RECORD OF DRILLHOLE WO-2

Sheet 1 of 56

PROJECT: EG&G/NPR Drill/D
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 7/29/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Fault S-Shear B-Bedding
F-Foliation PL-Planar C-Curved U-Undulating
ST-Stepped I-Irregular P-Polished K-Slickensided
SM-Smooth R-Rough VR-V.Rough Fe-FeOx Infill
CA-Calcite Infill CL-Clay SA-Sand Infill SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	GRAPHIC LOG	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	ROD 80 60 40 20	FRACTURES PER FOOT 2 4 6 8 10	DISCONTINUITY DATA: DIP wrt CORE AXIS 0 30 60 90	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	GRAPHIC LOG	WEATHERING INDEX FR SW MW HW CW	STRENGTH INDEX R6 R5 R4 R3 R2 R1	● Axial ■ Diametral POINT LOAD INDEX (psi) R6 1500 R5 800 R4 300 R3 150 R2 30 R1	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
560															
570															
580															
590															
600															
610															
620	Fresh, slightly vesicular, medium dark gray (N4), aphanitic, medium strong, BASALT		621.5	1	93										
			624.5	2	100										
	Soil interbed														
630	Slightly weathered, vesicular, dark gray (N3), aphanitic, medium strong, BASALT At 635.0 becomes fresh, slightly vesicular		629.0	3	90										
			635.0	4	98										
640	Drillhole log continued on next page														

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: W G
DATE: 1/20/92

RECORD OF DRILLHOLE WO-2

Sheet 2 of 56

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 7/30/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N:698355.83
AZIMUTH: NA

COLLAR ELEV:4929.27
E:312180.83
INCLINATION: -90°

J-Joint F-Foliation ST-Stepped SM-Smooth CA-Calcite Infill
F-Fault PL-Planar I-Irregular R-Rough CL-Clay
S-Shear C-Curved P-Polished VR-V.Rough SA-Sand Infill
B-Bedding U-Undulating K-Slickensided Fe-FeOx Infill SP-Sub Planar

DEPTH SCALE (FEET)	ROCK TYPE / DESCRIPTION	GRAPHIC LOG	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	ROD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	GRAPHIC LOG	WEATHERING INDEX (FR, SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (Axial / Diametral): 1500, 800, 300, 150, 30; R6, R5, R4, R3, R2, R1	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
640	Fresh, slightly vesicular, dark gray (N3), aphanitic, medium strong, BASALT			5	97	80, 60, 40, 20	2, 4, 6, 8, 10	0, 30, 60, 90							
650	Slightly weathered, vesicular, grayish red (5R4/2), aphanitic, medium strong, BASALT		650.4												
	651.0: Grades to fresh			6	100										
	654.0: Grades to dark gray (N3)														
	655.0: Grades to minutely vesicular														
660	660.0: Becomes grayish red (5R4/2)		658.6	7	88										
	CLAY infill														
	Fresh, slightly vesicular, very dusky red (10R2/2), aphanitic, strong, BASALT		663.6	8	100										
670	Mottled, very dusky red (10R2/2) and gray (N3)		671.1	9	93										
	677.8: Grades to dark gray (N3)				93										
680	683.0: Grades to minutely vesicular		680.1	10	100										
690			690.1												
	Thin fine SAND interbeds, trace silt			11	100										RQD through point load index not applicable in soils at 693.9 to 694.0
	Slightly weathered, vesicular, moderate reddish brown (10R4/6) grading to dusky red (5R3/4), aphanitic, medium strong, BASALT														
700	699.0: Grades to fresh, minutely vesicular, dusky red (5R3/4), strong		700.1												
	701.5: Grades to dark gray (N3)			12	100										
710	Dense, moderate yellowish brown (10YR5/4), fine SAND, little silt, interbedded with thin (<1 ft) silty clay to silty clay with thin (<0.2) interbedded sand (LACUSTRINE DEPOSIT)		710.1	13	100	N/A	N/A	N/A			N/A	N/A	N/A		
720	Drillhole log continued on next page														

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie

Golder Associates

LOGGED: Compiled by Bailey
CHECKED: W G
DATE: 1/20/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 7/30/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint, F-Fault, S-Shear, B-Bedding; F-Foliation, PL-Planar, C-Curved, U-Undulating; ST-Stepped, I-Irregular, P-Polished, K-Slickensided; SM-Smooth, R-Rough, VR-V.Rough, Fe-FeOx Infill; CA-Calcite Infill, CL-Clay, SA-Sand Infill, SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	ROD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	WEATHERING INDEX (FR, SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (psi) (R6 1500, R5 800, R4 300, R3 150, R2 30, R1)
720	Dense, moderate yellowish brown (10YR5/4), fine SAND, some silt and silty clay (LACUSTRINE DEPOSITS)	720.6	13	100							
			14	100							
730		731.0	15	100	N/A	N/A	N/A		N/A	N/A	N/A
740	739.3: Gradational change to fine to coarse sand with some small pebbles 741.0: Gradational change to clayey silt and silty fine sand, interbedded sitly fine sand is crossbedded, contains heavy mineral cross laminations	741.0	16	100							
750		751.0	17	100				One slickensided planar, polished shear			
760	763.0: Gradational change to pale yellowish orange (10YR6/2), micaceous fine sand with little silt	761.0	18	62	N/A	N/A	N/A		N/A	N/A	N/A
		765.0	19	100							
770	Fresh, vesicular, dark gray (N3), aphanitic, medium strong, BASALT Few Fe concretions at contact 772.0-779.0: Large vesicles (>1/4 inch) common	772.0	20	100							
780	779.0: Grades to slightly vesicular, strong										
	784.0-784.3: Vesicular horizon oriented perpendicular to core axis	782.0	21	100							
790											
		792.0	22	100							
800	Drillhole log continued on next page										

TEST ORIENTATION

NOTES
WATER LEVELS
INSTRUMENTATION

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley

Golder Associates

LOGGED: Compiled By Bailey/Mocker
CHECKED: W G
DATE: 1/20/92

RECORD OF DRILLHOLE WO-2

Sheet 4 of 56

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 8/1/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Foliation ST-Stepped SM-Smooth CA-Calcite Infill
F-Fault PL-Planar I-Irregular R-Rough CL-Clay
S-Shear C-Curved P-Polished VR-V.Rough SA-Sand Infill
B-Bedding U-Undulating K-Slickensided Fe-FeOx Infill SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	GRAPHIC LOG	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	GRAPHIC LOG	WEATHERING INDEX	STRENGTH INDEX	POINT LOAD INDEX (psi)	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
800	Fresh, slightly vesicular, dark gray (N3), aphanitic, strong, BASALT			22	100										
	799.7-801.7: Contains small, irregular, vesicular pods and stringers		802.0												
	Fresh, vesicular, dark gray (N3) and dark reddish brown (10R3/4), mottled, aphanitic, medium strong, BASALT			23	100				804.6-808.2: Joints are filled with $CaCO_3$						
	Some irregular voids are filled with $CaCO_3$														
810	Fresh, vesicular, dark gray (N3) and dark reddish brown (10R3/4), mottled, aphanitic, medium strong, BASALT														
	809.0: Grades to slightly vesicular		812.0												
	Dense, dark yellowish brown (10YR4/2), fine SAND with some silt (LACUSTRINE DEPOSITS)			24	87	N/A	N/A	N/A			N/A	N/A	N/A		
	Fresh, slightly vesicular, dark gray (N3), aphanitic, strong, BASALT		816.5	25	100				817.5-822.0: Joints filled with dense, dark yellowish brown (10YR4/2), fine SAND with some silt						
820	821.0-821.8: Vesicular horizon		822.0												
				26	100										
830															
	833.5-833.7: Vesicular horizon		832.0												
	834.3-834.5: Shear vesicles														
	835.1-835.4: Vesicular horizon														
	836.0: Gradational change to dark gray (N5)			27	100										
840															
	842.0: Gradational change to minutely vesicular, medium strong to strong		842.0												
				28	99										
850															
			852.0												
	855.4: Gradational change to slightly vesicular			29	100										
	858.5: Gradational change to minutely vesicular														
860															
	Fresh, laminated, moderate reddish brown (10R4/6), fine to medium grained clayey SANDSTONE with clay laminations up to 0.5 inch thick		862.0	30	80										
			863.0												
				31	100										
870															
	872.5: Gradational change to hard, laminated to massive, moderate reddish brown (10R4/6), silty CLAY and some fine sand laminations (LACUSTRINE DEPOSITS)		872.5												
				32	100	N/A	N/A	N/A			N/A	N/A	N/A		
880	Drillhole log continued on next page														

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley

Golder Associates

LOGGED: Compiled By Mocker
CHECKED: W G
DATE: 1/20/92

RECORD OF DRILLHOLE WO-2

Sheet 5 of 56

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 8/2/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Fault S-Shear B-Bedding | F-Foliation PL-Planar C-Curved U-Undulating | ST-Stepped I-Irregular P-Polished K-Slickensided | SM-Smooth R-Rough VR-V.Rough Fe-FeOx infill | CA-Calcite infill CL-Clay SA-Sand infill SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	GRAPHIC LOG	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	GRAPHIC LOG	WEATHERING INDEX (FR, SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (psi) (1500, 800, 300, 150, 30) (Axial / Diametral)	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
880	Hard, laminated to massive, moderate reddish brown (10R4/6), CLAY with some silt and some fine sand laminations (LACUSTRINE DEPOSITS)			32	100										Run 32 Rec 9.0/9.0
			881.5	33	100										
	Dense, thinly laminated, moderate yellowish brown (10YR5/4), fine to medium grained SAND with little clay laminations (LACUSTRINE or FLUVIAL DEPOSITS)		887.2	34	100										
890						N/A	N/A	N/A			N/A	N/A	N/A		
	Dense, moderate yellowish brown (10YR5/4), thinly laminated (<1/4 inch) silty CLAY with trace fine sand (LACUSTRINE or FLUVIAL OVERBANK DEPOSITS)		892.5	35	100										
900			902.5												
	Fresh, vesicular, dark gray (N3), aphanitic, medium strong, BASALT CaCO3 infilling at vesicles common			36	100										
			907.5												
910	914.4: Gradational change to minutely vesicular 916.0: Strong			37	100										
			917.5												
920	920.9-923.0: Slightly vesicular horizon			38	100										
			927.5												
930	931.0: Gradational change to vesicular			39	100										RQD through point load index not applicable for soils at 931.8 to 932.6
	Dense, moderate reddish brown (10R4/6), baked, partially indurated silty SAND														
	Slightly weathered, vesicular, grayish red (5R4/2), aphanitic, medium strong, BASALT														
	934.3: Gradational change to fresh, dark gray (N3)		937.5												
940	938.2: Gradational change to slightly vesicular 940.0: Changes to strong			40	100										
			947.0												
950	Fresh, vesicular, dark gray (N3), aphanitic, strong, BASALT			41	100										
	958.0: Gradational change to slightly vesicular		957.0												
960	Drillhole log continued on next page			42	100										

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley

Golder Associates

LOGGED: Compiled By Bailey/Mocker
CHECKED: W G
DATE: 1/20/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 8/2/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Foliation ST-Stepped SM-Smooth CA-Calcite Infill
F-Fault PL-Planar I-Irregular R-Rough CL-Clay
S-Shear C-Curved P-Polished VR-V.Rough SA-Sand Infill
B-Bedding U-Undulating K-Slickensided Fe-FeOx Infill SP-Sub Planar

DEPTH SCALE (FEET)	ROCK TYPE DESCRIPTION	GRAPHIC LOG	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD 80 60 40 20	FRACTURES PER FOOT 2 4 6 8 10	DISCONTINUITY DATA: DIP wrt CORE AXIS 0 30 60 90	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	GRAPHIC LOG	WEATHERING INDEX FR SW MW HW CW	STRENGTH INDEX R6 R5 R4 R3 R2 R1	● Axial ■ Diametral POINT LOAD INDEX (psi) R6 1500 R5 800 R4 300 R3 150 R2 30 R1	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
960	Fresh, slightly vesicular, dark gray (N3), aphanitic, strong, BASALT			42	100										
			967.0												
970				43	100										
			977.0												
980				44	100										
			987.0												
990				45	100										
			997.0												
1000	At 1000.0 grades to vesicular Basal cooling contact			46	100										
	Massive, very stiff, moderate reddish orange (10R6/6), SILT with trace clay (EOLIAN DEPOSIT)		1002.0												RQD through point load index not applicable for soils at 1000.8 to 1001.2
	Slightly weathered, vesicular, dark gray (N3), aphanitic, medium strong to strong, BASALT			47	100										
1010															
			1012.0												
				48	100										
1020	1020.0-1028.0: Strong														
			1022.0												
	1025.0: Grades to slightly vesicular														
				49	100										
	1028.0: Grades to minutely vesicular														
1030															
			1032.0												
				50	100										
	Slightly weathered, vesicular, medium dark gray (N5), aphanitic, medium strong to strong, BASALT														
1040	Drillhole log continued on next page														

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: W G
DATE: 1/20/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 8/3/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint, F-Fault, S-Shear, B-Bedding; F-Foliation, PL-Planar, C-Curved, U-Undulating; ST-Stepped, I-Irregular, P-Polished, K-Slickensided; SM-Smooth, R-Rough, VR-V.Rough, Fe-FeOx Infill; CA-Calcite Infill, CL-Clay, SA-Sand Infill, SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	WEATHERING INDEX (FR, SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (pai) (R6 1500, R5 800, R4 300, R3 150, R2 30, R1)	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
1040	Slightly weathered, vesicular, medium dark gray (N5), aphanitic, medium strong to strong, BASALT		50	100									
	1042.0: Gradational change to slightly vesicular	1042.0											
	Slightly weathered, vesicular, dusky red (5R3/4), aphanitic, medium strong, BASALT		51	100									RQD through point load index not applicable for soils at 1044 and 1059.6
1050	1047.0: Grades to fresh 1048.0: Grades to slightly vesicular 1050.0: Grades to dark gray (N3) 1052.0: Grades to minutely vesicular	1052.0											
	1058.0: Grades to slightly vesicular		52	100									
1060	CLAY interbed												
	Fresh, vesicular, dark gray (N3), aphanitic, medium strong, BASALT	1062.0											
	1064.0: Grades to slightly to minutely vesicular		53	100									
		1066.5											
1070			54	100									
		1076.5											
1080			55	100									
	Slightly weathered, vesicular dark gray (N3), aphanitic, medium strong, BASALT	1086.7											
	1091.0: Grades to fresh, slightly vesicular		56	100									
1090	1096.0: Grades to slightly to minutely vesicular	1096.8											
	1100.0: Grades to medium strong to strong		57	100									
1100		1107.0											
	1113.3: Increases to slightly vesicular (Base)		58	99									
1110	Slightly weathered, vesicular, grayish red (10R4/2), aphanitic, medium strong, BASALT	1117.3											
			59	93									
1120	Drillhole log continued on next page												

