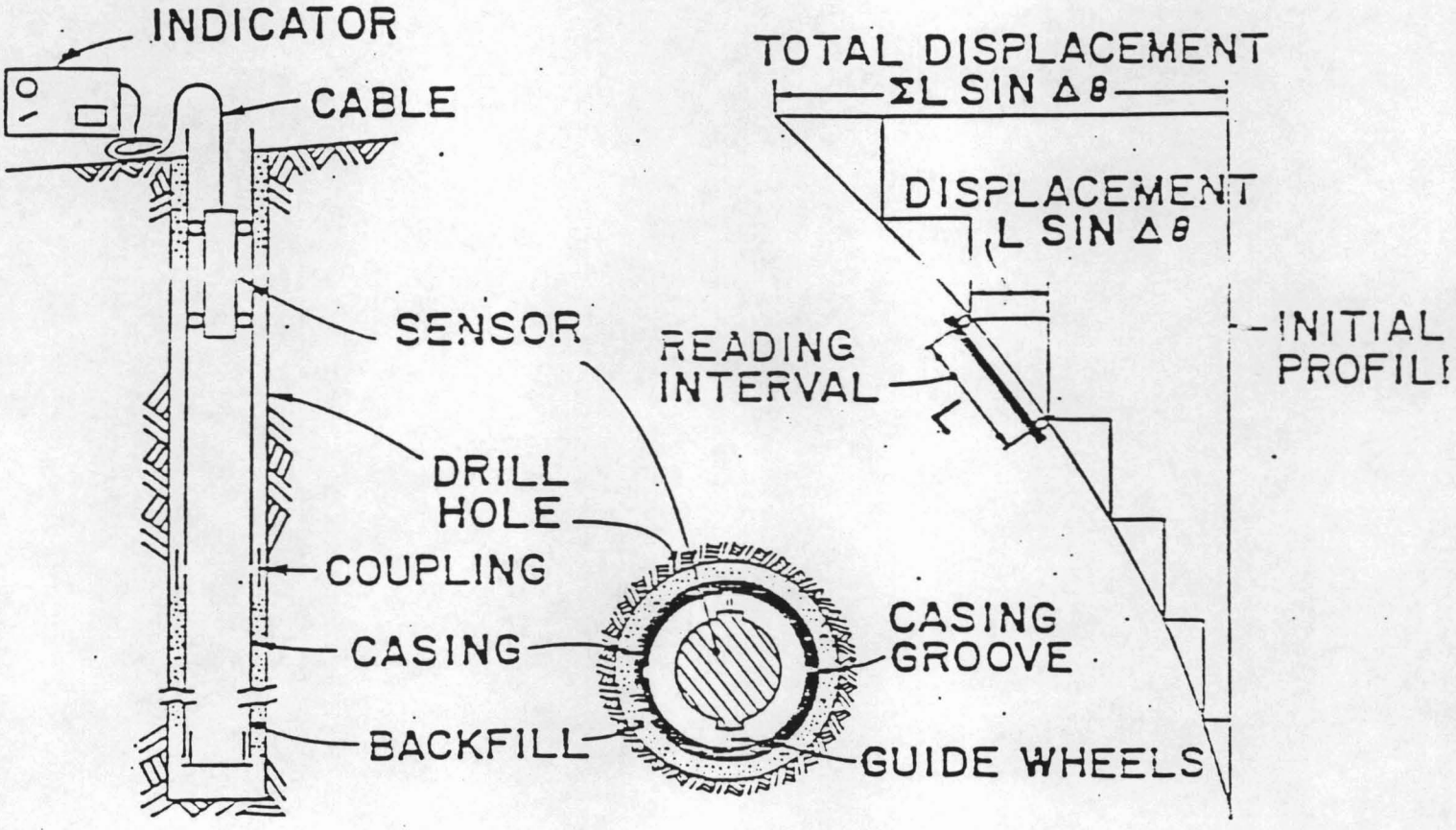
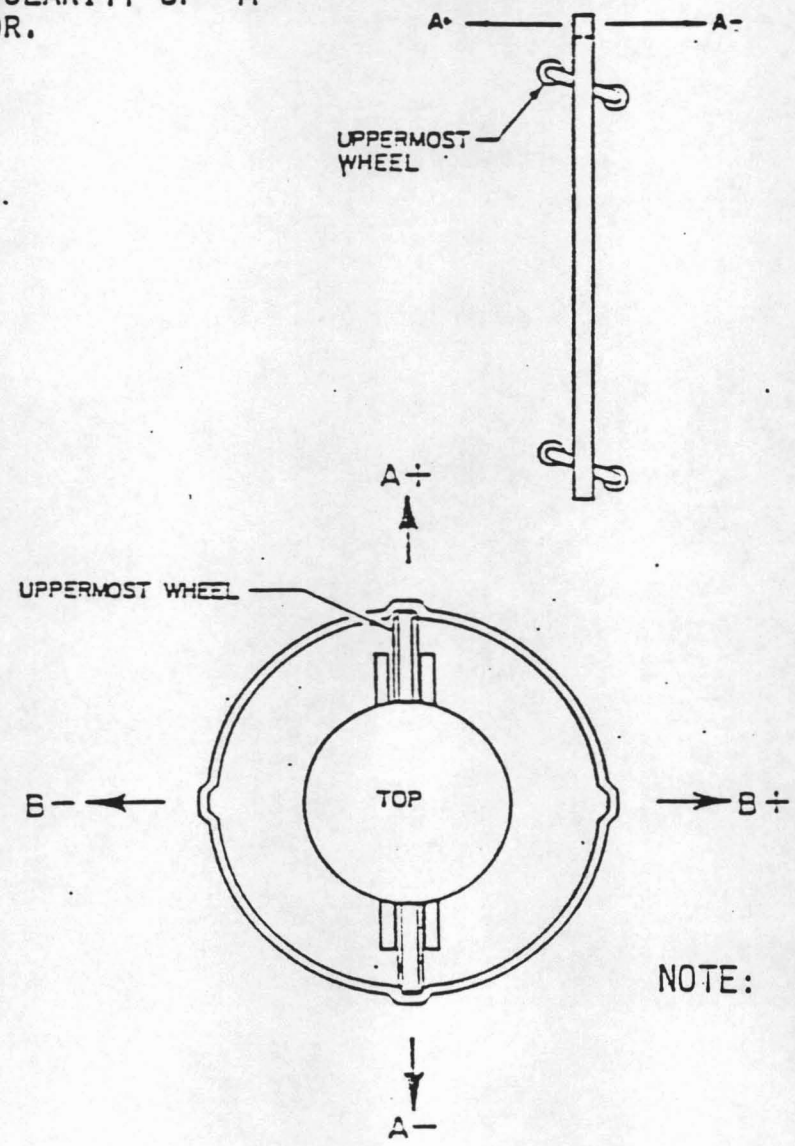


FIGURE 1
INCLINOMETER PRINCIPLE

NOTE: ARROWS INDICATE DIRECTION OF TILT OF TOP OF SENSOR AND POLARITY OF "A" SENSOR.



NOTE: ARROWS INDICATE ORIENTATION OF "A" SENSOR AND "B" SENSOR ACCELERO-METERS AND DIRECTION OF POLARITY.

POLARITY OF TILT ANGLE

FIGURE 2
POLARITY OF TILT ANGLE

OPERATING INSTRUCTIONS

General

CAUTION

SENSOR EXTREMELY SENSITIVE

AVOID: Sudden Shocks—Rough Handling —Dropping—Striking Bottom of Casing When Lowering Sensor

The following equipment and items are needed for inclinometer observations:

- Sensor (Probe) with tool kit
- Control Cable
- Indicator Control and Display Units
- Pulley Assembly with Wheel
- Field Data Sheets
- Pen or Pencil for Recording

Optional equipment and accessories often required are:

- Cable Reel
- Camp Stools or Folding Chairs
- Auxiliary Power
- Shelter (from rain, cold or heat)
- Cleaning Rags
- Keys to Casing Padlock

Detailed Operating Instructions

1. Sensor

   Remove sensor from carrying case.

Check wheel assemblies of the Digitilt borehole sensor for compatibility with the Slope Indicator Casing size being used.

Spray a small amount of oil on each wheel bearing using the oil provided.

Remove protective caps from the sensor and the waterproof cable connector. Attach cable connectors to sensor and tighten stem nut with wrench to ensure waterproof connection. Grasp sensor only by upper wheel section while tightening or loosening stem nut.

Do not spray oil on the electrical connectors since this will damage the insulation. Use alcohol and dry air to clean connector.

2. Indicator

Turn power switch to the OFF position.

Attach cable from sensor to sensor connector on Digital Indicator.

Turn power switch to Battery Test position.

B-display will read one-tenth of actual battery voltage (10^{-1} volt). Battery should be at least 6.0 volts for a fully charged battery. Do not operate indicator when voltage is below 5.7 volts.

Turn power switch to ON position.

Stand sensor on bottom end and move top end in each direction for both A and B axis. Observe polarity display to verify orientation shown in Fig. 2.

INCLINOMETER DATA SHEET

Slope Indicator Company

OBSERVATION WELL NO. S-1

EMBANKMENT 204

SHEET 1 OF 1

INITAL DATA SET

DATE 7-1-81 INSTR. 1004 READ CWH CALC. AS CHKD. TB.

DEPTH	DIFF.	A		DIFF.	CHANGE	DIFF.	B		DIFF.	CHANGE
		A+	A−				B+	B−		
m 1.0		-57	+58 (2)	-116			-57	+58 (1)	-116	
1.5		-63	+62 (1)	-125			-57	+54 (2)	-116	
2.0		-63	+61 (2)	-124			-60	+59 (1)	-119	
2.5		-51	+49 (1)	-100			-36	+35 (1)	-71	
3.0		-75	+73 (2)	-148			-35	+34 (1)	-69	
3.5		-54	+52 (2)	-106			-70	+68 (2)	-138	
4.0		-53	+52 (1)	-105			-8	+7 (1)	-15	
4.5		-39	+38 (1)	-77			+7	-9 (2)	+16	
5.0		-39	+38 (1)	-77			+16	-15 (2)	+34	
6.5		-35	+34 (1)	-69			+12	-13 (1)	+25	
6.0		-36	+37 (1)	-73			+5	-7 (2)	+12	
6.5		-45	+43 (1)	-88			+8	-7 (1)	+15	
7.0		+44	-42 (2)	+86			-14	+13 (1)	-27	
7.5		-47	-45 (2)	+92			-8	+6 (2)	-14	
8.0		+53	-52 (1)	+105			+17	-15 (2)	+32	
8.5		+33	-34 (1)	+67			+5	-6 (1)	+11	
			CHECK	SUMS						

NOTE: CHECKS SUMS ARE ADDED.