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: W G
DATE: 1/20/92

RECORD OF DRILLHOLE WO-2

Sheet 8 of 56

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 8/3/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint, F-Fault, S-Shear, B-Bedding
F-Foliation, PL-Planar, C-Curved, U-Undulating
ST-Stepped, I-Irregular, P-Polished, K-Slickensided
SM-Smooth, R-Rough, VR-V.Rough, Fe-FeOx Infill
CA-Calcite Infill, CL-Clay, SA-Sand Infill, SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP w/r CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	WEATHERING INDEX	STRENGTH INDEX	POINT LOAD INDEX (psi)	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
1120	Slightly weathered, vesicular, grayish red (10R4/2), aphanitic, medium strong, BASALT												
	1120.3: Grades to slightly vesicular												
	1123.3: Grades to vesicular		59	93									
	Very stiff, grayish orange (10YR7/4), CLAY with some basalt cobble sized clasts. Unit grades downward to dense, grayish orange (10YR7/4), fine sand, some subrounded pebbles, little silt.	1127.5							N/A	N/A	N/A		
1130	Fresh, vesicular, dark gray (N3), aphanitic, strong, BASALT		60	100									
		1137.5											
1140			61	100									
		1147.5											
1150			62	100									
	Fresh, slightly vesicular, grayish red (5R4/2), aphanitic, strong, BASALT	1157.5											
1160			63	100									
		1168.0											
1170	1170.0: Changes to vesicular		64	98									
	1177.0: Grades to slightly vesicular												
	1179.0: Grades to dark gray (N3)	1178.0											
1180	1181.0: Grades to minutely vesicular, medium strong		65	100									
	Moderate reddish brown CLAY (10R4/6)												
	Fresh, vesicular, dark gray (N3), aphanitic, medium strong, BASALT	1188.0											
1190	1191.5: Grades to slightly vesicular		66	100									
	1195.0: Grades to minutely vesicular												
		1198.0											
1200	Drillhole log continued on next page		67	100									

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: W G
DATE: 1/20/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR DrilVID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 8/4/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Foliation ST-Stepped SM-Smooth CA-Calcite Infill
F-Fault PL-Planar I-Irregular R-Rough CL-Clay
S-Shear C-Curved P-Polished VR-V.Rough SA-Sand Infill
B-Bedding U-Undulating K-Slickensided Fe-FeOx Infill SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION
1200	Fresh, minutely vesicular, dark gray (N3), aphanitic, medium strong, BASALT		67	100				
		1208.0	68	100				
1210								
		1218.0	69	100				
1220								
		1228.0	70	100				
1230	Slightly weathered, vesicular, dusky red (5R3/4), aphanitic, medium strong, BASALT							
	1238.0: Grades to minutely vesicular	1238.0	71	100				
1240	Hard, moderate, reddish brown (10R4/6), massive, fine SAND AND SILT, some small (1-2 inches) cobbles				N/A	N/A	N/A	
		1243.0	72	100				
	Slightly weathered to fresh, slightly vesicular, dark gray (N3), aphanitic, medium strong to strong, BASALT							
1250	1245.0: Grades to fresh, slightly to minutely vesicular							
		1252.0	73	100				
1260								
		1262.0	74	100				
1270								
		1272.0	75	99				
	1275.1: Rapid vesicularity, increase at base of flow							
	Slightly weathered, vesicular, grayish red (5R4/2), aphanitic, medium strong, BASALT							
1280	Drillhole log continued on next page							

GRAPHIC LOG

WEATHERING INDEX: FR, SW, MW, HW, CW

STRENGTH INDEX: R6, R5, R4, R3, R2, R1

● Axial ■ Diametral
POINT LOAD INDEX (psi): R6 1500, R5 800, R4 300, R3 150, R2 30, R1

TEST ORIENTATION

NOTES
WATER LEVELS
INSTRUMENTATION

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: W G
DATE: 1/20/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR Drill/D
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 8/4/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Foliation ST-Stepped SM-Smooth CA-Calcite Infill
F-Fault PL-Planar I-Irregular R-Rough CL-Clay
S-Shear C-Curved P-Polished VR-V.Rough SA-Sand Infill
B-Bedding U-Undulating K-Slickensided Fe-FeOx Infill SP-Sub Planar

DEPTH SCALE (FEET)	ROCK TYPE / DESCRIPTION	GRAPHIC LOG	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	GRAPHIC LOG	WEATHERING INDEX: FR / SW / MW / HW / CW	STRENGTH INDEX: R6 / R5 / R4 / R3 / R2 / R1	● Axial ■ Diametral POINT LOAD INDEX (psi): 1500 / 800 / 300 / 150 / 30 / R6 / R5 / R4 / R3 / R2 / R1	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
1280	Fresh, slightly vesicular, dark gray (N3), aphanitic, medium strong to strong, BASALT			75	99										
			1282.0												
	1281.0: Grades to slightly to minutely vesicular														
	1286.5: Grades to vesicular			76	99										
1290	1289.9-1291.3: Slightly vesicular														
	1291.3: Returns to vesicular														
	1293.3: Grades to slightly vesicular		1292.0												
	Very stiff, dark yellowish brown (10YR4/2), massive, SILT with little fine sand (EOLIAN DEPOSIT)														
	1298.3: Grades to fine sandy SILT with little subangular fine pebble sized basalt fragments			77	100	N/A	N/A	N/A			N/A	N/A	N/A		
1300	Fresh, vesicular, dark gray (N3), aphanitic, medium strong, BASALT														
	1302.5: Grades to slightly vesicular		1302.0												
				78	100										
1310	Very stiff, light brown (5YR5/6), bedded clayey SILT with little fine pebble sized subangular basalt clasts					N/A	N/A	N/A			N/A	N/A	N/A		
			1311.0												
	Fresh, vesicular, dark gray (N3), aphanitic, strong, BASALT														
	1313.1: Grades to slightly vesicular														
	1314.4-1314.7: Vesicular horizon														
	1317.5-1321.5: Vesicular horizon			79	100										
1320	1321.5: Grades to slightly vesicular														
			1322.0												
				80	98										
	Very soft, pale yellowish orange (10YR8/6), CLAY with little silt (EOLIAN DEPOSIT)														
1330	Slightly weathered, vesicular, blackish red (5R2/2), aphanitic, medium strong, BASALT														
	1330.6: Grades to fresh, slightly vesicular		1332.0												
	1333.0: Grades to dark gray (N3), vesicular			81	97										
	Soft, pale yellowish orange (10YR8/6), CLAY with some silt (EOLIAN DEPOSIT)														
1340	Slightly weathered, vesicular, blackish red (5R2/2), aphanitic, medium strong, BASALT														
	Soft, pale yellowish orange (10YR8/6), CLAY with some silt (EOLIAN DEPOSIT)		1342.0												
				82	100										
	Slightly weathered, vesicular, blackish red (5R2/2), aphanitic, medium strong to strong, BASALT														
1350	1343.0: Dark gray (N3)														
			1352.0												
				83	100										
1360	Drillhole log continued on next page														

NOTES
WATER LEVELS
INSTRUMENTATION

RQD through point load index not applicable in soils at 1328.5 - 1328.8, 1337.5 - 1337.6, and 1341.4 - 1341.8

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: W G
DATE: 1/20/92

RECORD OF DRILLHOLE WO-2

Sheet 11 of 56

PROJECT: EG&G/NPR DrillVID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 8/4/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint; F-Fault; S-Shear; B-Bedding
F-Foliation; PL-Planar; C-Curved; U-Undulating
ST-Stepped; I-Irregular; P-Polished; K-Slickensided
SM-Smooth; R-Rough; VR-V.Rough; Fe-FeOx Infill
CA-Calcite Infill; CL-Clay; SA-Sand Infill; SP-Sub Planar

DEPTH SCALE (FEET)	ROCK TYPE / DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	WEATHERING INDEX (FR, SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (psi) (1500, 800, 300, 150, 30)	TEST ORIENTATION (Axial / Diametral)	NOTES WATER LEVELS INSTRUMENTATION
1360	Fresh, slightly vesicular, dark gray (N3), aphanitic, strong, BASALT		83	100									
	Slightly weathered, vesicular, dusky red (5R3/4), aphanitic, medium strong, BASALT 1365.0: Grades to fresh 1367.0: Grades to dark gray (N3) 1369.0: Grades to minutely vesicular	1362.0	84	100									
1370		1372.0	85	100									
1380		1382.0	86	100									
1390	Slightly weathered, vesicular, very dusky red (10R2/2), aphanitic, medium strong, BASALT 1386.0: Grades to fresh, medium dark gray (N4) 1389.0: Grades to slightly vesicular	1392.0	87	100									
1400	Slightly weathered, vesicular, dusky red (5R3/4), aphanitic, medium strong, BASALT 1400.0: Grades to dark gray (N3), fresh 1405.0: Grades to slightly vesicular	1402.0	88	100									
1410	1413.0: Grades to minutely vesicular 1415.8-1417.2: Slightly vesicular horizon	1412.0	89	100									
1420	1422.0: Grades to strong	1422.0	90	100									
1430	1434.6-1434.8: Basal cooling: vesicularity increases to slightly vesicular	1432.0	91	100									
	Slightly weathered, vesicular, grayish red (5R4/2), aphanitic, medium strong, BASALT												
1440	Drillhole log continued on next page												

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: W G
DATE: 1/20/92

RECORD OF DRILLHOLE WO-2

Sheet 12 of 56

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 8/5/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Fault S-Shear B-Bedding
F-Foliation PL-Planar C-Curved U-Undulating
ST-Stepped I-Irregular P-Polished K-Slickensided
SM-Smooth R-Rough VR-V.Rough Fe-FeOx Infill
CA-Calcite Infill CL-Clay SA-Sand Infill SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	WEATHERING INDEX (FR, SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (psi) (● Axial ■ Diametral) (R6 1500, R5 800, R4 300, R3 150, R2 30, R1)	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
1440	Slightly weathered, slightly vesicular, grayish red (5R4/2), aphanitic, medium strong, BASALT		91	100									
	1442.0: Grades to fresh, slightly to minutely vesicular, medium dark gray (N4)	1442.0	92	100									
1450	Slightly weathered, vesicular, grayish red (5R4/2), aphanitic, medium strong, BASALT	1452.0											
	1454.5: Grades to fresh, slightly vesicular, medium dark gray (N4), aphanitic, medium strong to strong, BASALT		93	100									
1460	1464.0: Grades to minutely vesicular, strong	1462.0	94	100									
1470		1472.0	95	100									
1480		1482.0	96	100									
1490		1492.0	97	100	N/A	N/A	N/A		N/A	N/A	N/A		
1500	Very stiff, moderate reddish brown (10R4/6), clayey SILT trace fine sand												
	Slightly weathered, vesicular, dark yellowish brown (10YR4/2), aphanitic, medium strong, BASALT												
	1503.0: Grades to fresh, dark gray (N3), strong	1502.0	98	100									RQD through point load index not applicable for soil at 1512.0 to 1513.0
1510	1506.5: Grades to slightly vesicular												
	Dense, moderate reddish brown (10R4/6), fine SAND, some silt (EOLIAN DEPOSIT)	1512.0											
	Slightly weathered, vesicular, brecciated, dark gray (N3), aphanitic, medium strong, BASALT		99	100									
1520	1514.0: Grades to fresh, slightly vesicular												
	Drillhole log continued on next page												

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: W G
DATE: 1/20/92

RECORD OF DRILLHOLE WO-2

Sheet 13 of 56

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 8/6/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Fault S-Shear B-Bedding
F-Foliation PL-Planar C-Curved U-Undulating
ST-Stepped I-Irregular P-Polished K-Slickensided
SM-Smooth R-Rough VR-V.Rough Fe-FeOx Infill
CA-Calcite Infill CL-Clay SA-Sand Infill SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	WEATHERING INDEX: FR / SW / MW / HW / CW	STRENGTH INDEX: R6 / R5 / R4 / R3 / R2 / R1	POINT LOAD INDEX (psi): R6 1500 / R5 800 / R4 300 / R3 150 / R2 30 / R1	TEST ORIENTATION (● Axial ■ Diametral)	NOTES WATER LEVELS INSTRUMENTATION
1520	Fresh, minutely vesicular, dark gray (N3), aphanitic, strong, BASALT		99	105									
	1523.8-1523.9: Vesicular horizon 1524.1-1524.7: Vesicular horizon	1520.2	100	100									
1530		1532.0	101	100									
	1535.3-1535.8: Vesicular horizon												
1540		1542.0	102	100									
1550		1552.0	103	100									
	Hard, moderate reddish brown (10R4/6), laminated CLAY, little silt, moderately indurated (LACUSTRINE DEPOSIT)	1557.0			N/A	N/A	N/A		N/A	N/A	N/A		
1560	Fresh, vesicular, medium dark gray (N4), aphanitic, medium strong, BASALT		104	100									
	1564.0: Grades to slightly vesicular 1565.0: Grades to minutely vesicular												
	1568.0: Grades to slightly vesicular	1567.0	105	100									
1570	1571.0: Grades to vesicular 1573.0: Grades to slightly vesicular												
	1576.0: Grades to minutely vesicular	1577.0	106	100									
1580	1581.0: Grades to medium strong to strong												
		1587.0	107	98									
1590	Moderately weathered, massive, moderate reddish brown (10R4/6), weak to medium strong, CLAYSTONE												
	Slightly weathered, vesicular, moderate reddish brown (10R4/6), medium strong, BASALT 1592.0: Grades to medium gray (N4), fresh, minutely vesicular												
	Slightly weathered, vesicular, very dusky red (10R2/2), aphanitic, medium strong, BASALT	1597.0	108	100									
1600	Drillhole log continued on next page												

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: W G
DATE: 1/20/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 8/6/91-8/22/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint, F-Fault, S-Shear, B-Bedding
F-Foliation, PL-Planar, C-Curved, U-Undulating
ST-Stepped, I-Irregular, P-Polished, K-Slickensided
SM-Smooth, R-Rough, VR-V.Rough, Fe-FeOx Infill
CA-Calcite Infill, CL-Clay, SA-Sand Infill, SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	WEATHERING INDEX (FR, SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (psi) (Axial / Diametral)	NOTES WATER LEVELS INSTRUMENTATION
1600	Fresh, slightly vesicular, medium dark gray (N4), aphanitic, medium strong, BASALT											
	Slightly weathered, vesicular, dark reddish brown (10R3/4), aphanitic, medium strong, BASALT		108	100								
	1605.0: Becomes very dusky red (10R2/2)	1607.0										
1610			109	100								
	1613.0: Grades to fresh to slightly weathered, slightly to minutely vesicular, grayish red (5R4/2), aphanitic, medium strong, BASALT											
	1618.3-1618.8: Weak zone (hydrothermal alteration)	1617.0										
1620	1621.0: Grades to minutely vesicular, medium dark gray (N4)		110	100								
		1626.0										
	1629.0: Grades to fresh											
1630			111	100								
	1637.0: Becomes medium strong to strong	1636.0										
1640			112	100								
	1645.0: Grades to strong	1645.5										
1650			113	100								
		1652.0										
			114	100								
1660	Hard, moderate brown (5YR3/4), unstratified to thinly laminated, CLAY with some silt to fine sand, little clay, moderately indurated (LACUSTRINE DEPOSIT)	1660.0	115	100								
		1663.0										
			116	100	N/A	N/A	N/A		N/A	N/A	N/A	
1670												
	1675.0: Becomes brownish gray (5YR4/1), rhythmite couplets of silt, trace fine sand and clay	1673.0										
			117	100								
1680	Drillhole log continued on next page											