FIGURE 4

FIELD DATA SHEET EXAMPLE

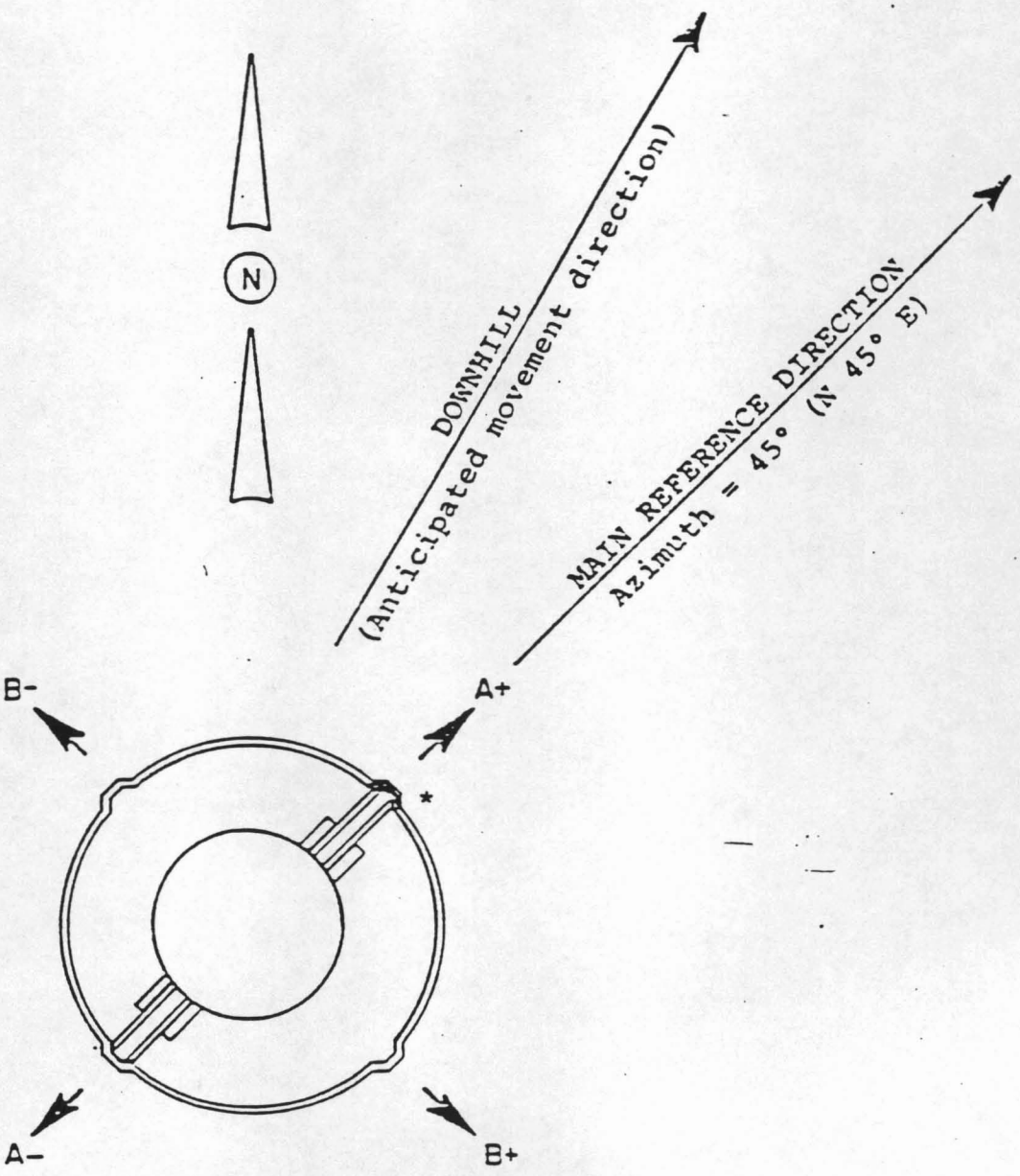
3. Sign Convention

When an inclinometer casing is surveyed for the first time (initial set of data), it is necessary to select a fixed reference for the sensor so that each time a survey is repeated, the sensor will always have the same orientation in the casing; i.e., each time, the same set of grooves are used for alignment orientation. For the biaxial Digitilt Inclinometer, it is recommended that the A-component (or sensor) be oriented so that it will register the principal component of the anticipated deformations as a positive change. For example, in an area suspected of landslide activity, the first set of readings would be taken by orienting the upper wheels of the Digitilt sensor in the casing groove closest aligned to the down-hill direction. For a complete survey, the sensor is reversed 180° after the first set and the readings repeated. The algebraic difference of the two sets of readings are used to compute the profile of the casing or, more importantly, compared to other surveys to determine any change. Using the algebraic difference is, in effect, the same as using the average of the two sets of readings; thus eliminating zero drift between data sets.

Fig. 3 shows an inclinometer casing installed with a groove orientation in the general downhill direction. In practice, it is often difficult to achieve exact orientation of grooves relative to some predetermined direction. The groove closest to the anticipated movement direction is usually chosen as the main reference direction. The azimuth or bearing of this groove direction should be measured. All subsequently measured inclinometer movements would be referenced to this direction.

When readings are obtained according to this convention and the slope changes at each reading interval are summed (integrated) starting at the bottom, the polarity of subsequent deflection magnitudes would be the same as the sensor polarity.

The nomenclature used to designate each of the four orthogonal directions of movement sensing has been chosen by the Slope



*NOTE:

Mark Groove Permanently!

All inclinometer surveys would start in marked groove direction. Complete survey by reversing sensor 180°. For biaxial sensors, grooves in the B-axis are not utilized.

FIGURE 3

SENSOR ORIENTATION PLAN EXAMPLE

Indicator Company to be as shown in Figs. 2 and 3, corresponding to the A and B sensors and their general polarity. Other nomenclature is often used and is perfectly acceptable as shown in examples below.

	A-Axis		B-Axis		
Example No.	Main Ref. Direction	$+180^{\circ}$	$+90^{\circ}$	$+270^{\circ}$	Remarks
1.	A+	A-	B+	B-	SINCO Digitilt Manual
2.	+A	-A	+B	-B	& SINCO SI 1000 Manual
3.	North	South	East	West	SINCO 200-B and Digitilt Manuals.
4.	1	3	2	4	
5.	+1	+3	-2	-4	
6.	A_0	A_{180}	B_0	B_{180}	Used by Bureau of Reclamation.
7.	AZ45	AZ225	AZ135	AZ315	Azimuth Reference.

Examples 1 and 6 are probably the best nomenclatures. Using the N, S, E and W could be confusing to the inexperienced users who may take it literally to mean true geographic directions. Example 7 gives little doubt as to the orientation of the sensor direction, but is redundant since the orientation of B-axis is fixed relative to the A-axis at 90 degrees.

4. Field Data Sheet

The field sheet for recording Digitilt data is shown in Fig. 4. A typical set of readings is shown on this sheet to give an example of the data acquisition procedure. On the field sheet, there are two blank columns under the heading "A" for A-component readings, and two blank columns under the heading "B" for B-component readings.

Before any field readings are taken, this form should be filled out as determined by the situation. The distances to be measured on the control cable should be entered under the "Depth" column beforehand. As shown in the example, the intervals are 0.5 meter. In addition, all headings would be filled out before ob-

taining A and B readings. The left-hand columns under "A" and "B" are used for recording readings on the first passage of the sensor and are labeled "A+" and "B+", respectively. The right-hand columns are similarly labeled "A-" and "B-", and are used for recording during the reverse (180° turned) passage of the sensor. The azimuth (or bearing) of the main reference direction (A+ direction) should be measured or estimated initially and noted for future reference.

The digital voltmeter displays readings in terms of 2.5 sine θ with four decimal digits. It is recommended that the decimal point be ignored in order to simplify the recording procedure, otherwise superfluous zeros and decimal points would tend to slow down the recording session. In other terms, record readings as 2.5 sine $\theta \times 10^{-4}$.

Careful attention must be given to depth measurements on the cable in order to realize the accuracy potential of the Digitilt system. This is especially important where the angle of inclination of the casing is changing with depth. These changes in angle are usually found in the vicinity of casing joints and also in the active zones or transition between stable and unstable layers in a slide area.

5. Sensor Operation and Reading Procedure

Prior to insertion of the sensor into the casing, attach the pulley assembly to the top of the Slope Indicator Casing. The cable is fed over the pulley and held in the clamp when making readings. The pulley must be removed to insert or withdraw the sensor.

With power switched ON, insert the sensor into the guide casing. Place the upper wheels in the main reference groove as discussed in Section 3 above. Make certain that both wheels of the lower set and then the upper set are traveling securely in opposite grooves. Secure the cable in the clamp on the pulley assembly holding the sensor near the top of the casing.

Position the component switch to A and then to B, while observing the reading displayed by the digital voltmeter (LCD display).

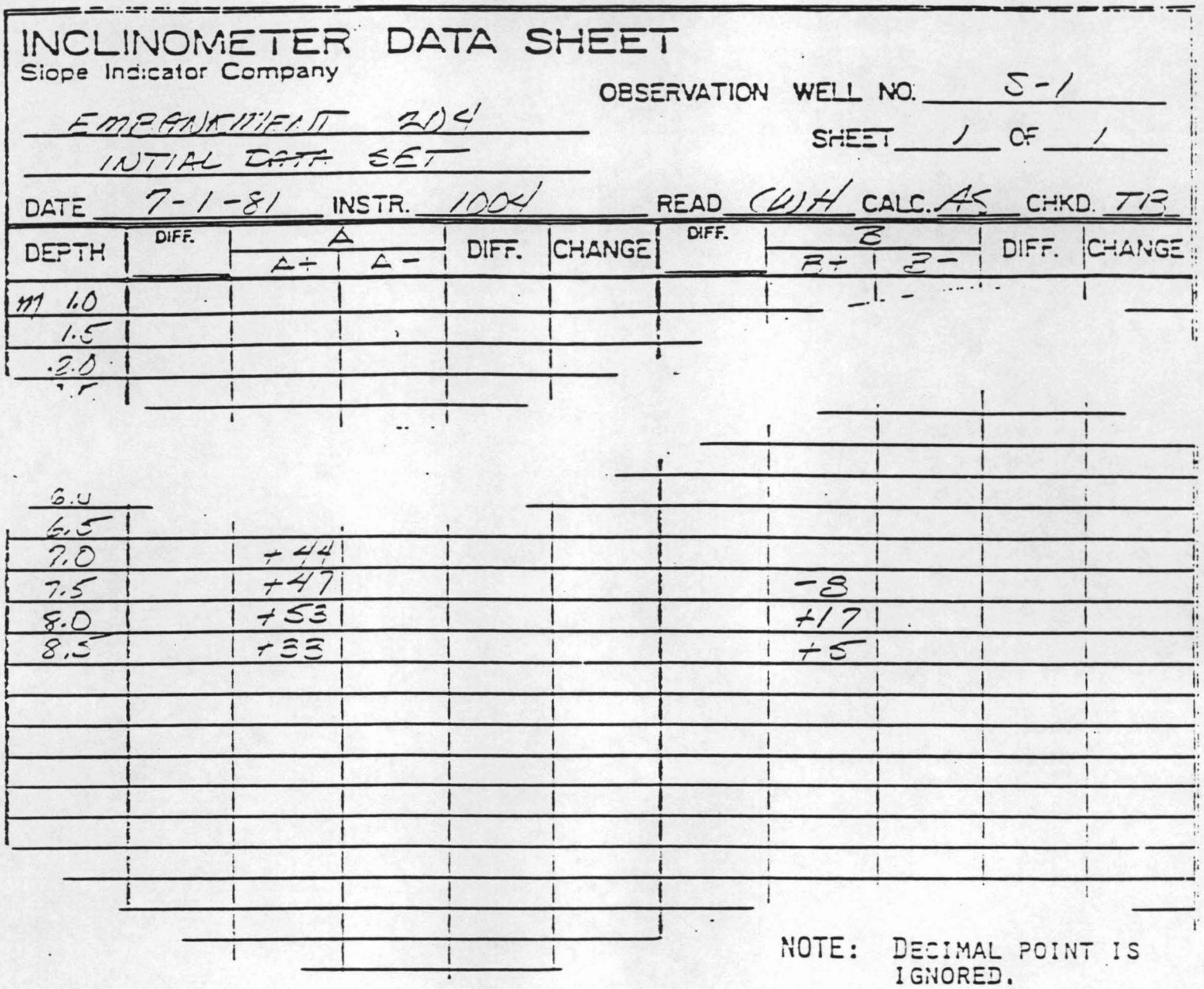
Lower the sensor to the bottom of the casing. Avoid severe shocks to the instrument, especially if it is necessary to touch the bottom. Raise the sensor to the nearest depth mark, measuring distance from the top of casing to the sensor by means of the cable markings. Measurements of depth, as indicated by the cable markings, are to be zero point midway between the sensor wheels. Secure the cable to the clamp on the pulley assembly for each reading. Initially, allow about five minutes for accelerometers to stabilize at borehole temperature. Record the "A" and "B" readings on the Field Data Sheet. (See Fig. 5.)

Repeat readings at 0.5-meter intervals until the top of the casing is reached.

Remove the sensor from the casing, checking to make certain that wheels are still traveling in the same groove.

Rotate the sensor 180° and reinsert it into the casing. Make certain the wheels are secure in opposite grooves. Lower the sensor to the bottom of the casing and repeat the readings at the same depth increments. Avoid touching the bottom which could cause severe shock to the instrument and result in slight zero shift and degradation of the data.

The foregoing describes a complete survey of a Slope Indicator Casing giving inclination readings in the two orthogonal directions from two runs of the sensor along the full depth. For initial data from a newly installed casing, it is usually advisable to make two or more complete surveys to obtain a reliable initial data set. This procedure will yield the maximum accuracy possible from the Digitilt Inclinometer System. A separate field sheet should be used for each set of readings.



INCLINOMETER DATA SHEET

Slope Indicator Company

OBSERVATION WELL NO. S-1

EMBANKMENT 304

INTIAL DATA SET

SHEET 1 OF 1

DATE 7-1-81 INSTR. 1004 READ CWH CALC. AS CHKD. TR

DEPTH	DIFF.	A		DIFF.	CHANGE	DIFF.	B		DIFF.	CHANGE
		A+	A−				B+	B−		
1.0										
1.5										
2.0										
6.0										
6.5										
7.0		+44								
7.5		+47					-8			
8.0		+53					+17			
8.5		+33					+5			

NOTE: DECIMAL POINT IS IGNORED.

FIGURE 5

FIELD DATA SHEET EXAMPLE

Abbreviated Instructions

- Attach pulley assembly to casing without pulley.
- Connect sensor, cable and indicator.
- Turn on power and spray wheel bearings with oil.
- Insert sensor into casing. Orient sensor wheels to that the +A-axis always tracks the same azimuth direction, preferably in the direction of maximum lateral movement.
- Insert pulley wheel and lower sensor to bottom of casing. Avoid shock to instrument.
- Raise sensor to nearest 0.5 m mark by pulling cable through the jam cleat.
- Allow sensor temperature and ground temperature to equalize. Five to ten minutes is usually sufficient.
- While waiting for temperature equalization, prepare Field Data Sheet (Fig. 5) for taking readings.
- Operate component switch and record A and B readings at 0.5 m depth intervals by raising the sensor and recording the results on the data sheets. (Fig. 5.)
- When the sensor returns to the surface, remove pulley and sensor from the casing, rotate the sensor 180°, and reinsert into the same set of grooves.
- Lower the sensor back to the bottom measurement increment without hitting the bottom.
- Repeat readings at 0.5 m intervals, recording A and B readings.
- Check that sums of the A readings remain approximately constant and check the same for the B readings. The sums should be constant within one to two digits.
- If the above check is satisfactory, the inclinometer readings are complete.
- Clean instrument and oil bearings.
- Dry instrument carefully with a rag before disconnecting cable.

DATA PROCESSING

Checking Data Validity

Obtaining a reverse set of data serves two main purposes. The average results of the two sets of readings obtained in opposite groove directions maximize accuracy. Utilizing instrument readings with wheels in reversed positions tends to cancel or minimize errors contributed by casing irregularities and instrument drift. Secondly, and equally as important, this procedure provides a convenient and necessary check for readings obtained at the same depth.

While obtaining and recording the reverse set of data, the validity of the data can be checked. Inaccuracies in reading procedure, depth control, casing problems, and zero drift during data acquisition can be identified by adding the two opposite readings. The sum of the two opposite readings (check sums) at each depth should remain constant within five to ten digits. This variation would depend on the condition of the instrument system, groove parallelity, and the inclination of the casing. The advantage of making this check in the field is that reading problems could be checked immediately by repeating the readings in question. Like most surveying tasks, the greater the number of repeated readings, the better the precision.

If the data are normally reduced by computer or calculations made on summary sheets, the column reserved for "initial differences" may be used to note the CHECK SUMS.

Methods for Data Reduction

As recommended before, the data should be recorded as 2.5 sine $\theta \times 10^{-4}$, or as K x sine θ where K = 25,000, also referred to as the instrument constant, K. Multiplying the digital voltmeter reading by 10^4 eliminates the decimal point and makes the full scale reading of $\pm 20{,}000$ equal to $\pm 53^{\circ}$.

Averaging of two opposite readings at a certain depth is handled by computing the algebraic difference of the first and the second reading, and entering in the "DIFF" column to the right of the "A" and "B" readings respectively, as shown in Fig. 6. The algebraic differences are generally just referred to as differences. The "DIFF" columns to the left of the "A" and "B" readings are reserved for the initial data algebraic differences. The change in the differences between the initial and current set of data can be computed and recorded in the "CHANGE" columns for "A" and "B" axis, respectively as shown in Fig. 7. However, computer programs are available or could be written to handle all the calculations above.

The other advantage of using algebraic differences (averaging) is that the instrument zero offset is eliminated. The "difference" is therefore a true representation of angle relative to absolute vertical. In the following paragraphs, the methods of calculating results will be discussed.

Difference

On the field data sheet, Fig. 6, enter the algebraic difference in the "DIFF" column. To obtain the algebraic difference for the A-component readings, subtract the right column from the left, giving regard to the polarity signs.

$$\text{DIFF (A)} = [\text{RDG(A+)} - \text{RDG(A-)}]$$

For example, the A-axis readings at 5.5-meter depth on 7-1-81, in Fig. 10, would be calculated:

$$\text{DIFF (A)}_{5.5} = (-35) - (+34) = -69$$

In a similar manner, the algebraic differences are computed for the B-axis:

$$\text{DIFF (B)} = [\text{RDG(B+)} - \text{RDG(B-)}]$$

Example:

$$\text{DIFF (B)}_{5.5} = +12 - (-13) = +25$$

INCLINOMETER DATA SHEET

Slope Indicator Company

OBSERVATION WELL NO. S-1

EMBANKMENT 204

SHEET 1 OF 1

INITAL DATA SET

DATE 7-1-81 INSTR. 1004 READ CWH CALC. AS CHKD. TB.

DEPTH	DIFF.	A		DIFF.	CHANGE	DIFF.	B		DIFF.	CHANGE
		A+	A-				B+	B-		
1.0		-57	+58 (1)	-116			-57	+58 (1)	-116	
1.5		-63	+62 (1)	-125			-57	+54 (2)	-116	
2.0		-63	+61 (2)	-124			-60	+59 (1)	-119	
2.5		-51	+49 (1)	-100			-36	+35 (1)	-71	
3.0		-75	+73 (2)	-148			-35	+34 (1)	-69	
3.5		-54	+52 (2)	-106			-70	+68 (2)	-138	
4.0		-53	+52 (1)	-105			-8	+7 (1)	-15	
4.5		-39	+38 (1)	-77			+7	-9 (2)	+16	
5.0		-39	+38 (1)	-77			-16	+15 (2)	-34	
6.5		-35	+34 (1)	-69			+12	-13 (1)	+25	
6.0		-36	+37 (1)	-72			+5	-7 (2)	+12	
6.5		-45	+43 (1)	-88			+8	-7 (1)	+15	
7.0		+44	-42 (2)	+86			-14	+13 (1)	-27	
7.5		+47	-45 (2)	+92			-8	+6 (2)	-14	
8.0		+53	-52 (1)	+105			+17	-15 (2)	+32	
8.5		+33	-34 (1)	+67			+5	-6 (1)	-11	

CHECK SUMS

FIGURE 6

FIELD DATA SHEET EXAMPLE

Changes

The main purpose of the Digitilt Inclinometer is to monitor changes in the inclination of the casing from its original position. The first step is calculating the change in the algebraic differences between two sets of data at each depth increment.

Once the initial set of readings is completed, the initial "differences" can be entered in the left column of the field data sheet. Changes between the initial and the current "differences" are entered in the "CHANGE" column to the right. This is an expedient field method of determining location and magnitude of slope change. (See Fig. 7.)

"Change" = Current "Difference" - Initial "Difference".

The changes as shown on the summary sheet (Fig. 8) can be directly examined visually, plotted to determine significant trends, or used to identify and locate shear zones in the case of landslides as shown in Fig. 9.