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: W G
DATE: 1/20/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 8/23/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint, F-Foliation, ST-Stepped, SM-Smooth, CA-Calcite Infill
F-Fault, PL-Planar, I-Irregular, R-Rough, CL-Clay
S-Shear, C-Curved, P-Polished, VR-V.Rough, SA-Sand Infill
B-Bedding, U-Undulating, K-Slickensided, Fe-FeOx Infill, SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	WEATHERING INDEX	STRENGTH INDEX	POINT LOAD INDEX (psi)	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
1680	Hard, brownish gray (5YR4/1), massive, poorly to moderately indurated, CLAY, trace fine sand (LACUSTRINE DEPOSIT)		117	100									
		1683.0	118	100									
1690		1688.0	119	92	N/A	N/A	N/A		N/A	N/A	N/A		
	1693.0: Grades to silt, little to some fine sand	1693.0											
	Slightly weathered, vesicular, medium dark gray (N4), aphanitic, medium strong, BASALT		120	99									
1700	1705.0: Grades to slightly vesicular	1702.5	121	95									
1710	Very dense, dark reddish brown (10YR3/4) to pale yellowish brown (10YR6/2), laminated fine to medium SAND with 8-inch basalt cobble (FLUVIAL DEPOSIT)												RQD through point load index not applicable for soil at 1710.6 to 1712.2
	Slightly weathered, slightly vesicular, medium dark gray (N4), porphyritic, medium strong to strong, BASALT NOTE: Vesicles infilled with pale green (10G6/2) clay	1713.0	122	100									
1720		1723.0	123	100									
1730	1729.0: Grades to slightly weathered to fresh, minutely vesicular												
	Very dense (cemented), dark yellowish orange (10YR6/6), thinly laminated (1/4 inch), medium to coarse SAND (FLUVIAL DEPOSIT)	1733.0	124	100									
1740	Fresh, yellowish gray (5Y7/2), thinly laminated (1/16 to 1/4 inch), weak to very weak, CLAY with trace of possible charcoal/organic particles (LACUSTRINE DEPOSITS)												
	1742.0: Becomes greenish black (5GY2/1), trace pyrite	1743.0	125	100	N/A	N/A	N/A		N/A		N/A		
1750		1750.0	126	100									
1760	Drillhole log continued on next page												

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Riley

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: W G
DATE: 1/20/92

RECORD OF DRILLHOLE WO-2

Sheet 16 of 56

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 8/24/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Fault S-Shear B-Bedding
F-Foliation PL-Planar C-Curved U-Undulating
ST-Stepped I-Irregular P-Polished K-Slickensided
SM-Smooth R-Rough VR-V.Rough Fe-FeOx Infill
CA-Calcite Infill CL-Clay SA-Sand Infill SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	WEATHERING INDEX (FR, SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (psi) (R6 1500, R5 600, R4 300, R3 150, R2 30, R1)	TEST ORIENTATION (● Axial ■ Diametral)
1760	Fresh, greenish black (5GY2/1), moderately indurated, weak to very weak, CLAY, trace pyrite (LACUSTRINE DEPOSIT)		127	100								
		1767.0	128	100								
1770	1771.4: Color grades to olive gray (5Y4/1)											
		1773.0	129	92	N/A	N/A	N/A		N/A		N/A	
	1777.0: Color grades to greenish black (5GY2/1)											
1780												
	1784.5: Color grades to light brownish gray (5YR6/1)	1783.0	130	92								
		1785.5	131	96								
		1787.8	132	46								
1790												
		1797.5	133	100								
1800	1800.0: Color changes to greenish black (5GY2/1)											
	Slightly weathered, vesicular, medium dark gray (N4), aphanitic, medium strong, BASALT	1803.0										
	1804.0: Grades to fresh, vesicular, medium dark gray (N4), porphyritic, medium strong to strong, BASALT		134	99								
1810												
	1814.0: Grades to slightly vesicular	1813.0										
	1817.0: Grades to minutely vesicular		135	98								
1820												
		1822.5	136	100								
	1825.0: Changes to vesicular, aphanitic, medium strong	1825.0	137	140								
	1826.5: Grades to slightly vesicular											
	1829.5: Grades to vesicular over 0.2	1828.0	138	100								
1830	1830.5: Sharp contact to fresh, slightly vesicular, brownish gray (5YR4/1), aphanitic, strong, BASALT	1831.0										
	Hard, olive gray (5Y3/2) to grayish brown (5YR3/2), silty CLAY with up to 6 inch basalt cobbles, interbedded with clayey silt		139	100	N/A	N/A	N/A		N/A	N/A	N/A	
	Fresh, vesicular, dark gray (N3), aphanitic, medium strong, BASALT											
1840	Drillhole log continued on next page											

NOTES
WATER LEVELS
INSTRUMENTATION

NOTE:
1825.0: Changed from CHD 101 to NQ core size.
Hole cased CHD 101 to 1825.0 BGS.

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: W G
DATE: 1/20/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR DrillVID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 8/25/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint, F-Fault, S-Shear, B-Bedding; F-Foliation, PL-Planar, C-Curved, U-Undulating; ST-Stepped, I-Irregular, P-Polished, K-Slickensided; SM-Smooth, R-Rough, VR-V.Rough, Fe-FeOx Infill; CA-Calcite Infill, CL-Clay, SA-Sand Infill, SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	WEATHERING INDEX (FR, SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (psi) (R6 1500, R5 800, R4 300, R3 150, R2 30, R1)	NOTES WATER LEVELS INSTRUMENTATION
1840	Fresh, vesicular, dark gray (N3), aphanitic, medium strong, BASALT		139	100								
	1840.0-1845.0: ~5% vesicles are infilled with light green (5G7/4) to grayish green (10G4/2) CLAY	1841.0										
	1845.7: Grades to slightly vesicular and strong		140	100								
1850												
	1853.5: Grades to vesicular, vesicles are infilled with light green (5G7/4), grayish green (10G4/2), and grayish red (10R4/2), clay and $CaCO_3$	1851.0										
	1856.5-1857.7: Contains several discontinuous, irregular $CaCO_3$ veins		141	100								
1860	1860.0: Grades to slightly vesicular											
		1861.0										
	1865.0: Grades to minutely vesicular, medium strong to strong		142	100								
1870												
	1871.0-1872.5: Basalt is brecciated and coated with dark yellowish green (10GY4/4) clay	1871.0										
			143	96								
	Hard, dark yellowish green (10GY4/4), structureless CLAY and angular to subangular basalt clasts up to 2 inches in diameter (COLLUVIUM?)				N/A	N/A	N/A		N/A	N/A	N/A	Unit appears to be hydrothermally altered
1880	Above 1879.2 material is clast supported, below is matrix supported	1881.0										
	Fresh, slightly vesicular, medium dark gray (N4), aphanitic, medium strong to strong, BASALT		144	100								
1890		1891.0										
	1896.0: Grades to minutely vesicular		145	100								
1900		1901.0										
			146	100								
1910		1911.0										
			147	100								
		1911.0										
1920	Drillhole log continued on next page		148	100								

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: W G
DATE: 1/20/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 8/25/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint, F-Foliation, ST-Stepped, SM-Smooth, CA-Calcite Infill
F-Fault, PL-Planar, I-Irregular, R-Rough, CL-Clay
S-Shear, C-Curved, P-Polished, VR-V.Rough, SA-Sand Infill
B-Bedding, U-Undulating, K-Slickensided, Fe-FeOx Infill, SP-Sub Planar

DEPTH SCALE (FEET)	ROCK TYPE / DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	WEATHERING INDEX (FR, SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (psi) (1500, 800, 300, 150, 30) (R6, R5, R4, R3, R2, R1)	TEST ORIENTATION (Axial / Diametral)	NOTES WATER LEVELS INSTRUMENTATION
1920	Fresh, minutely vesicular, medium dark gray (N4), aphanitic, medium strong to strong, BASALT		148	100									
	1921.0: Grades to minutely vesicular to crystalline												
	1929.0: Grades to crystalline, strong	1927.5											
1930	Fresh, vesicular, very dusky red (10R2/2), aphanitic, medium strong, BASALT. 50% vesicles filled with $CaCO_3$.		149	100									
	1934.3: Grades to minutely to slightly vesicular, medium dark gray (N4)												
	Fresh, slightly vesicular to vesicular, very dusky red (10R2/2), aphanitic, medium strong, BASALT	1937.5											
1940	1938.3: Grades to vesicular to minutely vesicular, dark gray (N3), 5% vesicles calcite filled, 2% green clay filled		150	100									
	1942.1-1943.7: Vesicular zone, vesicles <1/10 inch												
	1944.5: Grades to vesicular												
	1947.8-1949.6: Crystalline zone	1947.5											
	1949.6-1952.2: Vesicles filled with grayish red clay (5R4/2)												
1950	1952.2: Grades to crystalline, strong		151	100									
	1956.7-1957.1: Vesicular zone, 10% infilled with calcite												
		1957.5											
1960	1961.0: Grades to grayish black (N2), strong to very strong		152	100									
	1968.9-1969.1: 1/32 inch calcite veins												
	1968.8-1969.6: Slightly weathered, strong	1967.5											
1970	1969.6: Returns to fresh, strong to very strong		153	100									
1980		1978.0	154	100									
	Slightly weathered, crystalline, very dusky red (10R2/2), aphanitic, strong to very strong, BASALT												
1990		1988.0	155	100									
	Hard, moderate reddish brown (10R4/6) to dark reddish brown (10R3/4), stratified silty CLAY to clayey silt with little fine sand	1996.0	156	100	N/A		N/A			N/A		N/A	
2000	Drillhole log continued on next page												

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: W G
DATE: 1/20/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 8/25/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N:698355.83
AZIMUTH: NA

COLLAR ELEV:4929.27
E:312180.83
INCLINATION: -90°

J-Joint, F-Fault, S-Shear, B-Bedding; F-Foliation, PL-Planar, C-Curved, U-Undulating; ST-Stepped, I-Irregular, P-Polished, K-Slickensided; SM-Smooth, R-Rough, VR-V.Rough, Fe-FeOx Infill; CA-Calcite Infill, CL-Clay, SA-Sand Infill, SP-Sub Planar

DEPTH SCALE (FEET)	ROCK TYPE / DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	WEATHERING INDEX	STRENGTH INDEX	POINT LOAD INDEX (psi)	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
2000	Very dense, moderate reddish brown (10R4/6), stratified clayey SILT, little very fine sand		156	100									
	2003.3: Coarsens to fine sand and silt, little clay. Also contains heavy mineral cross-laminations and rip up clasts (FLUVIAL DEPOSITS)	2002.0	157	100									
2010	2010.4: Fines to stiff, clayey silt. Color remains (10R4/6)	2010.0	158	100									
	2013.6: Becomes soft over interval 2017.0-2020.0, grades to and then remains compact to dense, moderate yellowish brown (10YR5/4), laminated (1/4-2 inches), fine to medium sand with some silty clay in individual laminations (FLUVIAL DEPOSITS)	2013.0	159	100	N/A	N/A	N/A		N/A	N/A	N/A		
2020		2020.0	160	100									
		2027.0	161	100									
2030	Fresh, slightly vesicular, medium dark gray (N4), porphyritic, medium strong to strong, BASALT												
	2023.0: Grades to minutely vesicular	2035.0	162	100									
2040													
	Fresh, vesicular, medium dark gray (N4), porphyritic, medium strong to strong, BASALT	2045.0	163	100									
2050	2049.0: Becomes strong												
	2053.0: Grades to slightly vesicular												
	2056.0: Grades to minutely vesicular	2055.0	164	100									
2060													
	2065.0: Grades to crystalline	2065.0											
	2066.9: Grades to slightly vesicular												
	2068.1-2068.6: Vesicular zone		165	100									
2070													
	2073.1: Grades to vesicular												
		2075.0											
	2078.9: Grades to crystalline		166	100									
2080	Drillhole log continued on next page												

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: W G
DATE: 1/20/92

RECORD OF DRILLHOLE WO-2

Sheet 20 of 56

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 8/26/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint; F-Fault; S-Shear; B-Bedding; F-Foliation; PL-Planar; C-Curved; U-Undulating; ST-Stepped; I-Irregular; P-Polished; K-Slickensided; SM-Smooth; R-Rough; VR-V.Rough; Fe-FeOx Infill; CA-Calcite Infill; CL-Clay; SA-Sand Infill; SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	ROD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	WEATHERING INDEX (FR, SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (psi) (Axial / Diametral)	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
2080	Slightly weathered, vesicular, dark gray (N3), medium strong, BASALT												
	2082.3: Grades to fresh, crystalline, strong		166	100									
		2085.5											
2090			167	99									
	2093.0: Grades to slightly vesicular												
	2096.5: Grades to vesicular, vesicles infilled with dark gray (N3) and grayish green (10G4/2), CLAY and $CaCO_3$	2095.5									N/A		
2100	2100.0-2101.8: Slightly vesicular zone		168	100									
	2104.0: Grades to slightly weathered, dusky yellowish brown (10YR2/2)												
		2105.5	169	100				N/A		N/A			
	Soft, light brown (5YR6/4), dusky brown (5YR2/2), and grayish olive green (5GY3/2), mottled, unstratified, CLAY												
2110	Slightly weathered, vesicular, dusky yellowish brown (10YR2/2), aphanitic, strong, BASALT	2108.5											
	2108.7: Grades to fresh, dark gray (N3)		170	95									
		2118.5			INF								No Core
2120	2121.0: Grades to slightly vesicular, medium dark gray (N4)		171	100	INF			Abundant drill induced fractures – many show spin faces					
	NOTE: 2118.5-2128.0: Core contains so many drill fractures – unable to accurately compute RQD				INF								
	2129.0: Grades to minutely vesicular	2128.0											
2130			172	100							N/A		
		2138.0						Abundant drill induced fractures – many exhibit spin faces					
2140			173	77	INF								
													No Core
		2144.5	174	98				N/A		N/A			
2150	Soft, moderate reddish orange (10R6/6), unstratified, CLAY (unknown origin)												
	Slightly weathered, vesicular, dark reddish brown (10R3/4), aphanitic, medium strong, BASALT	2150.5											
	2152.1: Grades to fresh, dark gray (N3) and strong vesicles filled with $CaCO_3$ and pale green (10G6/2) clay		175	105									
2160	Drillhole log continued on next page	2158.5	176	88									

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/20/92

RECORD OF DRILLHOLE WO-2

Sheet 21 of 56

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 8/28/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Foliation ST-Stepped SM-Smooth CA-Calcite Infill
F-Fault PL-Planar I-Irregular R-Rough CL-Clay
S-Shear C-Curved P-Polished VR-V.Rough SA-Sand Infill
B-Bedding U-Undulating K-Slickensided Fe-FeOx Infill SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	WEATHERING INDEX (FR, SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (Axial / Diametral)	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
2160	Fresh, slightly vesicular, medium dark gray (N4), aphanitic, strong, BASALT 10-20% vesicles are infilled with $CaCO_3$		176	88				Many drill induced fractures – RQD difficult to measure					
2170	2169.0: Becomes medium strong to strong Vesicles are mostly (90%) filled with $CaCO_3$	2168.5	177	90				From 2172.5 to 2173.5 there are 19 separate drill breaks – some with spin faces					
2180	2179.0: Grades to weak to medium strong 2183.0: Changes to strong	2179.0	178	100									
2190	2188.0: Grades to minutely vesicular	2190.0	179	100									
2200	NOTE: From 2197.8 to 2200.0 core shows signs of hydrothermal alteration with reduction in strength 2201.0: Becomes slightly vesicular, medium strong	2195.5	180	100				Majority of fractures likely drill induced – makes it difficult to measure RQD					
2210	Dense, moderate brown (5YR3/4), unstratified, hydrothermally altered, CLAY Slightly weathered, vesicular, medium dark gray (N4), aphanitic, weak to medium strong, BASALT, likely hydrothermally altered Vesicles infilled with pale green (10G6/2) clayish material, generally with calcite in fractures	2205.5	181	100			N/A						NOTE: Now drilling NQ3 to allow use of splits
2220	From 2224.2 to 2226.0 core is traversed by 1/2 inch thick "bands" of greenish black (5G2/1) indurated material 30-40% by volume 2225.0: Becomes fresh, medium strong	2215.8	182	100									NOTE: Fractures in this zone may be predominantly drill induced.
2230	Vesicle and fracture infilling of pale green (10G6/2) and light brown (5YR5/6), clay	2226.0	183	100									
2240	2238.0: Grades to slightly weathered and weak to medium strong Drillhole log continued on next page	2231.0	184	100			N/A						