Deflections

The "changes" are converted into displacement or incremental deflection. The mathematical relationship is as follows:

As note earlier, a single reading, when the decimal point is ignored, is expressed as:

$$\text{Reading} = \text{RDG} = 2.5 \sin\theta \times 10^4 \quad (1)$$

Therefore, the algebraic difference is expressed as:

$$\text{"Difference"} = \text{DIFF} = 5 \sin\theta \times 10^4 \quad (2)$$

and likewise, change is expressed as:

$$\text{CHANGE} = 5 \sin\theta_c \times 10^4 \quad (3)$$

$$\text{Thus, } \sin\theta_c = \frac{\text{CHANGE}}{50{,}000} \quad (4)$$

where θ_c is angular change over the depth increment measured. The depth increment is normally set equal to the gauge length (L) of the sensor, L = 0.5 m = 500 mm. For one depth increment, the dis-

INCLINOMETER DATA SHEET

Slope Indicator Company

OBSERVATION WELL NO. S-1

EMBANKMENT 201

SHEET 1 OF 1

1 DATA SET

DATE 7-3-81 INSTR. 1004 READ CWH CALC. AS CHKD. TB

DEPTH	DIFF. INITAL	A		DIFF.	CHANGE	DIFF. INITAL	B		DIFF.	CHANGE
		A+	A−				B+	B−		
m 1.0	−116	−53	+54 (1)	−107	+9	−116	−57	+58 (1)	−115	+1
1.5	−125	−60	+61 (1)	−121	+4	−116	−56	+57 (1)	−113	+3
2.0	−124	−59	+57 (2)	−116	+8	−119	−58	+54 (1)	−117	+2
2.5	−100	−50	+49 (1)	−99	+1	−71	−30	+31 (1)	−91	−9
3.0	−148	−74	+75 (1)	−149	+1	−69	−32	+30 (2)	−62	+7
3.5	−106	−50	+52 (2)	−102	+4	−135	−68	+67 (1)	−135	+3
4.0	−105	−51	+52 (1)	−103	+2	−15	−10	+9 (1)	−19	+4
4.5	−77	−36	+37 (1)	−73	+4	+16	+9	−10 (1)	+19	+3
5.0	−77	−36	+38 (2)	−74	+3	+34	+20	−19 (1)	+39	+5
5.5	−69	−32	+33 (1)	−65	+4	+25	+15	−16 (1)	+31	+6
6.0	−73	−34	+35 (1)	−69	+4	+12	+9	−10 (1)	+19	+7
6.5	−88	−42	+43 (1)	−85	+3	+15	+12	−10 (2)	+22	+7
7.0	+86	+45	−41 (1)	+89	+3	−27	−17	+16 (1)	−33	+6
7.5	+92	+44	−44 (2)	+88	+4	−14	−7	+6 (1)	−13	+1
8.0	+105	+50	−49 (1)	+99	+6	+32	+16	−14 (2)	+30	+2
8.5	+67	+30	−32 (2)	+62	+5	+11	+5	−4 (1)	+9	+2
			CHECK	SUMS						

NOTE: INITIAL "DIFF" IS NEEDED TO COMPUTE "CHANGE" IN FIELD.

FIGURE 7

FIELD DATA SHEET EXAMPLE

SINCO Slope Indicator Company
Seattle, Washington U.S.A.

INCL

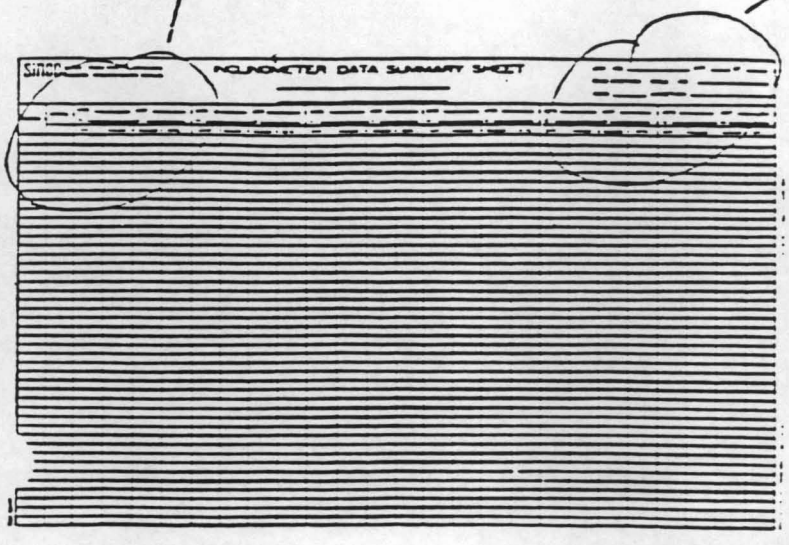
DEPTH	INITIAL	DATE 7-3-81 INST. 1004 K= C= .010				DATE 7-5-8 K=	
	7-1-81	DIFF.	CHANGE	ΣCHANGE	DEFL.	DIFF.	CHANG
M 1.0	-116	-107	+9	+65	.65mm	-105	+
1.5	-125	-121	+4	+56	.56	-120	+
2.0	-124	-116	+8	+52	.52	-115	+
2.5	-100	-99	+1	+44		-97	+
3.0	-148	-149	+1	+43	.43	-147	
3.5	-106	-102	+4	+42	.42	-105	
4.0	-105	-103	+2	+38	.38	-102	
4.5	-77	-73	+4	+36		-75	
5.0	-77	-74	+3	+32	.32	-74	
5.5	-69	-65	+4	+29	.29	-6	
6.0	-73	-69	+4	+25		-	
6.5	-88	-85	+3	+21	.21	-	
7.0	+86	+89	+3	+18	.18		
7.5	+92	+88	+4	+15			
8.0	+105	+99	+6	+11	.1		
8.5	+67	+62	+5	+5			

JOB NO. 204 SHT. 1 OF 1

OBSERVATION WELL NO. S-1

AXIS A DIRECTION A+ A-

— INST. — C=		DATE INST. K= C=			
CHANGE	DEFL.	DIFF.	CHANGE	ΣCHANGE	DEFL.



NOTE: ONE SHEET PER AXIS.

FIGURE 8

DATA SUMMARY SHEET EXAMPLE

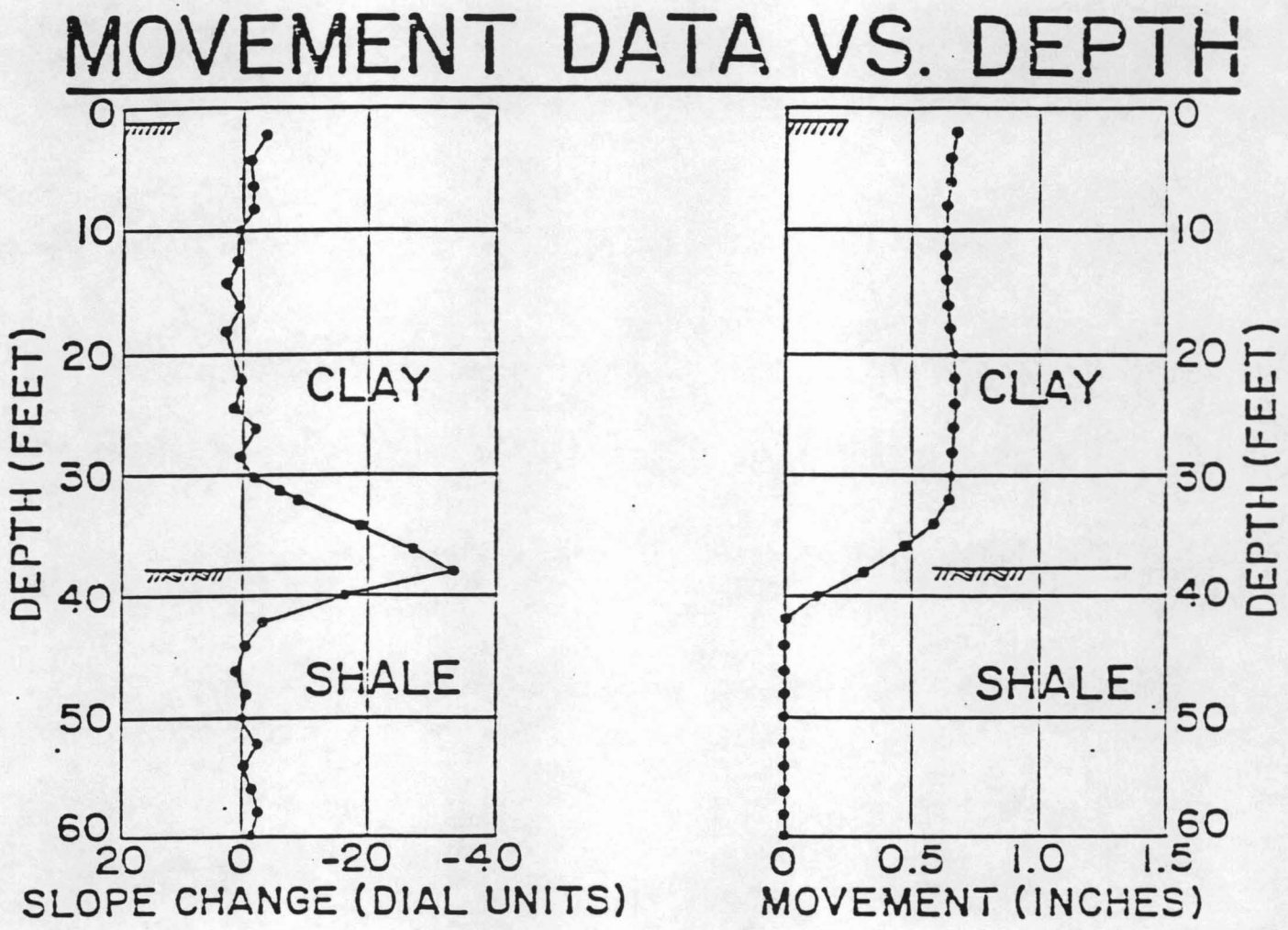


FIGURE 9
DATA PLOT EXAMPLES

placement in millimeters is expressed from trigonometry as follows:

$$\text{Incremental Deflection} = \Delta = L \sin \theta_c \quad (5)$$

Substituting equation (4) into (5), we get:

$$\Delta = L \frac{\text{CHANGE}}{50{,}000} \quad (6)$$

By setting: L = 500 mm, we have:

$$\Delta = 0.01 \times \text{CHANGE (mm)} \quad (7)$$

Thus "CHANGES" are conveniently converted to incremental deflections in millimeters by shifting the decimal point two digits to the left.

The changes or incremental deflections are summed and cummulated from the bottom to determine the total deflection of the casing. The deflection of the casing from its initial position due to lateral earth or structural movement is generally referenced to the bottom of the casing which has been installed in stable foundation material. This deflection may be determined for the top of the casing, or for any intermediate depth.

The data summary sheets are used to calculate changes, deflections and summarize results from field data sheets for consecutive sets of data. Changes are transposed from the field data sheets or entered directly on the summary sheets for each sensor axis; i.e., two summary sheets are needed for one installation.

On the summary sheet, the "INITIAL" column is for initial data which is to be the reference or baseline from which subsequent changes in inclination will be measured. To the right of this column are groups of four columns each. These 4-column groups are for periodic survey data and computations. The "differences" from each field sheet are entered in the left-hand column of each 4-column group, as shown in Fig. 8.

Alternatively, the average "difference" of two sets of readings obtained during an initial survey are entered in the second column under "INITIAL". The subsequent "differences" are compared to the initial "difference" to determine the change in inclination, "Change" as shown in Fig. 8.

Thus, for the top of the casing and recording interval of 0.5 meter, the deflection referenced to an initial set of readings is:

Deflection (mm) = 0.01 x Sum of Changes

Deflection at any intermediate depth is determined in the same way using the Sum of Changes to that depth. Deflection, "DEFL", is shown on the data summary sheet (Fig. 8).

Polarity

In order that directions of subsequent movement may be identifiable by means of the polarity, the data summary sheets must maintain consistent designations. Therefore, on the data summary sheets, Fig. 8, for A-component readings, the upper right designations in the "DIRECTION" blank (upper right corner) show "A+" and "A-". This means that the (±) sign on the changes, sum of changes, and deflection indicate that the top of the corresponding section of the Slope Indicator Guide Casing is moving in the A+ direction. On the other hand, the (-) sign on the changes, sum of changes, and deflection indicate that the top of the corresponding section of the guide casing is moving in the A- direction. (Fig. 8.)

The reason for this is that the algebraic difference was obtained on the Field Sheet (Fig. 7) by subtracting the right column readings from the left under component A, and also a result of the orientation of sensor polarity shown in Fig. 2.

The summary sheet for data obtained with the B-component accelerometer is similar. Referring to Fig. 2, when the fixed wheel or uppermost wheel is in the A+ groove, the "+" polarity readings indicate inclination or movement of the top of the corresponding section of the casing toward the B+ direction, and "-" polarity indicates inclination or movement toward the B- direction. This sign convention will be consistent with the A-component summary sheet, providing the "Difference" is obtained by subtracting, algebraically, the right column readings from the left column readings under component B in Fig. 4.

Borehole Deviation

In many situations, it is necessary to determine the position in space of the Slope Indicator Casing (usually the deviations from verticality). Other applications require the determination of the position of pilings. These include H type, pipe, or concrete in which the Slope Indicator Casing is cast in place or inserted after driving.

To determine the position of the inclinometer casing referenced to the top of the borehole, the differences are summed from the top down directly on the field sheet. Although this is not illustrated, the procedure is the reverse of the example shown in Fig. 8 for summing the changes. The deviation from vertical is computed in the same way as deflection, as follows:

Deviation (mm) = 0.01 x Sum of Differences.

The factor (0.01), of course, is a result of using 0.5-meter depth intervals between readings.

When differences or changes are summed from the top down, the polarities discussed above would be reversed. The "+" polarity reading would indicate deviation of the bottom of the casing toward the (A-) direction and the "-" polarity would indicate deviation of the bottom of the casing toward the (A+) direction for A-component readings. Similarly, for B-component readings, the "+" polarity would indicate deviations of the bottom of the casing toward the (B-) direction and "-" polarity would indicate deviation of the bottom of the casing toward the (B+) direction.

The reversal of directional sense for the polarity signs also applies whenever the changes (Fig. 8) are summed from the top down, as in the case when all movements are referenced to surface surveys of the top of the casing and the bottom of the casing is in unstable materials.

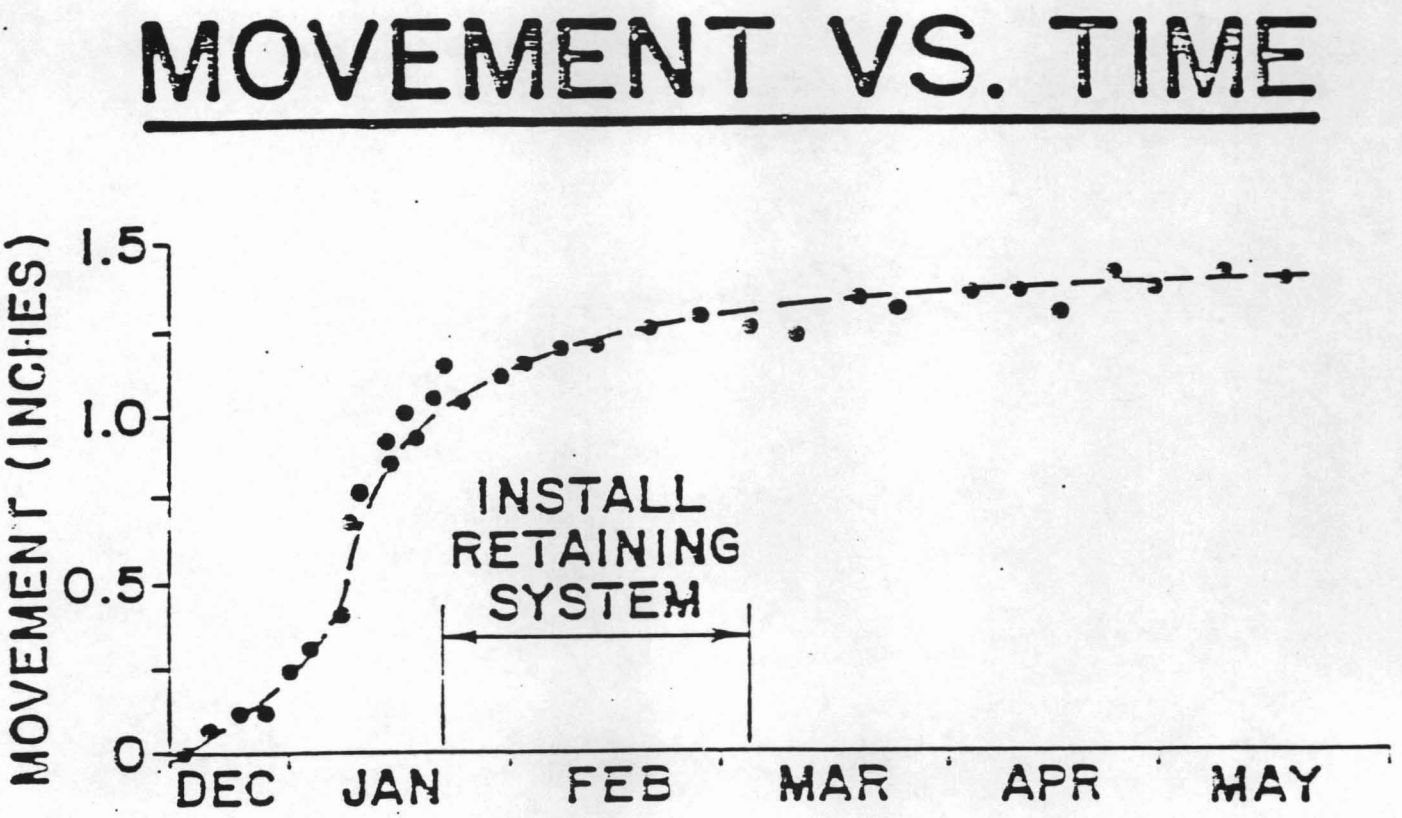


FIGURE 10
MOVEMENT VS TIME EXAMPLE

The most useful data plot is that showing changes or differences in inclination. Then the zones of movement can be detected and time plots at each zone initiated. Accuracy is usually expressed in terms of repeatability of an integrated curve of deformation over a 30-meter segment of casing. On some installations over 30 meters, the deflection versus depth plotting may be misleading to the interpreter. Although the instrument may be operating within its range of accuracy, it may, over a period of time, suggest tilting of several millimeters back and forth due to systematic instrument error.

The greatest asset of the inclinometer, however, is its ability to measure precisely the change in inclination at a specific depth rather than to provide an exact profile of the borehole. Therefore, the determination of movements over a limited depth interval is much more precise than the overall accuracy of the deep hole. Fortunately, overall tilting is not the way most soil movements develop in a landslide.

The cost of an inclinometer system will be wasted if it is not followed-up with a well planned monitoring schedule and constant evaluation and re-evaluation of data. Important information can be lost completely or obtained too late to be of any value, because of an unprofessional attitude with regard to data collection and interpretation. Monitoring schedules require frequent adjustments based on constantly changing conditions. A well trained individual must be alert to keep abreast of events, sift through the wealth of data that usually accumulates, sort out erroneous observations and deduce relevant conclusions.

Data Reduction by Computer

Readings should be calculated and plotted as soon as possible after field observation work. Hand reduction of inclinometer data is both tedious and time consuming. A single movement profile for a typical 30-meter casing could involve more than 240 separate computations.

All these computations can be performed easily by computers and other automated processing equipment as shown in Figs. 11A through 11D. These figures are examples of Digitilt Inclinometer Data taken with a two-foot long English Digitilt Probe. Specially formated data sheets expedite the conversion of field data for processing. (See Fig. 12.) The computer, however, is only reliable when the data collected in the field is accurate. A potential source of error during data reduction is when the information is transposed from handwritten form to computer language code. Key punch cards used in this example are one method of data processing. Other computer systems may use magnetic or punched tape storage systems. Once converted to card format, the data can be processed in many forms.

The printout shown in Fig. 11 compares current data with the previous data and graphically shows any changes in movement of that particular casing. By establishing a record of successive movement profiles, the consistency of new measurements can be referenced to earlier readings.

HILLSIDE AQUADUCT-ANCHOR ROUT

PAGE 1 OF 7.

DIGITILT DATA

	INITIAL	CURRENT
JOB NUMBER	V-2553-01	V-2553-01
HOLE NUMBER	B-1	B-1
DATA SET NUMBER	1	7
DATE	28SEP.73	11OCT.75
TIME	1230	1318
READINGS PER DIRECTION	2	2
INSTRUMENT NUMBER	839	839
CONSTANT	28000.	28000.
ERROR ANGLE - A COMP.	-0.	-0.
ERROR ANGLE - B COMP.	-0.	-0.