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/21/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 8/28/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint, F-Fault, S-Shear, B-Bedding; F-Foliation, PL-Planar, C-Curved, U-Undulating; ST-Stepped, I-Irregular, P-Polished, K-Slickensided; SM-Smooth, R-Rough, VR-V.Rough, Fe-FeOx Infill; CA-Calcite Infill, CL-Clay, SA-Sand Infill, SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	WEATHERING INDEX (FR, SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (Axial / Diametral) (1500, 800, 300, 150, 30)	TEST ORIENTATION
2240	Fresh, slightly vesicular, medium dark gray (N4), aphanitic, medium strong, BASALT		184	100								
	2241.0: Grades to fresh, medium strong	2241.0						All fractures 2242.0 to 2250.0 are 90.0 – many have spin faces				
	2244.0: Color grades to grayish black (N2) and vesicle infilling decreases		185	100								
2250	2251.0-2252.5: ~30% vesicles filled with $CaCO_3$	2251.0						20-40% exhibit spin faces				
	2259.0-2260.0: Two 1x2 and 1x3 inch vesicles with euhedral $CaCO_3$ crystals		186	100								
2260	2262.5-2263.6: ~10% of vesicles as large as 15 mm lined with euhedral $CaCO_3$ crystals	2261.0										
	2265.1-2265.7: Vesicular horizon, vesicles as large as 15 mm lined with euhedral $CaCO_3$ crystals		187	100								
2270	Stiff, light olive gray (5Y6/1), unstratified, CLAY and pebble sized basalt clasts	2271.0										
	2273.0-2276.0: Faintly laminated		188	100	N/A	N/A	N/A		N/A	N/A	N/A	
2280	2278.0: 1.4 diameter basalt clast	2281.0										
	2279.2: Grades to soft to firm dusky yellow green (5GY5/2) to pale yellowish brown (10YR6/2), laminated clay (LACUSTRINE DEPOSIT)		189	74	INF							
	2285.0-2286.0: Becomes small pebble sized angular basalt clasts in clay matrix											
	Fresh, crystalline, dark gray (N3), aphanitic, strong, BASALT											
2290	Possible VOID: very easy drilling however is more likely to be a poorly consolidated clay zone as we did recover 0.5 soft, pale yellowish brown (10YR6/2) CLAY which may have mostly washed away in this zone	2291.0	190									
2300	Stiff, pale yellowish brown (10YR6/2), thinly 1/8 inch laminated CLAY (LACUSTRINE DEPOSIT)	2301.0	191	100								
		2302.5	192	170								
	2305.4: 1/8 inch lamination of grayish black (N2) fine sand and silt with distinct organic odor	2304.0	193	100	N/A	N/A	N/A	Shear with vertical rakes	N/A	N/A	N/A	
2310	Fresh, slightly vesicular, medium dark gray, aphanitic, strong, BASALT											
	2313.0: Grades to minutely vesicular	2311.0	194	100								
2320	Drillhole log continued on next page											

NOTE:
Fractures in this interval may be drill induced

NOTE:
This basalt is likely a large clast in interbed as it is difficult to see a 2.4 flow being crystalline(?)

There is a shear with vertical rakes below this zone. Could also be faulted into position?

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/22/92

RECORD OF DRILLHOLE WO-2

Sheet 23 of 56

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 8/29/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N:698355.83
AZIMUTH: NA

COLLAR ELEV:4929.27
E:312180.83
INCLINATION: -90°

J-Joint F-Foliation ST-Stepped SM-Smooth CA-Calcite Infill
F-Fault PL-Planar I-Irregular R-Rough CL-Clay
S-Shear C-Curved P-Polished VR-V.Rough SA-Sand Infill
B-Bedding U-Undulating K-Stickensided Fe-FeOx Infill SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	GRAPHIC LOG	WEATHERING INDEX (SW, MW, HW, CW, FR)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (Axial / Diametral)	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
2320	Fresh, minutely vesicular, medium dark gray (N4), aphanitic, strong, BASALT	2321.0	194	100										
			195	100										
2330		2331.0	196	100										
2340	2341.0: Grades to slightly vesicular, medium strong to strong All vesicles are infilled with either calcite or pale green (10G6/2) clay	2341.0	197	98										
2350	2351.0: Grades to minutely vesicular, strong 2355.0: Becomes slightly weathered, medium strong 2358.0: Becomes moderately weathered, weak	2351.0	198	100										
2360	2361.0: Becomes fresh, medium strong to strong 2365.0: Becomes strong, vesicles infilled with pale green (10G6/2) indurated clay and calcite	2361.0	199	94						N/A	N/A	N/A		No Core
2370	Dense, pale green (10G6/2), massive, indurated CLAY (LACUSTRINE DEPOSIT)	2371.0	200	96										
	Slightly to moderately weathered, slightly vesicular, medium dark gray (N4), aphanitic, weak to moderately strong, BASALT From 2372.1-2384.5 much of core is composed of well indurated pale green (10G6/2) clay – possibly original fracture filling that has later become indurated 2377.0: Becomes slightly weathered, medium strong 2379.0: Becomes fresh, minutely vesicular	2376.5	201	100										
2380	Dense, dark yellowish brown (10YR4/2), massive indurated clayey SILT and 1/4 inch angular basalt clasts (EOLIAN DEPOSIT)				N/A	N/A	N/A			N/A	N/A	N/A		
2390	Fresh, minutely vesicular to crystalline, dark gray (N3), aphanitic, strong, BASALT	2386.0	202	98										
	2397.0: Grades to crystalline, very strong	2396.0	203	102	N/A									
2400	Drillhole log continued on next page													

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/22/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR DrilVID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 8/29/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Fault S-Shear B-Bedding
F-Foliation PL-Planar C-Curved U-Undulating
ST-Stepped I-Irregular P-Polished K-Slickensided
SM-Smooth R-Rough VR-V.Rough Fe-FeOx infill
CA-Calcite infill CL-Clay SA-Sand infill SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	WEATHERING INDEX (FR, SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (Axial / Diametral) (R6 1500, R5 800, R4 300, R3 150, R2 30, R1)	NOTES WATER LEVELS INSTRUMENTATION
2400	Fresh, crystalline, dark gray (N3), aphanitic, very strong, BASALT											
	Hard, grayish olive green (5GY3/2), finely laminated, silty CLAY, trace fine sand		203	102								
	2409.3: Becomes interbedded with firm to stiff, grayish olive green (5GY3/2) clay. Clay laminations are ≈ 15 mm in thickness. Unit is composed of approximately 30% clay laminations and 70% silty clay.	2406.0	204	105	N/A	N/A	N/A		N/A	N/A	N/A	
2410		2415.5	205	100								
2420	Fresh, crystalline, dark gray (N3), aphanitic, strong, BASALT											
	2421.3-2423.8: Vesicular horizon, vesicles infilled with light greenish gray (5G8/1) clay and $CaCO_3$	2421.0	206	100								
2430	Stiff, medium dark gray (N4), unstratified, CLAY (LACUSTRINE DEPOSIT)	2431.0	207	100	N/A	N/A	N/A		N/A	N/A	N/A	
	Fresh, crystalline, medium dark gray (N4) to dark gray (N3), aphanitic, strong, BASALT	2441.0	208	100								
2450		2451.0	209	100								
2460		2461.0	210	100								
2470	Hard, dark gray (N3), thinly laminated, (1/8-1/4 inch) well indurated CLAY (LACUSTRINE DEPOSITS)	2471.0	211	100	N/A	N/A	N/A		N/A	N/A	N/A	
2480	Drillhole log continued on next page											

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/22/92

RECORD OF DRILLHOLE WO-2

Sheet 25 of 56

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 8/31/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N:698355.83
AZIMUTH: NA

COLLAR ELEV:4929.27
E:312180.83
INCLINATION: -90°

J-Joint, F-Fault, S-Shear, B-Bedding; F-Foliation, PL-Planar, C-Curved, U-Undulating; ST-Stepped, I-Irregular, P-Polished, K-Slickensided; SM-Smooth, R-Rough, VR-V.Rough, Fe-FeOx Infill; CA-Calcite Infill, CL-Clay, SA-Sand Infill, SP-Sub Planar

DEPTH SCALE (FEET)	ROCK TYPE / DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	ROD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	WEATHERING INDEX (FR, SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (psi) (R6 1500, R5 800, R4 300, R3 150, R2 30, R1)	TEST ORIENTATION (● Axial ■ Diametral)	NOTES WATER LEVELS INSTRUMENTATION
2480	Hard, light olive gray (5Y6/1), thinly laminated (1/8-1/4 inch) CLAY (LACUSTRINE DEPOSIT), 75° in relation to core axis		211	100	N/A				N/A	N/A	N/A		
	Fresh, slightly vesicular, medium dark gray (N4), aphanitic, medium strong to strong, BASALT (clast)	2481.0	212	100	N/A				N/A	N/A	N/A		
	Hard, pale green (10G6/2), massive, well indurated, CLAY (LACUSTRINE)								N/A	N/A			
2490	Moderately weathered, slightly vesicular, medium dark gray (N4), aphanitic, weak to medium strong, BASALT	2491.0	213	100									
	2488.5: Grades to fresh, minutely vesicular, strong												
2500	2502.0-2504.2: Slightly vesicular. Zone returns to minutely vesicular. Driller indicated rapid rod drop at 2502 (0.5), 2506 (0.6), 2507 (1.0) which could possibly be voids, soft fractured areas, or interbeds to account for core loss.	2501.0	214	78	N/A								
		2511.0	215	96	N/A								
2510	2517.5: Grades to slightly vesicular, vesicles filled with grayish green (10GY5/2) clay												
	2519.0: Grades to vesicular, vesicles filled with grayish green (10GY5/2) clay												
2520	2522.2: Grades to slightly vesicular, vesicles infilled with pale yellowish green (10GY2/2) clay	2521.0	216	97									
		2527.0	217	105									
2530	2530.7-2532.0: Vesicular horizon												
	2533.5-2535.3: Vesicular horizon												
	2536.5: Grades to vesicular	2536.5	218	133									Fractures may be predominantly drill induced
2540	2544.1-2544.3: Core composed of angular basalt clasts (1/2 inch) in $CaCO_3$ cemented fine sand sized matrix	2539.5	219	100									
	2545.0: Becomes medium strong to strong												
2550	2553.0: Grades to slightly vesicular	2550.0	220	86									
	Above and below core loss zone: hard, pale yellowish brown (10YR6/2), unstratified, CLAY (LACUSTRINE DEPOSIT)												
	Fresh, slightly vesicular, medium dark gray (N4), porphyritic, medium strong to strong, BASALT												
2560	Drillhole log continued on next page												

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/22/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR DrillVID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/1/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Fault S-Shear B-Bedding
F-Foliation PL-Planar C-Curved U-Undulating
ST-Stepped I-Irregular P-Polished K-Slickensided
SM-Smooth R-Rough VR-V.Rough Fe-FeOx infill
CA-Calcite infill CL-Clay SA-Sand infill SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	WEATHERING INDEX (FR, SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (psi) (Axial / Diametral)	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
2560	Fresh, minutely to slightly vesicular, medium dark gray (N4), porphyritic, strong, BASALT	2561.0	220	86									
			221	100									
2570	2569.0: Becomes minutely vesicular 2569.5-2571.0 and 2577.0-2579.0: Core contains clay inclusions in basalt, dusky yellow green (5GY5/2) to moderate yellowish green (10GY6/4)	2569.5	222	100									
2580	2579.5: Becomes moderately weathered, slightly vesicular, weak to medium strong 2580.7-2581.2 and 2581.5-2581.8: Basalt has underlying clay incorporated into flow	2579.5	223	98									
2590	Stiff to very stiff, olive gray (5Y3/2), massive, CLAY, some silt (LACUSTRINE DEPOSIT) Fresh, minutely vesicular, medium dark gray (N4), aphanitic, strong, BASALT	2589.5	224	90									
2600		2600.0	225	108									
	Stiff to very stiff, medium dark gray (N4), massive, CLAY				N/A	N/A	N/A		N/A	N/A	N/A		
	Fresh, minutely vesicular, medium dark gray (N4), aphanitic, strong, BASALT	2606.0											
2610	2606.0: Grades to crystalline		226	98									
		2616.0	227	100									
2620													
	Very stiff, grayish olive (10Y4/2) and olive gray (5Y3/2) interbedded, massive CLAY and finely laminated clay (LACUSTRINE DEPOSIT)	2626.0	228	56	N/A	N/A	N/A		N/A	N/A	N/A		
2630		2636.0	229	100	N/A	N/A	N/A		N/A	N/A	N/A		
2640	Drillhole log continued on next page												

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/23/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/1/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Fault S-Shear B-Bedding
F-Foliation PL-Planar C-Curved U-Undulating
ST-Stepped I-Irregular P-Polished K-Slickensided
SM-Smooth R-Rough VR-V.Rough Fe-FeOx Infill
CA-Calcite Infill CL-Clay SA-Sand Infill SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	WEATHERING INDEX (FR, SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (Axial / Diametral)	NOTES WATER LEVELS INSTRUMENTATION
2640	Very stiff, grayish olive (10Y4/2) and olive gray (5Y3/2) interbedded, massive CLAY and finely laminated clay	2641.0	229	100	N/A	N/A	N/A		N/A	N/A	N/A	
	2643.7: Abrupt coarsening to clayey silt, little fine sand											
	Highly weathered, vesicular, dark gray (N3), aphanitic, medium strong, BASALT		230	100								
2650	2645.9: Becomes slightly weathered											
	2647.0: Becomes fresh, strong	2651.0										
	2650.5: Grades to slightly vesicular		231	100								
2660	2661.0: Becomes slightly weathered, slightly vesicular to vesicular, medium strong	2661.0										
	All vesicles are clay filled – 50% with medium dark gray (N4), 50% with pale green (10G6/2)		232	100								
	Slightly weathered, slightly vesicular to vesicular, dark reddish brown (10R3/4), aphanitic, medium strong, BASALT, vesicles are filled with dark reddish brown (10R3/4) clayey silt	2671.0										
2670	2670.6: Color grades to grayish red (5R4/2)		233	100								
2680	2682.5: Grades to fresh, slightly to minutely vesicular, medium dark gray (N4), aphanitic, medium strong to strong, basalt	2681.0										
			234	100								
2690	2690.0: Grades to minutely vesicular, strong	2691.0				INF						2694.0-2697.0: Core tumbled during removal from tube – exact location of fractures unknown
			235	100								
2700		2701.0										
			236	100								
2710	Fresh, slightly vesicular, greenish black (5G2/1), porphyritic, medium strong to strong, BASALT	2707.5										
	2717.5: Grades to minutely vesicular, strong		237	100								
2720	Drillhole log continued on next page	2717.5	238	85								