INITIAL DATA			CURRENT DATA						INITIAL DATA			CURRENT DATA					
A1	A2	INIT DIFF	A1	A2	CURR DIFF	CHANGE	DEFL. IN.	DEPTH FT.	B1	B2	INIT DIFF	B1	B2	CURR DIFF	CHANGE	DEFL. IN.	DEPTH FT.
177	-170	354	126	-125	250	-107	1.0169	8.8	271	-276	547	290	-236	476	-71	-0.3513	8.8
282	-195	397	218	-186	398	1	1.1112	9.0	182	-178	360	181	-185	366	6	-0.2874	8.8
266	-263	549	278	-283	553	4	1.1106	6.8	194	-193	387	282	-196	398	11	-0.2918	8.8
259	-261	520	267	-264	531	11	1.1082	6.8	231	-238	469	235	-235	470	1	-0.2976	8.8
256	-269	525	263	-251	514	11	1.1016	10.8	198	-220	418	198	-218	416	-2	-0.2982	10.8
287	-266	495	266	-295	491	-4	1.0950	12.8	165	-157	322	158	-155	313	11	-0.2978	12.8
237	-236	473	236	-236	466	-5	1.0878	14.8	126	-136	262	130	-131	261	-1	-0.3036	14.8
236	-267	481	261	-295	486	5	1.1000	16.8	121	-130	251	126	-121	245	-6	-0.3038	16.8
255	-256	511	252	-250	502	-9	1.0976	18.8	181	-185	366	181	-188	369	3	-0.2996	18.8
263	-257	520	251	-259	510	10	1.1028	20.8	25	-46	71	26	-39	63	-8	-0.3012	20.8
267	-279	546	263	-266	529	-17	1.0966	22.8	10	-22	32	5	-4	9	-23	-0.2964	22.8
313	-319	632	319	-328	639	7	1.1078	24.8	18	-37	37	18	-19	33	-4	-0.2826	24.8
335	-328	663	346	-328	674	11	1.1028	26.8	14	-1	15	-19	16	-35	-50	-0.2887	26.8
362	-362	724	355	-354	709	-15	1.0962	28.8	48	-49	97	-46	51	-95	-192	-0.2502	28.8
266	-296	562	299	-285	584	2	1.1052	30.8	68	-42	102	68	-40	108	6	-0.1350	30.8
265	-266	531	936	-936	1872	1341	1.1040	32.8	129	-138	262	6	-18	24	-238	-0.1384	32.8
283	-279	562	569	-553	1102	540	0.2904	34.8	128	-156	274	106	-107	213	-61	0.0047	34.8
298	-234	529	289	-277	566	42	-0.0296	36.8	110	-118	228	110	-106	216	-12	0.0404	36.8
273	-281	554	274	-283	561	7	-0.0698	38.8	116	-126	242	118	-126	244	2	0.0060	38.8
271	-269	540	263	-258	521	-19	-0.0540	40.8	150	-146	296	159	-147	306	10	0.0468	40.8
194	-195	389	196	-193	389	-2	-0.0426	42.8	161	-155	296	168	-153	321	5	0.0408	42.8
182	-187	369	183	-183	366	-3	-0.0414	44.8	187	-196	385	196	-194	384	-1	0.0378	44.8
198	-192	382	198	-198	386	-2	-0.0396	46.8	171	-186	357	173	-186	359	2	0.0384	46.8
176	-175	351	176	-171	341	-10	-0.0384	48.8	144	-159	303	141	-165	286	-17	0.0372	48.8
288	-283	563	218	-205	415	12	-0.0324	50.8	125	-155	280	135	-160	295	15	0.0474	50.8
221	-223	444	219	-219	438	-6	-0.0306	52.8	173	-176	349	177	-188	357	8	0.0384	52.8
226	-237	461	225	-239	464	3	-0.0360	54.8	152	-159	311	156	-161	317	6	0.0336	54.8
256	-266	519	253	-250	503	-11	-0.0378	56.8	148	-148	296	145	-154	299	-9	0.0300	56.8
192	-197	389	188	-191	379	-10	-0.0312	58.8	96	-96	192	98	-96	192	-2	0.0354	58.8
260	-261	521	253	-267	520	19	-0.0252	60.8	166	-166	332	162	-176	338	26	0.0366	60.8
220	-231	451	213	-215	428	-17	-0.0366	62.8	183	-188	371	181	-183	364	-7	0.0210	62.8
143	-146	289	136	-143	279	-10	-0.0288	64.8	126	-139	267	137	-146	283	16	0.0252	64.8
167	-164	331	173	-198	371	28	-0.0144	66.8	219	-227	446	233	-219	452	6	0.0156	66.8
287	-216	421	296	-296	616	-11	-0.0264	68.8	296	-213	617	186	-218	304	-23	0.0120	68.8
186	-191	377	181	-198	379	-8	-0.0198	70.8	111	-93	206	120	-98	218	11	0.0258	70.8
296	-218	514	283	-283	566	-6	-0.0198	72.8	169	-164	333	157	-168	325	12	0.0192	72.8
296	-287	611	198	-282	480	-11	-0.0162	74.8	167	-179	346	171	-180	351	5	0.0120	74.8
197	-196	393	191	-188	379	-14	-0.0096	76.8	183	-187	370	194	-184	378	18	0.0090	76.8
							-0.0000									-0.0000	

FIGURE 11A

COMPUTER OUTPUT EXAMPLE

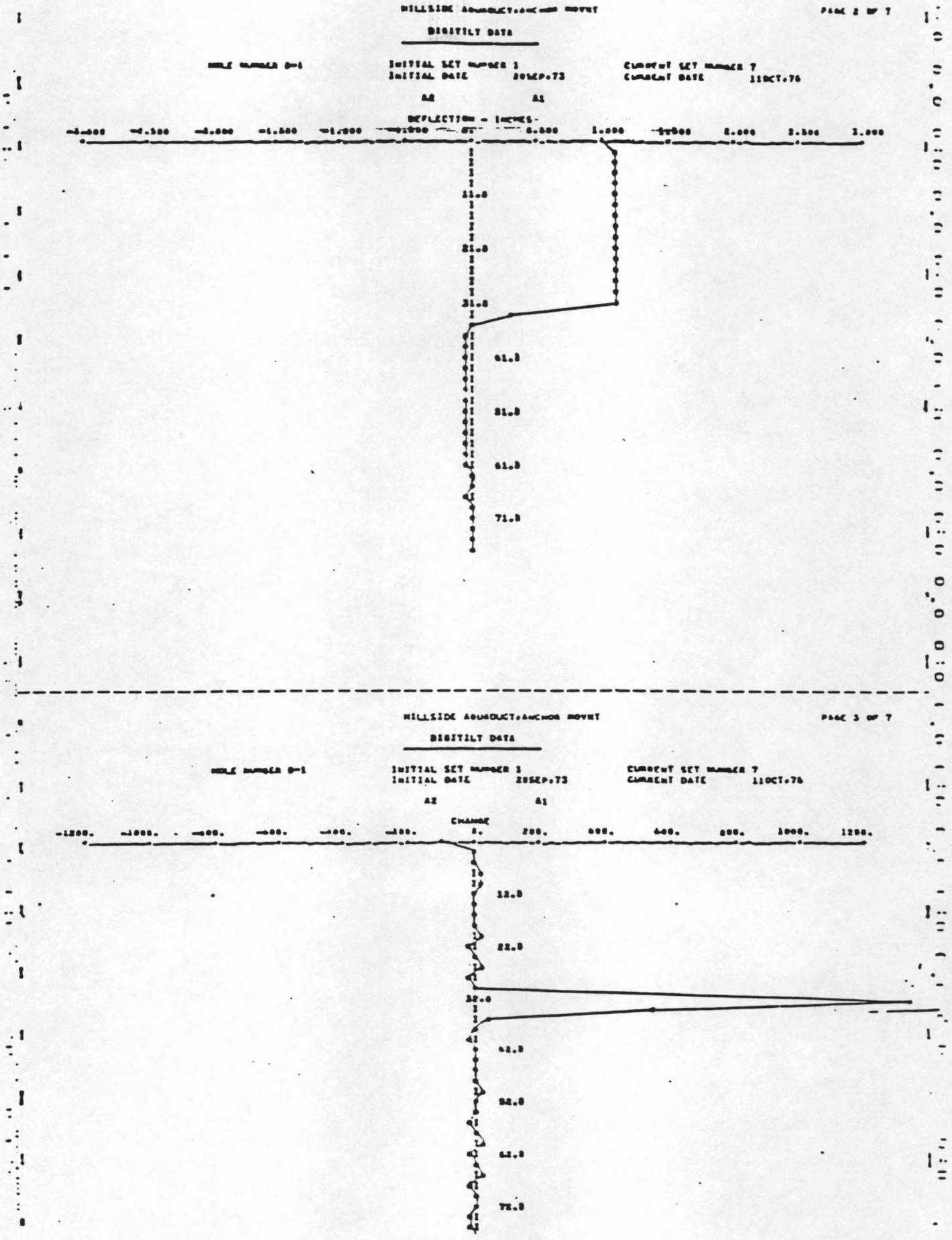


FIGURE 11B

COMPUTER OUTPUT EXAMPLE

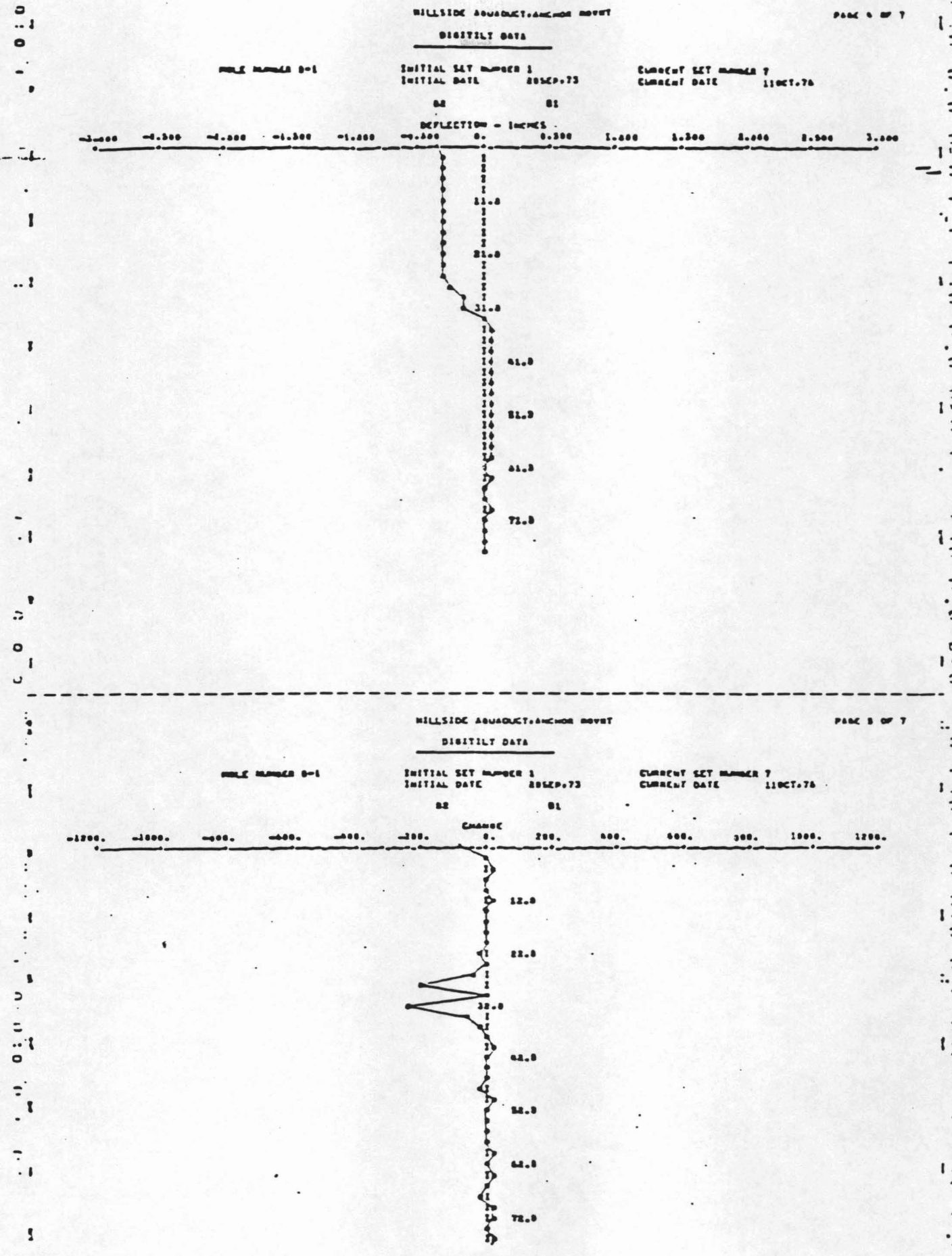
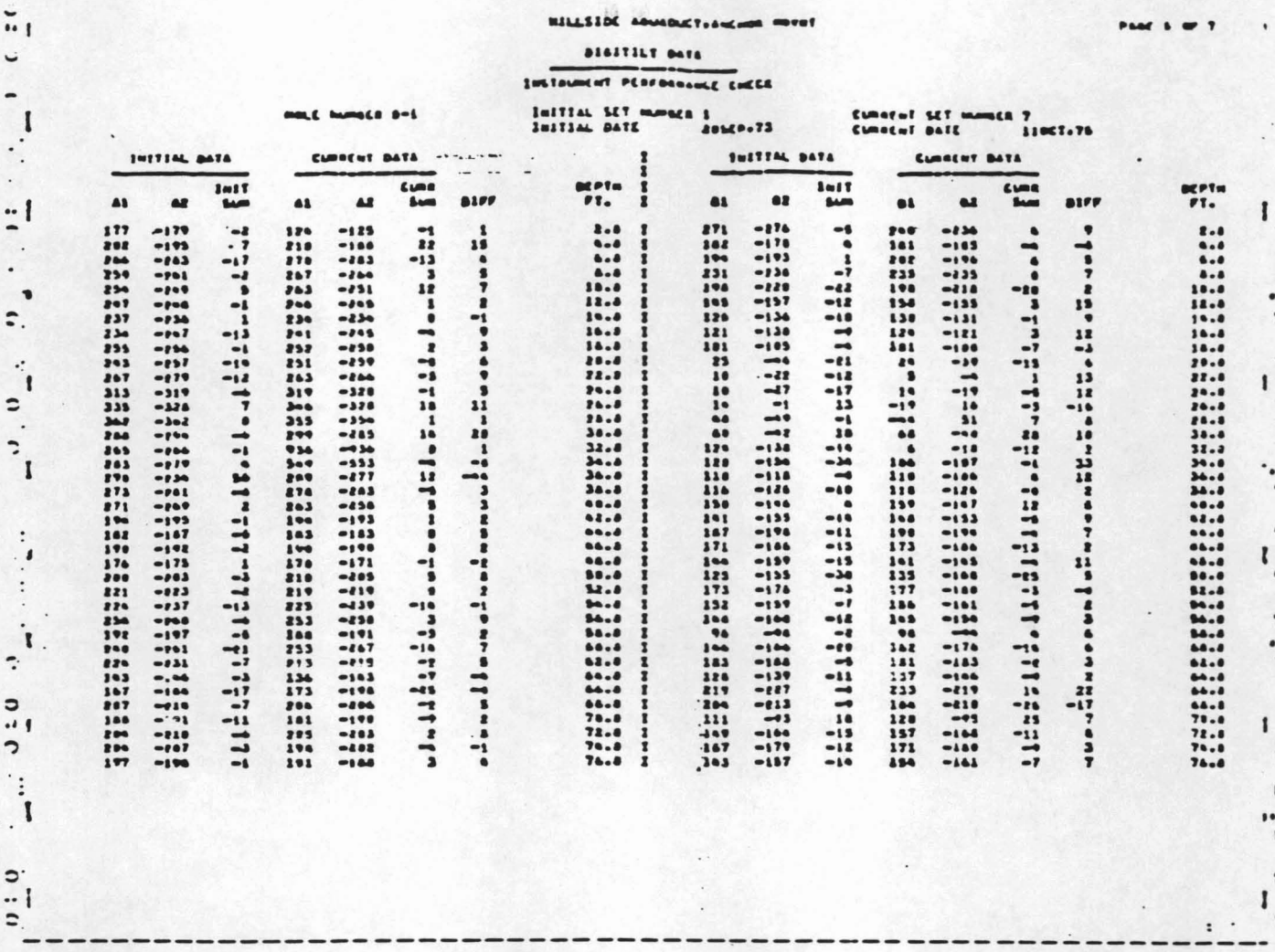