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/23/92

RECORD OF DRILLHOLE WO-2

Sheet 28 of 56

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/1/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint, F-Fault, S-Shear, B-Bedding
F-Foliation, PL-Planar, C-Curved, U-Undulating
ST-Stepped, I-Irregular, P-Polished, K-Slickensided
SM-Smooth, R-Rough, VR-V.Rough, Fe-FeOx Infil
CA-Calcite Infill, CL-Clay, SA-Sand Infill, SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	ROD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP w/r CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION
2720	Fresh, minutely vesicular, greenish black (5G2/1), porphyritic, strong, BASALT							
	2723.7: Grades to slightly vesicular – all vesicles are infilled with pale green (10G6/2) indurated clay		238	85				
	2729.0: Becomes aphanitic	2727.5						
2730			239	100				
	2736.0: Grades to crystalline	2736.0						
	2738.7: Grades to slightly vesicular							
2740			240	100				
	2743.2: Grades to minutely vesicular							
		2746.0						
	2749.1: Grades to crystalline							
2750			241	100				
	Moderately weathered, vesicular, dark reddish brown (10R3/4), aphanitic, medium strong, BASALT	2756.0						
2760	2756.0: Grades to slightly weathered 2759.0: Grades to fresh 2761.0: Grades to slightly vesicular and dark gray (N3) – vesicles are infilled with pale green (5G2/1) clay and $CaCO_3$		242	100				
	2763.0: Grades to strong	2766.0						
	2768.0: Grades to vesicular							
2770	2770.7: Grades to slightly vesicular		243	100				
	2776.0: Grades to minutely vesicular	2776.0						
	2779.7: Grades to crystalline							
2780			244	100				
		2786.0						
2790			245	100				
	2793.0: Becomes very strong							
		2796.0						
			246	100				
2800	Drillhole log continued on next page							

GRAPHIC LOG

WEATHERING INDEX: FR, SW, MW, HW, CW

STRENGTH INDEX: R6, R5, R4, R3, R2, R1

● Axial ■ Diametral
POINT LOAD INDEX (psi): R6 1500, R5 800, R4 300, R3 150, R2 30, R1

TEST ORIENTATION

NOTES
WATER LEVELS
INSTRUMENTATION

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/23/92

RECORD OF DRILLHOLE WO-2

Sheet 29 of 56

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/2/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Foliation ST-Stepped SM-Smooth CA-Calcite Infill
F-Fault PL-Planar I-Irregular R-Rough CL-Clay
S-Shear C-Curved P-Polished VR-V.Rough SA-Sand Infill
B-Bedding U-Undulating K-Slickensided Fe-FeOx Infill SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	WEATHERING INDEX (FR, SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (Axial / Diametral)	NOTES WATER LEVELS INSTRUMENTATION
2800	Fresh, crystalline, dark gray (N3), aphanitic, very strong, BASALT		246	100								
		2806.0	247	100								Fractures in the interval may be predominantly drill induced
	Slightly weathered, slightly vesicular, grayish brown (5YR3/2), aphanitic, medium strong, BASALT	2806.7	248	100								
2810	2813.0: Grades to vesicular	2811.0										
	2817.0: Grades to fresh, minutely vesicular, strong		249	100								
2820		2821.0										
	2825.0: Becomes medium dark gray (N4)		250	100								
2830		2831.0										
	2833.0: Becomes porphyritic, phenocrysts are 2-3 mm lath shaped crystals of plagioclase		251	100								
2840		2841.0										
	2841.0: Becomes aphanitic – all vesicles are infilled with grayish green (10G4/2) clay and $CaCO_3$		252	100								
2850		2851.0										
			253	96								
2860		2861.0										
			254	100								
2870	Fresh, unstratified, brownish gray (5Y4/1), composed of fine to medium sand grains, medium strong, SANDSTONE	2870.0										
	Fresh, slightly vesicular, medium dark gray (N4), aphanitic, strong, BASALT		255	100								
2880	Drillhole log continued on next page											

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/23/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/3/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint, F-Fault, S-Shear, B-Bedding; F-Foliation, PL-Planar, C-Curved, U-Undulating; ST-Stepped, I-Irregular, P-Polished, K-Slickensided; SM-Smooth, R-Rough, VR-V.Rough, Fe-FeOx Infill; CA-Calcite Infill, CL-Clay, SA-Sand Infill, SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION
2880	Fresh, slightly vesicular, medium dark gray (N4), aphanitic, strong, BASALT	2880.0						
	2881.0: Grades to minutely vesicular to crystalline, porphyritic. Phenocrysts are 2-3 mm lath shaped cyrstals of plagioclase.		256	100				
2890	Moderately weathered, slightly vesicular to vesicular, medium dark gray (N4), porphyritic, weak to medium strong, BASALT Vesicles infilled with pale green (10G6/2) chloritic(?) clay	2890.0	257	96				
2900	2904.0: Grades to fresh, slightly to minutely vesicular, medium strong to strong	2900.0	258	98				
2910	Slightly weathered, slightly vesicular to vesicular, medium dark gray (N4), porphyritic, medium strong, BASALT	2910.0						
	2916.0: Becomes fresh, crystalline, strong		259	99				
2920		2920.0	260	100				
		2926.0	261	100				
2930		2931.0						
	Moderately weathered, slightly vesicular to vesicular, grayish red (5R4/2), porphyritic, weak to medium strong, BASALT		262	92				
	2937.0: Grades to slightly weathered, slightly vesicular, medium dark gray (N4), medium strong							
2940	2941.0: Grades to moderately weathered, vesicular, weak to medium strong	2941.0						
	2946.0: Grades to slightly weathered, slightly vesicular, medium strong		263	100				
	2949.5: Grades to fresh, minutely vesicular to cyrstalline, strong							
2950		2950.0						
	Slightly to moderately weathered, slightly vesicular, medium dark gray (N4), porphyritic, medium strong, BASALT		264	98				
2960	Drillhole log continued on next page							

GRAPHIC LOG; GRAPHIC LOG; WEATHERING INDEX (FR, SW, MW, HW, CW); STRENGTH INDEX (R6, R5, R4, R3, R2, R1); ● Axial ■ Diametral; POINT LOAD INDEX (psi) (1500, 600, 300, 150, 30); TEST ORIENTATION; NOTES WATER LEVELS INSTRUMENTATION

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/23/92

RECORD OF DRILLHOLE WO-2

Sheet 31 of 56

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/4/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint, F-Fault, S-Shear, B-Bedding
F-Foliation, PL-Planar, C-Curved, U-Undulating
ST-Stepped, I-Irregular, P-Polished, K-Slickensided
SM-Smooth, R-Rough, VR-V.Rough, Fe-FeOx Infill
CA-Calcite Infill, CL-Clay, SA-Sand Infill, SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	WEATHERING INDEX	STRENGTH INDEX	POINT LOAD INDEX (psi)	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
2960	Fresh, slightly vesicular, medium dark gray (N4) to dark gray (N3), porphyritic, strong, BASALT. Vesicles have grayish green (5G5/2) partial infillings of clay and $CaCO_3$.	2960.0	265	100									
	2965.0: Grades to minutely vesicular, phenocrysts are small (3 mm) lath shaped plagioclase crystals												
2970	From 2973.0 to 2976.0 vesicles are filled with pale green (5G6/2) clay and $CaCO_3$	2970.0	266	100									
2980		2980.0	267	100			N/A			N/A			
	Stiff, dark reddish brown (10R3/4), unstratified, silty CLAY (UNKNOWN ORIGIN)	2982.0											
	Slightly weathered, slightly vesicular, brownish gray (5YR4/1), porphyritic (3 mm lath plagioclase), medium strong to strong, BASALT		268	100									
2990	2988.0: Grades to minutely vesicular, medium dark gray (N4), strong, fresh												
	2991.0: Grades to crystalline	2991.0	269	100									
	2993.0: Grades to fresh, strong												
3000		3001.0	270	100									
3010	Slightly weathered, slightly vesicular, brownish gray (5YR4/1), aphanitic, strong, BASALT	3011.0	271	100									
	3017.0: Grades to fresh, crystalline, dusky yellowish brown (10YR2/2)	3016.0	272	100									
3020	Slightly weathered, vesicular, dark reddish brown (10R3/4), aphanitic, strong, BASALT. Vesicles filled with dusky yellowish green (10GY3/2) chloritic clay material.	3026.0	273	100									
3030	3026.6: Grades to slightly vesicular												
	3029.0: Grades to fresh, crystalline, dark gray (N3)	3031.0											
	3036.0: Grades to vesicular		274	95									
3040	Drillhole log continued on next page												

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/23/92

RECORD OF DRILLHOLE WO-2

Sheet 32 of 56

PROJECT: EG&G/NPR Drill/D
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/5/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Foliation ST-Stepped SM-Smooth CA-Calcite Infill
F-Fault PL-Planar I-Irregular R-Rough CL-Clay
S-Shear C-Curved P-Polished VR-V.Rough SA-Sand Infill
B-Bedding U-Undulating K-Slickensided Fe-FeOx Infill SP-Sub Planar

DEPTH SCALE (FEET)	ROCK TYPE DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	ROD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	GRAPHIC LOG	WEATHERING INDEX: FR SW MW HW CW	STRENGTH INDEX: R6 R5 R4 R3 R2 R1	POINT LOAD INDEX (psi) ● Axial ■ Diametral: R6 1500 R5 800 R4 300 R3 150 R2 30 R1	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
3040	Fresh, crystalline, dark gray (N3), aphanitic, strong, BASALT	3041.0	274	95	80 60 40 20	2 4 6 8 10	0 30 60 90							
	Slightly weathered, vesicular, grayish red (5G5/2), aphanitic, medium strong, BASALT. Vesicles infilled with grayish green (5G5/2) chloritic clay.		275	75										
3050	3051.0: Grades to fresh, slightly vesicular, dark gray (N3), strong	3049.0												
	3054.0: Grades to crystalline		276	99										
	3060.0: Grades to minutely vesicular	3059.0												
3060			277	100										
	Slightly weathered, vesicular, blackish red (5R2/2), porphyritic, medium strong, BASALT	3069.0												
3070	3073.0: Grades to slightly vesicular		278	100										
	3078.0: Grades to fresh, minutely vesicular, medium dark gray (N4), strong	3079.0												
3080			279	99										
	Slightly weathered, slightly vesicular to vesicular, grayish red (5R4/2), porphyritic, strong to medium strong, BASALT. Contains amygdules of both grayish green (10G4/2) chloritic clay and $CaCO_3$. Phenocrysts are lath shaped plagioclase.	3089.0												
3090			280	100										
		3099.0	281	100										
3100	3102.0: Grades to fresh, minutely vesicular, dark greenish gray (5G4/1), strong	3103.0												
	3105.0: Grades to crystalline		282	100										
3110		3111.0												
	Occasional (3 ft) 1/4-1/2 inch vesicles		283	100										
3120	Drillhole log continued on next page	3120.0												

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/23/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/6/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Fault S-Shear B-Bedding
F-Foliation PL-Planar C-Curved U-Undulating
ST-Stepped I-Irregular P-Polished K-Slickensided
SM-Smooth R-Rough VR-V.Rough Fe-FeOx Infill
CA-Calcite Infill CL-Clay SA-Sand Infill SP-Sub Planar

DEPTH SCALE (FEET)	ROCK TYPE / DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	ROD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	GRAPHIC LOG	WEATHERING INDEX (FR, SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (Axial / Diametral)	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
3120	Fresh, amygdaloidal, crystalline, dark greenish gray (5G4/1), porphyritic, strong, BASALT	3120.0	284	100										
	Slightly weathered, vesicular, dusky brown (10YR2/2), porphyritic, medium strong, BASALT. 30-40% plagioclase phenocryts													
3130	3127.3: Grades to slightly vesicular, strong 3128.8: Grades to freh, very dusky red (10R2/2) 3131.6: Grades to crystalline, greenish yellow (10Y8/2) chloritic clay amygdules	3129.0	285	90										
3140	3140.0: Grades to medium dark (N4) to dark gray (N3) 3142.0: Grades to strong to very strong	3139.0	286	100										
		3141.0	287	100										
3150		3151.0	288	100										
	Slightly weathered, vesicular to slightly vesicular, very dusky red (10R2/2), porphyritic, strong, BASALT NOTE: Amygdaloidal; amygdules are 20% white $CaCO_3$, 40% grayish blue green (5BG5/2) chloritic clay and 40% empty vesicles													
3160	3153.0: Grades to slightly vesicular 3157.2: Grades to fresh, medium dark gray (N4) 3163.0: Grades to crystalline	3161.0	289	99										
	3168.0: Grades to slightly vesicular													
3170		3171.0	290	80										
	Slightly weathered, slightly vesicular, amygdaloidal, very dusky red (10R2/2), porphyritic, weak to medium strong, BASALT. Amygdules are grayish green (5G5/2) chloritic clay. Phenocrysts are 2-3 mm lath shaped plagioclase.													
3180		3179.0	291	80										
		3186.5	292	67										
	3188.4: Grades to fresh, minutely vesicular, medium dark gray (N3) to grayish black (N2), strong	3188.0	293	89										
3190														
	3196.2: Grades to vesicular, possible flowtop (?) based on vesicularity – core loss – fractures													
3200	Drillhole log continued on next page	3198.5	294	92										

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/23/92

RECORD OF DRILLHOLE WO-2

Sheet 34 of 56

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD:
DRILLING DATE: 9/7/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint, F-Fault, S-Shear, B-Bedding; F-Foliation, PL-Planar, C-Curved, U-Undulating; ST-Stepped, I-Irregular, P-Polished, K-Slickensided; SM-Smooth, R-Rough, VR-V.Rough, Fe-FeOx Infill; CA-Calcite Infill, CL-Clay, SA-Sand Infill, SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	ROD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP w/r CORE AXIS; TYPE AND SURFACE DESCRIPTION	WEATHERING INDEX: FR, SW, MW, HW, CW	STRENGTH INDEX: R6, R5, R4, R3, R2, R1	POINT LOAD INDEX (psi): R6 1500, R5 800, R4 300, R3 150, R2 30, R1	TEST ORIENTATION (● Axial ■ Diametral)	NOTES WATER LEVELS INSTRUMENTATION
3200	Fresh, vesicular, amygdaloidal, medium dark gray (N4) to grayish black (N2), porphyritic, strong, BASALT. Amygdules are grayish green (5G2/2) chloritic clay. Phenocrysts are 2-3 mm lath plagioclase.		294	92								
	3203.0: Becomes slightly weathered, olive black (5Y2/1), weak	3202.5	295	49								
3210	Basalt has incorporated material from lower interbed into basal. 10 ft of flow core is composed of up to 40% clay in brecciated basalt.	3209.5	297									
		3211.0	298	87								
		3212.5	299	97								
		3216.0	300	98		N/A						Poorly Indurated
3220	Fresh, massive, pale brown (5YR5/2), composed of silt, some medium sand, weak to medium strong, SILTSTONE											
	3223.3: Grades to medium gray (N5)											
	3224.2-3225.4: Becomes poorly indurated, medium to coarse sand											
	3227.0: Grades to light gray (N7) and medium strong	3226.0										
3230	3229.5: Sand component grades to very coarse		301	99								
	3233.2: 4-inch basalt cobble											
	3236.2: Coarsens downward to matrix supported pebbly sandstone	3236.0										
	Slightly weathered, vesicular, olive black (5Y2/1), porphyritic, medium strong, BASALT. Vesicles are infilled with $CaCo_3$. Phenocrysts are 1-2 mm lath shaped plagioclase crystals.		302	100								
3240	3241.5: Grades to fresh, slightly vesicular, grayish black (N2), strong	3241.5										
			303	100								
	Fresh, cross-bedded, grayish olive green (5GY3/2), composed of fine grained sand, very weak, SANDSTONE											
3250	Fresh, slightly vesicular, grayish black (N2), porphyritic, strong, BASALT	3251.0										
	3251.9: Grades to crystalline											
	3256.0: Grades to slightly vesicular. Vesicles infilled (10G6/2) pale green clay.		304	100								
	Dense to very dense, moderate brown to light brownish gray (5R3/4 to 5YR6/1) coarsely laminated (1-2 ft) SILT to clast supported small gravel (FLUVIAL DEPOSITS)							N/A	N/A	N/A		
3260		3261.0										
	Fresh, vesicular, amygdaloidal, grayish black (N2), porphyritic, strong, BASALT. Vesicles are infilled with zeolite, and/or grayish olive green (5GY3/2) clay. Phenocrysts are 1-3 mm lath shaped crystals of plagioclase.		305	100								
3270	3273.0: Grades to minutely vesicular											
	3275.0: Grades to vesicular	3271.0										
			306	100								
3280	Drillhole log continued on next page											