FIGURE 11C

COMPUTER OUTPUT EXAMPLE



HILLSIDE AQUADUCT.ANCHOR MOVMT

PAGE 6 OF 7

DIGITILT DATA

INSTRUMENT PERFORMANCE CHECK

HOLE NUMBER B-1

INITIAL SET NUMBER 1
INITIAL DATE 20SEP.73

CURRENT SET NUMBER 7
CURRENT DATE 11OCT.76

INITIAL DATA			CURRENT DATA					INITIAL DATA			CURRENT DATA				
A1	A2	INIT SUM	A1	A2	CUMR SUM	DIFF	DEPTH FT.	B1	B2	INIT SUM	B1	B2	CUMR SUM	DIFF	DEPTH FT.
177	-179	-2	176	-175	-1	1	2.0	271	-276	-5	269	-236	6	9	2.0
202	-195	-7	218	-186	32	15	6.0	182	-178	4	181	-183	-2	-6	6.0
266	-283	-17	278	-283	-13	4	6.0	194	-193	1	202	-196	4	5	6.0
259	-261	-2	267	-264	3	5	8.0	231	-236	-7	235	-235	6	7	8.0
234	-249	5	263	-251	12	7	10.0	198	-220	-22	198	-218	-20	2	10.0
267	-268	-1	266	-265	1	2	12.0	185	-157	-12	154	-155	3	15	12.0
237	-236	1	236	-234	0	-1	14.0	120	-136	-16	138	-131	-1	9	14.0
234	-267	-13	241	-245	-4	9	16.0	121	-120	-9	129	-121	3	12	16.0
255	-256	-1	252	-250	2	3	18.0	101	-105	-4	101	-100	-7	-3	18.0
243	-257	-14	251	-259	-8	6	20.0	25	-46	-21	26	-39	-15	6	20.0
267	-279	-12	263	-266	-5	9	22.0	10	-22	-12	9	-8	1	13	22.0
313	-319	-6	319	-328	-1	5	24.0	10	-27	-17	16	-19	-6	12	24.0
335	-326	7	346	-328	18	11	26.0	14	-1	13	-19	16	-3	-16	26.0
362	-362	0	355	-354	1	1	28.0	60	-49	-1	64	51	7	8	28.0
266	-266	-6	299	-285	14	20	30.0	60	-42	18	66	-46	28	10	30.0
265	-266	-1	936	-936	0	1	32.0	126	-138	-14	6	-18	-12	2	32.0
283	-279	6	549	-553	-4	-6	34.0	128	-136	-24	166	-197	-4	33	34.0
296	-236	16	269	-277	12	-4	36.0	118	-118	-4	118	-106	6	12	36.0
273	-281	-8	276	-283	-5	3	38.0	116	-126	-10	118	-126	-8	2	38.0
271	-269	2	263	-256	8	3	40.0	150	-146	4	159	-167	12	6	40.0
196	-195	1	196	-193	1	2	42.0	161	-135	-26	166	-153	-5	9	42.0
182	-187	-4	183	-183	0	3	44.0	167	-196	-11	198	-196	-5	7	44.0
190	-192	-2	190	-190	0	2	46.0	171	-186	-15	173	-186	-13	2	46.0
176	-175	1	170	-171	-1	-2	48.0	166	-159	-15	161	-195	-6	11	48.0
200	-203	-3	210	-205	5	8	50.0	125	-155	-30	135	-160	-25	5	50.0
221	-223	-2	219	-219	4	2	52.0	173	-176	-3	177	-180	-1	-4	52.0
226	-237	-13	225	-239	-16	-1	54.0	152	-159	-7	156	-161	-5	2	54.0
256	-266	-10	253	-258	3	9	56.0	166	-168	-12	165	-156	3	6	56.0
192	-197	-6	188	-191	-5	2	58.0	96	-96	-2	96	-100	0	6	58.0
260	-261	-21	253	-267	-16	7	60.0	166	-166	-20	162	-176	-14	6	60.0
226	-231	-7	213	-215	-2	8	62.0	183	-186	-5	181	-183	-2	3	62.0
163	-166	-3	156	-163	-7	4	64.0	128	-139	-11	127	-106	18	2	64.0
167	-184	-17	173	-198	-25	10	66.0	219	-227	-8	233	-219	14	22	66.0
207	-214	-7	206	-206	-2	5	68.0	206	-213	-9	184	-210	-26	-17	68.0
188	-191	-11	181	-190	-9	2	70.0	111	-93	18	128	-95	25	7	70.0
206	-210	-4	205	-203	2	5	72.0	169	-184	-15	157	-168	-11	6	72.0
206	-207	-1	196	-202	-1	4	74.0	167	-179	-12	171	-180	-9	3	74.0
197	-198	-1	191	-188	3	6	76.0	203	-187	-16	194	-161	-7	7	76.0

HILLSIDE AQUADUCT.ANCHOR MOVMT

PAGE 7 OF 7

DIGITILT DATA

INSTRUMENT PERFORMANCE CHECK
SUMMARY STATISTICS

HOLE NUMBER B-1

INITIAL SET NUMBER 1
INITIAL DATE 20SEP.73

CURRENT SET NUMBER 7
CURRENT DATE 11OCT.76

	A1, A2 COMPONENT						B1, B2 COMPONENT					
	INITIAL SUM		CURRENT SUM		DIFFERENCE		INITIAL SUM		CURRENT SUM		DIFFERENCE	
INTERVAL	MEAN	STD. DEV.	MEAN	STD. DEV.	MEAN	STD. DEV.	MEAN	STD. DEV.	MEAN	STD. DEV.	MEAN	STD. DEV.
2.0 TO 20.0	-4.	8.	1.	10.	5.	5.	-9.	8.	-3.	9.	5.	7.
22.0 TO 40.0	9.	19.	9.	8.	0.	17.	-4.	15.	2.	11.	6.	12.
42.0 TO 60.0	-4.	7.	-2.	7.	3.	4.	-13.	6.	-4.	8.	1.	2.
62.0 TO 76.0	-7.	9.	-6.	9.	1.	5.	-7.	11.	-3.	16.	4.	11.
ENTIRE HOLE	-3.	12.	-0.	9.	3.	9.	-9.	11.	-3.	11.	6.	9.

FIGURE 11D

COMPUTER OUTPUT EXAMPLE

DIGITILT Inclinometer

FIELD DATA

W-2563-01 HILLSIDE AQUADUCT ANCHOR MOVMT

(1) JOB NO. (2) JOB TITLE (may be extended from column)

B-1 17 111 OCT 76 13 101 20.

(3) HOLE NO. (4) SET NO. (5) DATE (6) TIME (7) STAT INT

0.30 3.0 12.00 3.1

(8) INS. (9) NO. READS (10) REV. (11) R-SCALE (12) D-SCALE (13) ERROR A (14) ERROR B

2.0000 A1 A2 B1 B2

(15) INST. CONST. (16) DIR. +A (17) DIR. −A (18) DIR. +B (19) DIR. −B

(20) DEPTH

2.0	1.241	-1.251	2.401	-2.36
4.0	2.101	-1.991	1.911	-1.95
6.0	2.701	-2.831	2.021	-1.96
8.0	2.671	-2.641	2.351	-2.35
10.0	2.631	-2.511	1.981	-2.18
12.0	2.461	-2.451	.581	-1.55
14.0	2.341	-2.341	1.301	-1.31
16.0	2.411	-2.451	1.241	-1.21
18.0	2.521	-2.501	1.011	-1.08
20.0	2.511	-2.591	.241	-.39
22.0	2.631	-2.661	.51	-.41
24.0	3.191	-3.201	1.41	-1.0
26.0	3.461	-3.281	-1.91	1.6
28.0	3.551	-3.541	-.441	.51
30.0	2.091	-2.851	.681	-.42
32.0	.361	-.361	.61	-.18
34.0	5.491	-5.531	1.061	-1.07
36.0	2.891	-2.771	1.101	-1.06
38.0	2.781	-2.831	1.181	-1.26
40.0	2.631	-2.581	1.521	-1.47
42.0	1.941	-1.931	1.491	-1.53
44.0	1.831	-1.831	1.901	-1.94
46.0	1.901	-1.901	1.731	-1.76
48.0	1.701	-1.711	1.411	-1.45
50.0	2.101	-2.051	1.351	-1.60



* PROBE ORIENTATION FOR SEISMIC SENSORS WHERE COLUMN HEADERS (16) AND (18). REVERSED READINGS WHERE COLUMN HEADINGS (17) AND (19) FOR OPPOSITE PROBE ORIENTATION. INITIALLY, CHOOSE +A DIRECTION DOWNHILL OR IN PREDOMINANT DIRECTION OF ANTICIPATED MOVEMENT.