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Bailey
CHECKED: WG
DATE: 1/23/92

RECORD OF DRILLHOLE WO-2

Sheet 35 of 56

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/8/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Foliation ST-Stepped SM-Smooth CA-Calcite Infill
F-Fault PL-Planar I-Irregular R-Rough CL-Clay
S-Shear C-Curved P-Polished VR-V.Rough SA-Sand Infill
B-Bedding U-Undulating K-Slickensided Fe-FeOx Infill SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	ROD 60 50 40 20	FRACTURES PER FOOT 2 4 6 8 10	DISCONTINUITY DATA: DIP wrt CORE AXIS 0 30 60 90	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	GRAPHIC LOG	WEATHERING INDEX: FR SW MW HW CW	STRENGTH INDEX: R6 R5 R4 R3 R2 R1	● Axial ■ Diametral POINT LOAD INDEX (psi): 1500 R6, 600 R5, 300 R4, 150 R3, 30 R2, R1	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
3280	Fresh, slightly vesicular, grayish black (N2), porphyritic, strong, BASALT. Phenocrysts are 1-3 mm plagioclase lath shaped crystals. Vesicles are infilled with grayish olive green (5GY3/2) clay and zeolite.		306	100										
		3281.0	307	94										
3290	Fresh, vesicular, grayish black (N2), porphyritic, strong, BASALT. Phenocrysts are 1-3 mm lath shaped plagioclase. Vesicles are filled with grayish olive green (5GY3/2) and grayish black (N2) clay and $CaCO_3$.	3290.0	308	88										
	3297.0: Becomes slightly weathered, medium strong	3296.0	309	73										
3300	3302.0: Grades to fresh, crystalline, strong	3301.5	310	95										
3310	3310.6: Becomes slightly to moderately weathered, slightly vesicular, grayish black (N2), porphyritic, weak to medium strong, basalt (possible flow top) 3312.0: Grades to fresh, medium strong	3311.0	311	99										
3320	3321.0: Grades to slightly to minutely vesicular, aphanitic, strong to very strong	3321.0	312	100										
3330	3331.0: Grades to minutely vesicular 3334.0: Grades to dark gray (N3) 3338.0: Grades to grayish black (N2)	3331.0	313	100										
3340		3341.0	314	99										
3350	Fresh, slightly vesicular to vesicular, grayish brown (5YR3/2), aphanitic, strong, BASALT 3352.5: Grades to dark gray (N3) 3353.0: Grades to slightly vesicular	3351.0	315	89										
3360	Drillhole log continued on next page													

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/23/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/9/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint, F-Fault, S-Shear, B-Bedding; F-Foliation, PL-Planar, C-Curved, U-Undulating; ST-Stepped, I-Irregular, P-Polished, K-Slickensided; SM-Smooth, R-Rough, VR-V.Rough, Fe-FeOx Infill; CA-Calcite Infill, CL-Clay, SA-Sand Infill, SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	ROD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP w/r CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	WEATHERING INDEX (FR, SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (psi) (Axial / Diametral)	NOTES WATER LEVELS INSTRUMENTATION
3360	Fresh, slightly vesicular to minutely vesicular, amygdaloidal, medium dark gray (N4), aphanitic, strong, BASALT. Amygdules are 60% CaCO3 and 40% light greenish gray (5GY8/1) waxy chloritic clay		315	89								
		3361.0	316	100								
3370		3370.0	317	91								
	3375.4: Basalt becomes highly weathered (hydrothermally altered), brecciated, grayish red (5R4/2), aphanitic, strong, basalt	3375.0	318	100								
3380	Very dense, moderately to well indurated, reddish brown (10R4/6) grading downward to yellowish gray (5Y7/2), fine to coarse SAND AND GRAVEL with trace silt, matrix supported (FLUVIAL DEPOSIT). From 3380.5 to 3384.7 the unit contains up to 8 inch diameter basalt clasts and may represent a colluvium horizon	3381.0	319	95					INF	INF		
3390		3391.0	320	100					INF	INF		
3400	Fresh, vesicular to slightly vesicular, medium dark gray (N4), aphanitic, strong, BASALT. 3398.0: Grades to minutely vesicular	3399.0	321	100								
3410	3409.0: Grades to crystalline	3409.0	322	100								
3420	Slightly weathered, vesicular, dark gray (N3), aphanitic, medium strong, BASALT. 3422.0: Grades to fresh, minutely vesicular, strong. 3426.0: Grades to greenish black (5GY2/1). 3429.0: Grades to dark gray (N3)	3419.0	323	99								
3430	3433.0: Grades to strong to very strong	3429.0	324	100								
3440	Drillhole log continued on next page	3439.0	325	100								

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/23/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/10/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Foliation ST-Stepped SM-Smooth CA-Calcite Infill
F-Fault PL-Planar I-Irregular R-Rough CL-Clay
S-Shear C-Curved P-Polished VR-V.Rough SA-Sand Infill
B-Bedding U-Undulating K-Slickensided Fe-FeOx Infill SP-Sub Planar

DEPTH SCALE (FEET)	ROCK TYPE / DESCRIPTION	GRAPHIC LOG	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	ROD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	GRAPHIC LOG	WEATHERING INDEX (FR: SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (PSI) (● Axial ■ Diametral)	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
3440	Fresh, minutely vesicular, dark gray (N3), aphanitic, strong to very strong, BASALT			325	100										
			3449.0												
3450				326	100										
			3459.0												
3460	Slightly weathered, slightly vesicular, dark gray (N3), aphanitic, medium strong to strong, BASALT			327	99										
	3463.0: Grades to fresh, minutely vesicular, strong														
			3467.0												
3470	Moderately weathered, slightly vesicular, grayish red (5R4/2), porphyritic, weak to medium strong, BASALT. Vesicles infilled with dusky green (5G3/2) material.			328	84										
	3474.5: Grades to dark gray (N3)														
	3477.0: Grades to fresh, minutely vesicular to crystalline, strong to very strong. 60% vesicles infilled with dark yellowish brown (10YR4/2) clay, 20% chloritic clay/20% calcite		3475.0	329	100										
3480	3481.0: Grades to slightly vesicular, strong. All vesicles are infilled – 85% with white $CaCO_3$, 15% with pale green (10G6/2), waxy clay		3480.0	330	100										
	3486.4-3488.5: Becomes grayish red and then returns to medium dark gray (N4)														
3490			3490.0	331	100										
			3491.6												
	3497.0: Grades to crystalline			332	94										
3500			3498.8												
	Slightly weathered, vesicular, dark gray (N3), aphanitic, medium strong, BASALT			333	90										
	3505.0: Grades to fresh to slightly weathered		3504.0												
3510				334	98										
	3511.2-3512.0: Becomes pale brown (5YR5/2) and then becomes grayish black (N2). Vesicles are 50% filled with $CaCO_3$, 50% with medium dark clay (N4).		3514.0												
				335	100										
3520	Drillhole log continued on next page														

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/25/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR DrillVID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/10/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Fault S-Shear B-Bedding | F-Foliation PL-Planar C-Curved U-Undulating | ST-Stepped I-Irregular P-Polished K-Slickensided | SM-Smooth R-Rough VR-V.Rough Fe-FeOx Infill | CA-Calcite Infill CL-Clay SA-Sand Infill SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	WEATHERING INDEX (FR, SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (psi) (Axial / Diametral)	TEST ORIENTATION
3520	Fresh to slightly weathered, vesicular, grayish black (N2), aphanitic, medium strong, BASALT		335	100	80 60 40 20	2 4 6 8 10	0 30 60 90					
	3523.4: Grades to very dusky red (10R2/2)	3524.0										
	3525.0-3528.0: Minutely vesicular horizon then returns to vesicular, vesicles filled with $CaCO_3$ or clay		336	100								
3530	3529.0: Becomes grayish black (N2)											
	3533.0: Grades to fresh, minutely vesicular, greenish black (5G2/1), strong	3534.0										
	3537.0: Becomes dark gray (N3), porphyritic. Phenocrysts are 2 mm lath shaped crystals of plagioclase.		337	100								
3540												
	3545.0: Becomes slightly vesicular	3544.0										
	3548.0: 50% of vesicles began to be filled with grayish green (10G4/2) chloritic clay		338	100								
3550												
	3553.0: Grades to slightly to minutely vesicular	3551.0										
			339	100								
3560												
	3561.0: Grades to crystalline, dark gray (N3). Core color appears "mottled" or "salt and pepper," overall color is (N3).	3561.0										
			340	100								
3570												
	3574.0: Grades to strong/very strong	3571.0										
	3575.0: Quartz crystals in fractures		341	100								
3580												
		3581.0										
	3585.0: Grades to very strong		342	100								
3590												
	3592.6-3596.2: Abundant liesegang staining, Fe oxide	3591.0										
			343	90								
3600	Drillhole log continued on next page											

NOTES
WATER LEVELS
INSTRUMENTATION

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/25/92

RECORD OF DRILLHOLE WO-2

Sheet 39 of 56

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/10/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Foliation ST-Stepped SM-Smooth CA-Calcite Infill
F-Fault PL-Planar I-Irregular R-Rough CL-Clay
S-Shear C-Curved P-Polished VR-V.Rough SA-Sand Infill
B-Bedding U-Undulating K-Slickensided Fe-FeOx Infill SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	WEATHERING INDEX	STRENGTH INDEX	POINT LOAD INDEX (psi)	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
3600	Fresh, crystalline, dark gray (N3), aphanitic, very strong, BASALT	3601.0	343										
			344	100									
3610	3611.0-3617.3: Few irregular discontinuous $CaCO_3$ veins 3614.0-3618.5: Abundant liesegang staining, Fe-oxide	3611.0	345	100									
3620	3620.3-3620.7: Vesicular horizon, all vesicles are filled with light greenish clay (5G8/1) chloritic clay	3621.0	346	100						N/A			
	Hard, greenish gray (5G6/1), unstratified CLAY Fresh, slightly vesicular, medium dark gray (N4), porphyritic, strong, BASALT. Phenocrysts are 1-3 mm plagioclase laths. Vesicles are infilled with zeolite and grayish green (5G5/2) clay.												
3630	3633.0: Grades to brownish black (5YR2/1)	3631.0	347	100									
	3638.4: Grades to minutely vesicular												
3640	3640.5: Grades to crystalline, dark gray (N3) and very strong	3641.0	348	100									
3650	Slightly weathered, vesicular, blackish red (5R2/2), porphyritic, strong, BASALT. Phenocrysts are 1-3 mm plagioclase laths.	3651.0	349	100									
	3652.2-3653.0: Abundant $CaCO_3$ infilling of vesicles.												
3660	3658.5: Grades to fresh, crystalline, brownish black (5YR2/1), very strong, BASALT	3661.0	350	100									
	3666.3: Grades to slightly weathered, moderate reddish brown (10R4/6)												
3670	Fresh, slightly vesicular to vesicular, grayish blackish red (5R3/2), porphyritic, medium strong, BASALT. 50% of vesicles filled	1352.0	351	100									
	3673.0: Grades to slightly vesicular												
3680	Drillhole log continued on next page												

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/25/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/11/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Foliation ST-Stepped SM-Smooth CA-Calcite Infill
F-Fault PL-Planar I-Irregular R-Rough CL-Clay
S-Shear C-Curved P-Polished VR-V.Rough SA-Sand Infill
B-Bedding U-Undulating K-Stickensided Fe-FeOx Infill SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION
3680	Fresh, vesicular, grayish red (5R4/2), porphyritic, medium strong, BASALT. Phenocrysts are 2-3 mm long lath shaped cyrstals of plagioclase. 25% of vesicles are infilled with moderate brown (5YR3/4) clay, 25% with calcite.	3681.0	351	100				
			352	95				
3690		3691.0						
	3697.0: Grades to slightly vesicular, dark gray (N3), strong		353	99				
3700	3701.3-3702.3: Core becomes moderate dusky red (5R4/4) and then returns to dark gray (N3)	3701.0						
	3704.0: Grades to pale grayish red (5R5/2)		354	96				
3710	Slightly weathered, pyroclastic, bombs and angular breccia, moderate red (5R4/6) to dusky yellow (5Y6/4) to dusky red (5R3/4) to grayish red (5R4/2), mostly porphyritic, weak, pyroclastically deposited, BASALT BRECCIA	3711.0						
	Fresh to slightly weathered, slightly vesicular to minutely vesicular, medium dark gray (N4), porphyritic, medium strong, BASALT		355	100				
	3713.0: Grades to fresh crystalline, strong							
3720		3719.5						
			356	100				
3730		3729.8						
			357	100				
3740		3739.0						
			358	100				
		3745.0						
3750	Slightly weathered, vesicular, brownish black (5YR2/1), porphyritic, medium strong, BASALT		359	100				
	3751.0: Becomes slightly weathered, vesicles are infilled with $CaCO_3$, zeolite, and grayish green (5G5/2) clay							
	Moderately weathered to fresh, finely laminated to unstratified, moderate yellowish brown (10YR5/4) to grayish olive (10Y4/2) composed of tuffaceous fine to coarse sand, some silt, weak, TUFFACEOUS SANDSTONE	3755.0						
			360	100				
3760	Drillhole log continued on next page							

GRAPHIC LOG | WEATHERING INDEX (FR, SW, MW, HW, CW) | STRENGTH INDEX (R6, R5, R4, R3, R2, R1) | POINT LOAD INDEX (Axial, Diametral) (1500, 800, 300, 150, 30) (R6, R5, R4, R3, R2, R1) | TEST ORIENTATION | NOTES WATER LEVELS INSTRUMENTATION

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/25/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/12/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint, F-Fault, S-Shear, B-Bedding; F-Foliation, PL-Planar, C-Curved, U-Undulating; ST-Stepped, I-Irregular, P-Polished, K-Slickensided; SM-Smooth, R-Rough, VR-V.Rough, Fe-FeOx infill; CA-Calcite infill, CL-Clay, SA-Sand infill, SP-Sub Planar

DEPTH SCALE (FEET)	ROCK TYPE / DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	ROD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP with CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	GRAPHIC LOG	WEATHERING INDEX (FR, SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	● Axial ■ Diametral: POINT LOAD INDEX (psi) (R6 1500, R5 800, R4 300, R3 150, R2 30, R1)	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
3760	Moderately weathered to fresh, finely laminated to unstratified, moderate yellowish brown (10YR5/4) to grayish olive (10Y4/2), composed of tuffaceous fine to coarse sand, some silt, weak, TUFFACEOUS SANDSTONE		360	100										
	Very stiff, moderate reddish orange (10R6/6), unstratified, CLAY (WATERLAIN ASH)	3765.0	361	100	N/A	N/A				N/A	N/A			
3770	With a separate horizon from 3773.3 to 3777.0 of fresh, stratified, grayish olive (10Y4/2), fine to coarse sand, some silt, weak, tuffaceous sandstone													
	At 3777.0 sandstone becomes interbedded with above clay in 1-4 ft beds	3775.0	362	100	N/A	N/A								
3780														
3790	Fresh, unstratified, grayish green (10GY5/2), composed of clayey silt, with little fine, black, glassy, angular, sand, weak to very weak, SILTSTONE	3785.0	363	100										
	3787.0: Color grades to light olive gray (5Y6/1)													
3800		3795.0	364	94										
3810		3805.0	365	91										
3820	Fresh, unstratified, light olive gray (5Y6/1), composed of fine tuffaceous sand, grading downward to medium to coarse tuffaceous sand, weak to very weak, TUFFACEOUS SANDSTONE	3815.0	366	100										
		3825.0	367	100										
3830	Moderately weathered, unstratified, dark gray (N3), weak to very weak, VITROPHYRE	3831.0	368	95										
	From 3830.2 to 3831.0 is a horizon of fresh, unstratified, light olive gray (5Y6/1), medium sand, weak to very weak, sandstone													
3840	Drillhole log continued on next page													

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/25/92

RECORD OF DRILLHOLE WO-2

Sheet 42 of 56

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/12/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Foliation ST-Stepped SM-Smooth CA-Calcite Infill
F-Fault PL-Planar I-Irregular R-Rough CL-Clay
S-Shear C-Curved P-Polished VR-V.Rough SA-Sand Infill
B-Bedding U-Undulating K-Slickensided Fe-FeOx Infill SP-Sub Planar

● Axial ■ Diametral

DEPTH SCALE (FEET)	ROCK TYPE / DESCRIPTION	GRAPHIC LOG	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	ROD 80 60 40 20	FRACTURES PER FOOT 2 4 6 8 10	DISCONTINUITY DATA: DIP wrt CORE AXIS 0 30 60 90	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	GRAPHIC LOG	WEATHERING INDEX FR SW MW HW CW	STRENGTH INDEX R6 R5 R4 R3 R2 R1	POINT LOAD INDEX (psi) R6 1500 R5 800 R4 300 R3 150 R2 30 R1	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
3840	Moderately weathered, unstratified, dark gray (N3), weak to very weak, VITROPHYRE		3841.0	368	0%										
				369	58										
3850			3849.5	370	100										
	Obsidian fragments are 2-4 mm in diameter and angular occasional devitrified 1/2 inch to 1 inch zones		3858.0	371	96										
3860															
			3865.0	372	100										
3870															
			3875.0	373	100										
3880	Grades to fresh, black (N1), weak														
			3885.0	374	100										
3890															
			3895.0	375	100										
			3896.0	376	100										
			3897.0	377	100										
3900			3901.0	378	100										
3910	Highly weathered, unstratified, assorted colors, bright orange (no code), grayish purple (5P4/2), moderate red (5R4/6), very weak, devitrified, welded, lithic, TUFF		3909.5	379	100										
3920	Drillhole log continued on next page		3919.5	380	98										

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/25/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/13/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N:698355.83
AZIMUTH: NA

COLLAR ELEV:4929.27
E:312180.83
INCLINATION: -90°

J-Joint F-Foliation ST-Stepped SM-Smooth CA-Calcite Infill
F-Fault PL-Planar I-Irregular R-Rough CL-Clay
S-Shear C-Curved P-Polished VR-V.Rough SA-Sand Infill
B-Bedding U-Undulating K-Slickensided Fe-FeOx Infill SP-Sub Planar

DEPTH SCALE (FEET)	ROCK TYPE / DESCRIPTION	GRAPHIC LOG	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	GRAPHIC LOG	WEATHERING INDEX: FR / SW / MW / HW / CW	STRENGTH INDEX: R6 / R5 / R4 / R3 / R2 / R1	● Axial ■ Diametral POINT LOAD INDEX (psi): R6 1500 / R5 800 / R4 300 / R3 150 / R2 30 / R1	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
3920	Highly weathered, unstratified, assorted colors, bright orange (no code), grayish purple (5P4/2), moderate red (5R4/6), very weak, devitrified, welded lithic to crystal, TUFF			380	98										
3930			3929.0	381	92										
	3938.0: Grades to slightly weathered, weak to medium strong														
3940			3939.0	382	100										
	3948.0: Grades to highly weathered, very weak		3947.0	383	83										
3950															
	3956.0: Grades to fresh, flow banded, weak														
			3957.0	384	100										
3960	3961.0: No visible lithics 3962.0: Color grades to grayish red purple (5RP6/2). Contains ~10% subhedral to enhedral quartz and feldspar crystals.		3961.0	385	94										
3970			3971.0	386	95										
	3979.0: Becomes lithophysal. Now: fresh, flow banded grayish red purple (5RP6/2) with moderate brown (5YR3/4) flow bands, weak devitrified, lithic, crystal, welded, lithophysal, TUFF														
3980			3981.0	387	100										
3990			3991.0	388	90										
4000	Drillhole log continued on next page		3999.0	389	97										

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled ByBailey
CHECKED: WG
DATE: 1/25/92

RECORD OF DRILLHOLE WO-2

Sheet 44 of 56

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/14/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Foliation ST-Stepped SM-Smooth CA-Calcite Infill
F-Fault PL-Planar I-Irregular R-Rough CL-Clay
S-Shear C-Curved P-Polished VR-V.Rough SA-Sand Infill
B-Bedding U-Undulating K-Slickensided Fe-FeOx Infill SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION
4000	Fresh, flow banded, grayish red purple (5RP6/2) and moderate brown (5YR3/4), weak, devitrified, lithophysal, welded, lithic, crystal, TUFF		389	97				
4010	4010.0: Lithics no longer visible. Core now devitrified, lithophysal, welded, crystal, tuff	4009.0	390	98				
4020		4019.0	391	100				
	4024.0: Lithophysal cavities become absent							
4030		4029.0	392	88				
	4034.0: Becomes medium strong to strong	4034.0	393	99				
4040	4040.0: Becomes grayish red purple (5RP6/2) and grayish pink (5R8/2), flow banding becomes less apparent	4043.0	394	100				
4050	4050.0: Grades to strong	4051.0	395	100				
	4053.9: Becomes lithophysal and also lithic. Core is now lithophysal, devitrified, moderately welded, lithic, crystal, tuff							
4060		4061.0	396	99				
4070	4071.0: Flow banding becomes more pronounced	4071.0	397	100				
4080	Drillhole log continued on next page							

GRAPHIC LOG | WEATHERING INDEX (FR, SW, MW, HW, CW) | STRENGTH INDEX (R6, R5, R4, R3, R2, R1) | ● Axial ■ Diametral POINT LOAD (1500, 800, 300, 150, 30) INDEX (psi) (R6, R5, R4, R3, R2, R1) | TEST ORIENTATION | NOTES WATER LEVELS INSTRUMENTATION

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/25/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/14/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Foliation ST-Stepped SM-Smooth CA-Calcite Infill
F-Fault PL-Planar I-Irregular R-Rough CL-Clay
S-Shear C-Curved P-Polished VR-V.Rough SA-Sand Infill
B-Bedding U-Undulating K-Slickensided Fe-FeOx Infill SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	ROD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	GRAPHIC LOG	WEATHERING INDEX: FR / SW / MW / HW / CW	STRENGTH INDEX: R6 / R5 / R4 / R3 / R2 / R1	POINT LOAD INDEX (psi): 1500 / 800 / 300 / 150 / 30 (● Axial ■ Diametral)	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
4080	Fresh, flow banded, grayish red purple (5RP4/2) with 20% grayish pink (5R8/2), strong, lithophysal, devitrified, moderately welded, lithic, crystal, TUFF	4081.0	397	100	80 60 40 20	2 4 6 8 10	0 30 60 90							
			398	83										
		4084.0												
	4089.0: Becomes densely welded and vitric		399	97										
4090														
	4094.0: Lithophysal cavities become absent	4094.0												
			400	87										
4100														
	4104.0: Flow banding runs 66° in relation to core axis	4104.0												
			401	98										
4110														
	Fresh, massive, grayish black (N2), weak, VITROPHYRE	4114.0												
			402	81										
4120	Fresh, flow banded (banding runs 74° in relation to core axis), grayish red purple (5RP4/2), medium strong, densely welded, crystal, TUFF													
	Fresh, massive, dark gray (N3), strong, VITROPHYRE. Obsidian crystals are very angular 3-4 mm	4124.0												
			403	100										
4130														
		4134.0												
			404	100										
4140	4140.0: Obsidian crystals size decrease to 1-2 mm													
		4144.0												
	Fresh, laminated, medium dark grya (N4), medium strong, slightly welded, lithic, crystal, vitric, AIRFALL ASH		405	100										
4150														
	Slightly weathered, laminated, pale reddish brown (10R5/4) to pale brown (5YR5/2), weak to medium strong, unwelded, crystal, lithic, AIRFALL ASH	4154.0												
			406	75										
4160	Drillhole log continued on next page													

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/25/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR DrilVID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/15/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint, F-Fault, S-Shear, B-Bedding; F-Foliation, PL-Planar, C-Curved, U-Undulating; ST-Stepped, I-Irregular, P-Polished, K-Slickenelded; SM-Smooth, R-Rough, VR-V.Rough, Fe-FeOx Infill; CA-Calcite Infill, CL-Clay, SA-Sand Infill, SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	ROD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	WEATHERING INDEX (FR, SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (psi) (R6 1500, R5 800, R4 300, R3 150, R2 30, R1)	TEST ORIENTATION (● Axial, ▥ Diametral)	NOTES WATER LEVELS INSTRUMENTATION
4160			406	75									
	Moderately slightly weathered, massive, moderate reddish brown (10R4/6), weak to medium strong, slightly welded, devitrified, lithophysal, crystal, TUFF. Unit contains up to 1 inch spherical crystals of sanidine.	4164.0	407	83									
4170		4173.0	408	100									
		4177.0	409	82									
4180		4181.5	410	90									
	4186.0: Becomes medium strong to strong	4186.5	411	86									
4190		4194.5	412	100									
	4197.0: Lithophysae become less abundant												
4200	4202.0: Becomes fresh to slightly weathered	4201.0	413	99									
4210		4211.0	414	95									
4220		4221.0	415	98									
	4226.0: Becomes strong												
4230		4231.0	416	99									
	Fresh, thinly laminated (1/4-1 inch), moderate reddish brown (10R4/6), medium strong, fine AIRFALL ASH												
4240	Drillhole log continued on next page	4239.0	417	97									

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/25/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/16/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Foliation ST-Stepped SM-Smooth CA-Calcite Infill
F-Fault PL-Planar I-Irregular R-Rough CL-Clay
S-Shear C-Curved P-Polished VR-V.Rough SA-Sand Infill
B-Bedding U-Undulating K-Slickensided Fe-FeOx Infill SP-Sub Planar

DEPTH SCALE (FEET)	ROCK TYPE / DESCRIPTION	GRAPHIC LOG	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	GRAPHIC LOG	WEATHERING INDEX (FR, SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (Axial / Diametral): R6 1500, R5 600, R4 300, R3 150, R2 30, R1	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
4240	Fresh, thinly laminated (1/4-1 inch), moderate reddish brown (10R4/6), medium strong, fine AIRFALL ASH			417	97										
			4248.0												
4250	Fresh, massive, dark gray (N3), medium strong, VITROPHYRE			418	100										
	4254.0: Grades to strong		4254.0	419	100										
			4255.0												
	Fresh, massive, dark gray (N3), strong, ash flow, crystal, TUFF														
4260	Fresh, laminated, moderate orange pink (10R7/4), light olive (10Y5/4) and grayish olive (10Y4/2), strong, AIRFALL ASH			420	100										
	Fresh, massive, moderate reddish brown (10R4/6) to grayish brown (5YR3/2), medium strong, unwelded, devitrified, lithic, TUFF		4265.5												
4270	4269.0: Grades to welded, auto-brecciated, hydrothermally altered			421	100										
	4274.0: Becomes light olive (10Y5/4) to dusk red (5R3/4)		4275.5												
4280				422	100										
			4285.5												
4290				423	100										
			4295.5												
4300	Core remains fresh, massive, light olive (10Y5/4) to dusky red (5R3/4), medium strong, welded, auto-brecciated, devitrified, lithic, TUFF (HYDROTHERMALLY ALTERED)			424	100										
			4305.0												
4310				425	100										
			4315.0												
				426	100										
4320	Drillhole log continued on next page														

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/25/92

RECORD OF DRILLHOLE WO-2

Sheet 48 of 56

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/17/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Foliation ST-Stepped SM-Smooth CA-Calcite Infill
F-Fault PL-Planar I-Irregular R-Rough CL-Clay
S-Shear C-Curved P-Polished VR-V.Rough SA-Sand Infill
B-Bedding U-Undulating K-Slickensided Fe-FeOx Infill SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	GRAPHIC LOG	WEATHERING INDEX (FR, SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (Axial / Diametral) (R6 1500, R5 800, R4 300, R3 150, R2 30, R1)	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
4320	Fresh, massive, pale yellowish brown (10YR6/2) to yellowish gray (5Y7/2), medium strong, welded, autobrecciated, devitrified, lithic, TUFF (HYDROTHERMALLY ALTERED)	4325.0	426	100										
	4330.0: Becomes weak		427	100										
4330		4335.0												
	Hydrothermally altered (SW), massive, dark gray (N3), medium strong, lithic, VITROPHYRE		428	100										
4340		4345.0												
			429	100										
4350		4355.0												
	Hydrothermally altered, massive, grayish red (10R4/2), medium strong, welded, devitrified, TUFF		430	100										
4360		4363.0												
	Hydrothermally altered, massive, dark gray (N3), medium strong, VITROPHYRE													
	Hydrothermally altered, massive, grayish red (10R4/2), medium strong, welded, devitrified, lithic, TUFF		431	100										
4370		4371.0												
	4375.0: Grades to hydrothermally altered, massive, medium dark gray (N3), medium strong, welded, crystal, vitric, TUFF		432	100										
	Hydrothermally altered, massive, dark gray (N3), medium strong, VITROPHYRE													
4380		4380.0												
	Fresh, massive, moderate orange pink (10R7/4) to moderate reddish brown (10R4/6), medium strong, devitrified, welded, crystal, TUFF		433	100										
	4388.0: Grades to pale olive (10Y6/2) to dusky yellow (5Y6/4), devitrified, lithic, crystal, tuff													
4390		4390.0												
			434	100										
4400	Drillhole log continued on next page	4400.0												

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/25/92

RECORD OF DRILLHOLE WO-2

Sheet 49 of 56

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/17/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint, F-Fault, S-Shear, B-Bedding; F-Foliation, PL-Planar, C-Curved, U-Undulating; ST-Stepped, I-Irregular, P-Polished, K-Slickensided; SM-Smooth, R-Rough, VR-V.Rough, Fe-FeOx Infill; CA-Calcite Infill, CL-Clay, SA-Sand Infill, SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	ROD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	WEATHERING INDEX (SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (psi) (Axial / Diametral)	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
4400	Fresh, massive, pale olive (10Y6/2) to dusky yellow (5Y6/4), medium strong, poorly welded, hydrothermally altered, devitrified, lithic, crystal, TUFF	4400.0	435	100									
	4407.8: Sharp color change to moderate orange pink (10R7/4) and moderate reddish orange (10R6/8)												
4410		4409.0	436	92									
	4418.0: Becomes very weak												
		4417.0	437	76		N/C							
4420	4425.5: Lithic fragments decrease in frequency – grades to weak												
		4422.5	438	45		N/C							
	4425.5: Becomes medium strong												
		4426.0	439	85									
4430	4431.5: Becomes lithophysal												
		4431.5	440	82		N/C							
	4434.0: Color becomes medium dark gray (N4) and dark reddish brown (10R3/4)												
		4437.0	441	80									
4440	4420.0: Now slightly weathered, pale grayish red (5R5/2), weak, devitrified, lithophysal, welded, crystal, TUFF	4442.0	442	100									
4450		4451.0	443	100									
	4458.0: Becomes weak to medium strong												
4460		4460.0	444	100									
	4466.0: Becomes fresh to slightly weathered												
4470	4470.0: Becomes lithic, crystal, TUFF	4470.0	445	100									
		4476.0	446	92									
	4480.0: Grades back to crystal, tuff												
4480	Drillhole log continued on next page												