FIGURE 12

COMPUTER FIELD DATA SHEET EXAMPLE

INSTRUMENT SPECIFICATIONS

Range

The standard range of inclination that can be measured is ±53° from vertical. Greater ranges of inclination are available on special order.

Sensitivity

The smallest change in inclination angle that can be detected, corresponding to one digit, is approximately equivalent to one part in 20,000 or about 8 seconds of arc at 0° inclination.

Accuracy

The overall error in deflection measurements of the top of a 30-meter hole should not exceed ±7.5 mm, allowing for accumulative errors in the sensor, digital indicator, and Slope Indicator Casing. In order to achieve this accuracy, carefully repeated depth measurements for each reading and computation of differences from opposite groove orientations are mandatory. This specification applies only when the Digitilt sensor is operated within casing manufactured by the Slope Indicator Company and when used with control cable manufactured by the Slope Indicator Company.

Sensing Element

The sensor has two closed-loop, servo-accelerometers mounted at an angle of 90° to each other. These have a range of ±0.8 g (±53° from vertical).

Digital Voltmeter

The visual display is provided by the back-lighted Liquid Crystal Display (LCD) which reads the output from the accelerometers. The voltage is indicated on a 4-1/2 digit display. Basic accuracy of the voltmeter is ±(.2% Reading + One Digit).

Power Requirements

AC Charger	- 115 volts, [redacted]* 60 Hz.
Internal Battery	- 6 volts, 6 ampere hours rechargeable.
External DC	- 12 volts.

(Maximum current required for operating or recharging batteries is one ampere.)

*100 V and 230 V, 50 - 60 Hz Optional.

Dimensions

Borehole Sensor, Model 50320-M	- 42.9 mm O.D. x 817 mm long with cable connector attached.
Borehole Sensor, Model 50325-M	- 25.4 mm O.D. x 728 mm long with cable connector attached.
Indicator, Model 50309-M	- 127 mm x 178 mm x 178 mm.

Weight

Borehole Sensor, Model 50320-M	- 3.2 Kg.
Borehole Sensor, Model 50325-M	- 1.8 Kg.
Sensor Carrying Case	- 5.0 Kg.
Indicator, Model 50309-M	- 3.4 Kg.
Cable	- 15 Kg./100 Meters.

Materials

Borehole Sensor	- Stainless Steel or chrome plated brass.
Indicator Case	- Aluminum internal/PVC plastic external.
Cable Jacket	- Neoprene.

Operating Time on Internal Battery

With the batteries fully charged, the Digitilt will operate continuously for nine hours at room temperature. Below 40°F, operating time is reduced to as little as six hours due to the necessity of heating the Liquid Crystal Display. For a fully charged battery, the battery voltage should be greater than

six volts. Do not operate instrument when battery voltage is below 5.7 volts, since the data may be erroneous and permanent damage to the battery may occur.

Electrical Connectors

POWER	- For connecting external charger to indicator for battery charge.
	- For operating instrument and recharging battery with external 12-volt DC.
SENSOR	- For connecting electrical cable from borehole sensor to indicator.

Fuses

The system has three fuses located on the printed circuit card behind the indicator panel.

F-1	External Input	2 amp
F-2	Battery	2 amp
F-3	Heater	1 amp

Temperature

Operating temperature, indicator: -23°C to 49°C.
Operating temperature, sensor: -18°C to 49°C.
Temperature Coefficient - Indicator:
±(.015% Reading + 0.010% F.S.)/°C.
Temperature Coefficient - Sensor:
±(0.005% Reading + 0.005% F.S.)/°C.

Watertight Case

The indicator case is splashproof and is capable of use in damp or wet environments. The case is not designed for submersion in water.

Water Pressure

The sensor with O-ring seals, electrical connectors and cable will withstand external pressure of 300 meters of water.

Control Switches

ON/OFF	- Turns system power on.
BATTERY TEST	- Displays battery voltage on Digital Voltmeter. Reading displayed is 0.1 of actual battery voltage.
COMPONENT - A	- Connects A-component accelerometer in the sensor to the display circuit.
COMPONENT - B	- Connects B-component accelerometer in the sensor to the display circuit.

INSTRUMENT CARE AND MAINTENANCE

Recharging Battery

AC Charging

Using the AC charger provided, plug charger into suitable 110 VAC* 50/60 Hz outlet and connect the mating power connector on the front panel. With the power switch OFF, the internal battery will recharge to 80% of rated capacity in 16 hours or less. Approximately 48 hours are required to fully recharge the battery. The charger should not be left connected for more than 48 hours. This will prevent the battery from being over-charged and will insure optimum battery performance and life. When the indicator is not in use, it should be recharged at least once every three months.

DC Charging

An external 10-15 volts DC power source can also be used to recharge the internal battery. Connect the DC jumper cable to the power connector on the front panel and connect battery clips to appropriate source. The internal battery will charge to 80% capacity in 16 hours or less and will be fully charged in 48 hours. To prevent over-charging, do not leave indicator connected to external DC for more than 48 hours.

Electrical Connector

To insure good electrical contact, periodically wipe contacts with clean dauber or cloth dipped in alcohol.

Before disconnecting cable from sensor after surveying casing, carefully wipe the connector to remove water and dirt. When disconnected, always keep protective caps over contacts.

Do not spray oil on connectors, since this will damage the insulator.

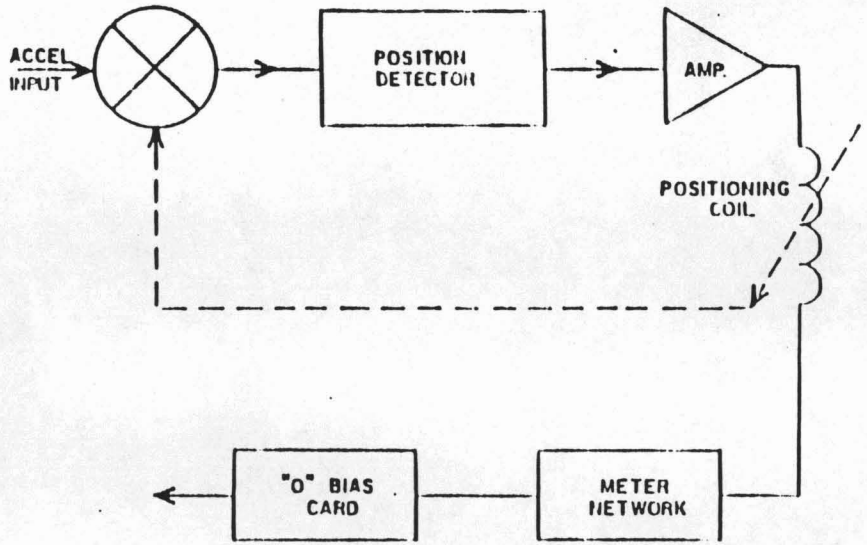
*100 and 230 VAC are available as an option.

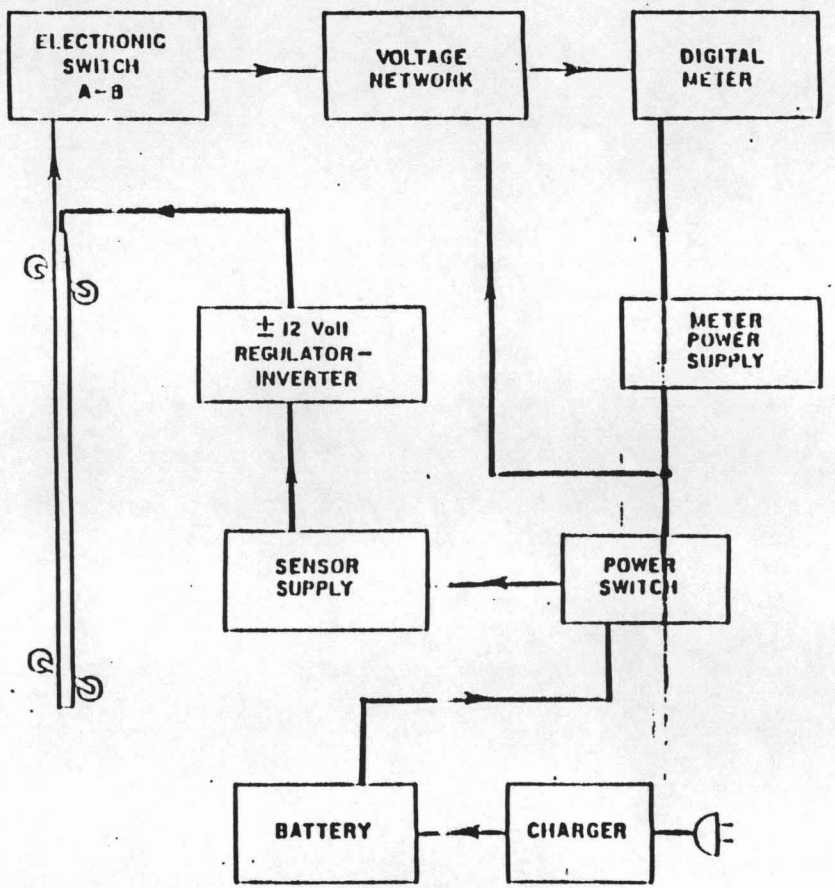
Humidity

The indicator enclosure is sealed and includes desiccant to permit operation in wet or humid environments. However, since the sealing is not perfect, the enclosure will breathe in a small amount of cool, damp night air and expel drier air during the heat of the day or during operation. The atmospheric condition of the interior of the enclosure can eventually reach nearly 100 per cent RH and saturate the desiccant.

A humidity sensitive patch is visible in the upper left corner of the display. If this patch is not clearly blue, replace the desiccant with a fresh ½ unit bag of desiccant. Remove the two screws on the bottom of enclosure to release the front panel and circuit assembly.

The desiccant must be stored in a sealed container prior to using to remain effective. The desiccant can be reactivated after use or exposure to air by baking in an oven at 250°F (120°C) for 16 hours.


ACCEL
INPUT
POSITION
DETECTOR
AMP.
POSITIONING
COIL
"0" BIAS
CARD
METER
NETWORK


ELECTRONIC
SWITCH
A-B
VOLTAGE
NETWORK
DIGITAL
METER
± 12 Volt
REGULATOR-
INVERTER
METER
POWER
SUPPLY
SENSOR
SUPPLY
POWER
SWITCH
BATTERY
CHARGER