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/25/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/18/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Foliation ST-Stepped SM-Smooth CA-Calcite Infill
F-Fault PL-Planar I-Irregular R-Rough CL-Clay
S-Shear C-Curved P-Polished VR-V.Rough SA-Sand Infill
B-Bedding U-Undulating K-Slickensided Fe-FeOx Infill SP-Sub Planar

DEPTH SCALE (FEET)	ROCK TYPE / DESCRIPTION	GRAPHIC LOG	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP w/r CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	GRAPHIC LOG	WEATHERING INDEX (FR, SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (psi) (● Axial ■ Diametral) (R6 1500, R5 800, R4 300, R3 150, R2 30, R1)	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
4480	Fresh to slightly weathered, massive pale to grayish red (5R4/2 to 5R6/2), medium strong, devitrified, welded, crystal, TUFF			446	93										
			4483.0	447	100										
4490															
	4495.0: Becomes flow banded and fresh		4493.0	448	100										
4500			4500.0	449	100										
4510			4510.0	450	100										
4520			4520.0	451	100										
	4528.0: No apparent flow banding – becomes massive		4528.0	452	100										
4530															
4540			4538.0	453	100										
4550			4548.0	454	100										
			4556.0	455	100										
4560	Drillhole log continued on next page														

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/25/92

RECORD OF DRILLHOLE WO-2

Sheet 51 of 56

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/18/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Foliation ST-Stepped SM-Smooth CA-Calcite Infill
F-Fault PL-Planar I-Irregular R-Rough CL-Clay
S-Shear C-Curved P-Polished VR-V.Rough SA-Sand Infill
B-Bedding U-Undulating K-Slickensided Fe-FeOx Infill SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	ROD 80 60 40 20	FRACTURES PER FOOT 2 4 6 8 10	DISCONTINUITY DATA: DIP wrt CORE AXIS 0 30 60 90	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	GRAPHIC LOG	WEATHERING INDEX FR SW MW HW CW	STRENGTH INDEX R6 R5 R4 R3 R2 R1	● Axial ■ Diametral POINT LOAD 1500 800 300 150 30 INDEX (psi) R6 R5 R4 R3 R2 R1	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
4560	Fresh, massive, pale to grayish red (5R4/2 to 5R6/2), medium strong to strong, devitrified, moderately welded to densely welded, lithic, crystal, TUFF		455	100										
		4566.0	456	100										
4570														
		4576.0	457	100										
4580														
		4586.0	458	92										
4590														
		4592.0	459	92										
4600														
		4602.0	460	95										
4610														
		4612.0	461	100										
		4613.0	462	100										
		4615.0	463	100										
		4617.0	464	100										
4620														
		4621.0	465	93										
4630														
		4631.0	466	99										
4640	Drillhole log continued on next page													

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By Bailey
CHECKED: WG
DATE: 1/25/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/20/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Foliation ST-Stepped SM-Smooth CA-Calcite Infill
F-Fault PL-Planar I-Irregular R-Rough CL-Clay
S-Shear C-Curved P-Polished VR-V.Rough SA-Sand Infill
B-Bedding U-Undulating K-Slickensided Fe-FeOx Infill SP-Sub Planar

DEPTH SCALE (FEET)	ROCK TYPE / DESCRIPTION	GRAPHIC LOG	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	GRAPHIC LOG	WEATHERING INDEX (FR, SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (Axial / Diametral) (R6 1500, R5 600, R4 300, R3 150, R2 30, R1)	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
4640	Fresh, massive, pale to grayish red (5R4/2 to 5R6/2), medium strong to strong, devitrified, densely welded, crystal, TUFF 4640.0: Color change to moderate red (5R5/4)		4641.0	466 467	100										NOTE: Core recovery was 99 and RQD was 92 for run 466
4650			4651.0	468	100										
4660			4661.0	469	100										
4670	Fresh, flow banded, pale red (5R6/2) to grayish red (5R4/2), medium strong, devitrified, densely welded, cyrstal, TUFF. Banding is oriented 40° wrt core axis.		4671.0	470	99										NOTE: Due to scale, core loss not shown in run 470
4680			4681.0	471	100										
4690			4691.0	472	100										
4700	Fresh, pale red (5R6/2) to grayish red (5R4/2), medium strong to strong, devitrified, densely welded, crystal, TUFF		4701.0	473	100										
4710	Fresh, massive, pale red (5R6/2) to grayish red (5R4/2), medium strong to strong, devitrified, densely welded, crystal, TUFF		4711.0	474	100				4714.0-4722.0: Flow banding is oriented 55° wrt core axis						
4720	Fresh, faintly flow banded, pale red (5R6/2) to grayish red (5R4/2), medium strong to strong, devitrified, densely welded, crystal, TUFF Drillhole log continued on next page														

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By F. Mocker
CHECKED: WG
DATE: 2/9/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/20/91-9/21/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint; F-Foliation; ST-Stepped; SM-Smooth; CA-Calcite Infill
F-Fault; PL-Planar; I-Irregular; R-Rough; CL-Clay
S-Shear; C-Curved; P-Polished; VR-V.Rough; SA-Sand Infill
B-Bedding; U-Undulating; K-Slickensided; Fe-FeOx Infill; SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	NOTES WATER LEVELS INSTRUMENTATION
4720	Fresh, faintly flow banded, pale red (5R6/2) to grayish red (5R4/2), medium strong to strong, devitrified, densely welded, crystal, TUFF		474					4714.0-4722.0: Flow banding is oriented 55° wrt core axis	NOTE: Core recovery was 100 and RQD was 98 for run 474
		4721.0							
	Fresh, flow banded, minutely vesicular, pale red (5R6/2) to grayish red (5R4/2), medium strong to strong, devitrified, densely welded, crystal, TUFF		475	100				4722.0-4738.0: Flow banding is oriented 65° wrt core axis	
4730	4731.0-4746.0: Flow banding is faint but still present							4731.0-4746.0: Flow banding is oriented 80° wrt core axis	
		4731.0							
			476	86					
4740									
		4741.0	477	80					
		4743.0	478	80					
	Slightly weathered, minutely vesicular to slightly vesicular, pale red (5R6/2) to grayish red (5R4/2), medium strong, devitrified, densely welded, crystal, TUFF	4746.0	479	83					
4750	4749.0: Becomes flow banded	4749.0	480	100				4749.0-4757.0: Flow banding is oriented 70° wrt core axis	
		4752.0	481	100				4752.0-4757.0: Flow banding is oriented 75° wrt core axis	
	Fresh to slightly weathered, flow banded, minutely vesicular, pale red (5R6/2) to grayish red (5R4/2), medium strong, devitrified, densely welded, crystal, TUFF	4757.0	482	86					
4760									
		4764.0	483	93					NOTE: Due to scale, core loss was not shown for run 483
4770	4770.0: Vesicles become absent	4770.0	484	100				4770.0-4786.0: Flow banding is oriented 55° wrt core axis; 4775.0-4777.0: Fractures occur along flow banding	
4780		4779.0	485	98					NOTE: Due to scale, core loss was not shown for run 485
	4786.0: Becomes fresh								
4790		4788.0	486	100					
	4794.0-4810.0: Fresh, massive to faintly flow banded, pale red (5R6/2) to grayish red (5R4/2), medium strong, devitrified, densely welded, crystal, TUFF	4794.0	487	91					
4800	Drillhole log continued on next page								

WEATHERING INDEX: FR; SW; MW; HW; CW
STRENGTH INDEX: R6; R5; R4; R3; R2; R1
POINT LOAD: ● Axial ■ Diametral; 1500; 800; 300; 150; 30
INDEX (psi): R6; R5; R4; R3; R2; R1
TEST ORIENTATION

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By F. Mocker
CHECKED: WG
DATE: 2/9/92

RECORD OF DRILLHOLE WO-2

Sheet 54 of 56

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/21/91-9/22/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N:698355.83
AZIMUTH: NA

COLLAR ELEV:4929.27
E:312180.83
INCLINATION: -90°

J-Joint, F-Fault, S-Shear, B-Bedding; F-Foliation, PL-Planar, C-Curved, U-Undulating; ST-Stepped, I-Irregular, P-Polished, K-Slickensided; SM-Smooth, R-Rough, VR-V.Rough, Fe-FeOx Infill; CA-Calcite Infill, CL-Clay, SA-Sand Infill, SP-Sub Planar

DEPTH SCALE (FEET)	ROCK TYPE / DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	GRAPHIC LOG	WEATHERING INDEX (FR, SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (Axial / Diametral)	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
4800	Fresh, massive to faintly flow banded, pale red (5R6/2) to grayish red (5R4/2), medium strong, devitrified, densely welded, crystal, TUFF		487											NOTE: Core recovery was 91 and RQD was 39 for run 487
		4802.0	488	100										
4810	Fresh, massive, minutely vesicular, pale red (5R6/2) to grayish red (5R4/2), medium strong to strong, devitrified, densely welded, crystal, TUFF	4810.0	489	100										
4820		4820.0	490	100										NOTE: Core was stuck in core tube and could only be removed by hammering, pounding, etc. RQD was therefore not calculated for run 490. Major fractures and rubbles zones are noted in the fractures per foot column, however, it is not known whether they are natural or drill induced.
4830		4830.0	491	100										
4840		4840.0	492	98				Minor flow banding in run 492 oriented 65° wrt core axis						NOTE: Due to scale, core loss in run 492 was not shown
4850		4850.0	493	100										
4860		4860.0	494	100										
4870	Fresh, massive, minutely vesicular, pale red (5R6/2) to grayish red (5R4/2), strong, devitrified, densely welded, crystal, TUFF	4870.0	495	100										
4880	Fresh, flow banded, pale red (5R6/2) to grayish red (5R4/2), strong, devitrified, densely welded, crystal, TUFF	4880.0												

Drillhole log continued on next page

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By F. Mocker
CHECKED: WG
DATE: 2/9/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/22/91-9/23/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Foliation ST-Stepped SM-Smooth CA-Calcite Infill
F-Fault PL-Planar I-Irregular R-Rough CL-Clay
S-Shear C-Curved P-Polished VR-V.Rough SA-Sand Infill
B-Bedding U-Undulating K-Slickensided Fe-FeOx Infill SP-Sub Planar

DEPTH SCALE (FEET)	DESCRIPTION	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	WEATHERING INDEX (FR, SW, MW, HW, CW)	STRENGTH INDEX (R6, R5, R4, R3, R2, R1)	POINT LOAD INDEX (psi) (R6 1500, R5 800, R4 300, R3 150, R2 30, R1)	TEST ORIENTATION (● Axial ■ Diametral)	NOTES WATER LEVELS INSTRUMENTATION
4880	Fresh, flow banded, pale red (5R6/2) to grayish red (5R4/2), strong, devitrified, densely welded, crystal, TUFF	1282.0											
	Fresh, flow banded, pale red (5R6/2) to grayish red (5R4/2), medium strong to strong, devitrified, densely welded, crystal, TUFF. Slightly hydrothermally altered from 4882.0 to 4890.0, becomes medium strong at 4890.0		496	100									
4890	Fresh, flow banded, pale red (5R6/2) to grayish red (5R4/2), medium strong, devitrified, densely welded, crystal, TUFF	4890.0	497	100									
4900	4911.0-4912.0: Convolute flow banding	4900.0						4898.0-4911.0: Flow banding is oriented 50° to 60° wrt core axis					
	4915.1-4915.3: Weak hydrothermally altered horizon		498	100									
4910		4910.0	499	100									
	Gradational change in the interval 4917.2 to 4918.8 to: fresh, massive, medium dark gray (N4), medium strong, moderately welded, VITROPHYRE												
4920		4920.0	500	100									
4930		4930.0	501	100									
	Fresh, hydrothermally altered, moderate reddish brown (10R4/6) to grayish red (10R4/2), very weak to weak, fine AIRFALL ASH, trace lithic fragments	4935.0	502										NOTE: Core recovery was 100 and RQD was 50 for run 502
		4936.0											
4940	Fresh, massive, medium gray (N5), grayish red purple (5RP4/2) and moderate reddish brown (10R4/6), medium strong, densely welded, devitrified, lithic, crystal, TUFF		503	95									
	4944.3-4944.8: Hydrothermally altered 4945.5-4949.0: Abundant lithophysae	4946.0											
4950			504	100									
	Fresh, light gray (N7) and moderate reddish brown (10R4/6), medium strong, devitrified, densely welded, crystal, TUFF	4956.0	505	100									
4960	Drillhole log continued on next page												

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By F. Mocker
CHECKED: WG
DATE: 2/9/92

RECORD OF DRILLHOLE WO-2

PROJECT: EG&G/NPR Drill/ID
PROJECT NO: 913-1091.303
LOCATION: NPR - INEL

BORING METHOD: Triple Tube Coring
DRILLING DATE: 9/23/91
DRILL RIG: Universal 1500

DATUM: MSL
COORDINATES N: 698355.83
AZIMUTH: NA

COLLAR ELEV: 4929.27
E: 312180.83
INCLINATION: -90°

J-Joint F-Foliation ST-Stepped SM-Smooth CA-Calcite Infill
F-Fault PL-Planar I-Irregular R-Rough CL-Clay
S-Shear C-Curved P-Polished VR-V.Rough SA-Sand Infill
B-Bedding U-Undulating K-Slickensided Fe-FeOx Infill SP-Sub Planar

DEPTH SCALE (FEET)	ROCK TYPE / DESCRIPTION	GRAPHIC LOG	ELEV / DEPTH (FT)	RUN NO.	CORE RECOVERY	RQD	FRACTURES PER FOOT	DISCONTINUITY DATA: DIP wrt CORE AXIS	DISCONTINUITY DATA: TYPE AND SURFACE DESCRIPTION	GRAPHIC LOG	WEATHERING INDEX: FR / SW / MW / HW / CW	STRENGTH INDEX: R6 / R5 / R4 / R3 / R2 / R1	● Axial ■ Diametral POINT LOAD INDEX (psi): R6 1500 / R5 800 / R4 300 / R3 150 / R2 30 / R1	TEST ORIENTATION	NOTES WATER LEVELS INSTRUMENTATION
4960	Fresh, light gray (N7) and moderate reddish brown (10R4/6), medium strong, devitrified, densely welded, crystal, TUFF			505	100	80 60 40 20	2 4 6 8 10	0 30 60 90							
			4966.0	506	100										
4970															
			4976.0	507	100										
4980															
			4985.0	508	100										
4990															
			4995.0	103	100										
5000	Total Depth: 5000.0 ft BGS achieved 0900 23 Sept. 1991														
5010															
5020															
5030															
5040															

DEPTH SCALE: 1 in. = 10 ft.
DRILLING CONTRACTOR: Tonto
DRILLER: Gillespie/Riley/Antonolli

Golder Associates

LOGGED: Compiled By F. Mocker
CHECKED: WG
DATE: 2/9/92