

**Yucca Mountain Project
Database
GENISES**

EG&G/EM YMP-94-168.0

**Yucca Mountain Project
Database
GENISES**

EG&G/EM YMP-94-168.0

The following provides a list by borehole of total depth in feet and total depth in meters. The reference number (ref_no) is provided as the relational key to the spatial datasets previously provided. This data is provided as an ASCII file.

Total

Designator, ID, Depth(ft), Depth(m), ref_no

UE-25	, UZN#2	, 15.240,	50.000, 1001
UE-25	, UZN#1	, 15.240,	50.000, 1002
UE-25	, UZN#4	, 9.140,	30.000, 1004
UE-25	, UZN#5	, 15.240,	50.000, 1005
UE-25	, UZN#6	, 13.720,	45.000, 1006
UE-25	, UZN#7	, 13.720,	45.000, 1007
UE-25	, UZN#8	, 13.720,	45.000, 1008
UE-25	, UZN#9	, 12.190,	40.000, 1009
UE-25	, UZN#10	, 30.180,	99.000, 1010
UE-25	, UZN#12	, 15.240,	50.000, 1011
UE-25	, UZN#13	, 19.810,	65.000, 1012
UE-25	, UZ-N14	, 16.760,	55.000, 1013
UE-25	, UZN#18	, 18.590,	61.000, 1014
UE-25	, UZN#19	, 12.190,	40.000, 1015
UE-25	, UZN#20	, 12.500,	41.000, 1016
UE-25	, UZN#21	, 12.800,	42.000, 1017
UE-25	, UZN#22	, 28.960,	95.000, 1018
UE-25	, UZN#23	, 10.670,	35.000, 1019
USW	, UZ-N24	, 22.860,	75.000, 1020
USW	, UZ-N25	, 17.980,	59.000, 1021
USW	, UZ-N26	, 10.670,	35.000, 1022
UE-25	, UZN#28	, 7.920,	26.000, 1023
UE-25	, UZN#29	, 10.670,	35.000, 1024
UE-25	, UZN#30	, 10.670,	35.000, 1025
USW	, UZ-N40	, 10.670,	35.000, 1026
USW	, UZ-N41	, 11.280,	37.000, 1027
USW	, UZ-N42	, 12.190,	40.000, 1028
USW	, UZ-N43	, 13.720,	45.000, 1029
USW	, UZ-N44	, 10.970,	36.000, 1030
USW	, UZ-N45	, 13.720,	45.000, 1031
USW	, UZ-N46	, 30.180,	99.000, 1032
USW	, UZ-N47	, 26.210,	86.000, 1033
USW	, UZ-N48	, 10.670,	35.000, 1034
USW	, UZ-N49	, 10.970,	36.000, 1035
USW	, UZ-N50	, 6.100,	20.000, 1036
USW	, UZ-N51	, 6.100,	20.000, 1037
USW	, UZ-N52	, 7.620,	25.000, 1038
UE-25	, UZN#56	, 18.290,	60.000, 1039
UE-25	, UZN#60	, 10.670,	35.000, 1040
USW	, UZ-N65	, 15.240,	50.000, 1041
USW	, UZ-N66	, 15.240,	50.000, 1042
USW	, UZ-N67	, 7.620,	25.000, 1043
USW	, UZ-N68	, 16.760,	55.000, 1044
USW	, UZ-N69	, 10.670,	35.000, 1045
USW	, UZ-N70	, 10.670,	35.000, 1046
USW	, UZ-N71	, 15.850,	52.000, 1047

USW	,UZ-N72	, 9.140,	30.000,1048
USW	,UZ-N73	, 9.140,	30.000,1049
USW	,UZ-N74	, 11.280,	37.000,1050
USW	,UZ-N75	, 11.280,	37.000,1051
USW	,UZ-N76	, 12.190,	40.000,1052
USW	,UZ-N77	, 15.240,	50.000,1053
USW	,UZ-N78	, 9.140,	30.000,1054
USW	,UZ-N79	, 9.750,	32.000,1055
USW	,UZ-N80	, 15.850,	52.000,1056
USW	,UZ-N81	, 21.340,	70.000,1057
USW	,UZ-N82	, 12.190,	40.000,1058
USW	,UZ-N83	, 21.340,	70.000,1059
USW	,UZ-N84	, 13.720,	45.000,1060
UE-25	,UZN#85	, 24.380,	80.000,1061
USW	,UZ-N86	, 9.140,	30.000,1062
USW	,UZ-N87	, 13.720,	45.000,1063
USW	,UZ-N88	, 9.140,	30.000,1064
USW	,UZ-N89	, 13.720,	45.000,1065
USW	,UZ-N90	, 13.720,	45.000,1066
UE-29	,UZN#91	, 28.650,	94.000,1067
UE-29	,UZN#92	, 36.580,	120.000,1068
USW	,UZ-N93	, 12.190,	40.000,1069
USW	,UZ-N94	, 9.140,	30.000,1070
USW	,UZ-N95	, 6.100,	20.000,1071
USW	,UZ-N96	, 10.670,	35.000,1072
UE-25	,UZN#97	, 18.290,	60.000,1073
USW	,UZ-N98	, 22.860,	75.000,1074
UE-25	,UZNC#1	, 1.520,	5.000,1075
UE-25	,UZNC#2	, 1.520,	5.000,1076
UE-25	,a#4	, 152.400,	500.000,1077
UE-25	,a#5	, 148.440,	487.000,1078
UE-25	,a#6	, 152.400,	500.000,1079
UE-25	,RF#7	, 45.720,	150.000,1080
UE-25	,RF#7a	, 46.630,	153.000,1081
UE-25	,RF#8	, 39.010,	128.000,1082
UE-25	,RF#9	, 32.310,	106.000,1083
UE-25	,RF#10	, 18.290,	60.000,1084
USW	,GA-1	, 167.940,	551.000,1085
USW	,UZ-1	, 387.100,	1270.000,1087
UE-25	,UZ#4	, 112.010,	367.500,1088
UE-25	,UZ#5	, 111.250,	365.000,1089
USW	,UZ-6	, 575.160,	1887.000,1090
USW	,UZ-6s	, 158.190,	519.000,1091
USW	,UZ-7	, 63.090,	207.000,1092
USW	,UZ-8	, 17.370,	57.000,1093
USW	,UZ-13	, 131.060,	430.000,1094
USW	,VH-1	, 762.300,	2501.000,1095
USW	,VH-2	, 1219.200,	4000.000,1096
UE-25	,c#1	, 914.400,	3000.000,1097
UE-25	,c#2	, ,	3001.860,1098
UE-25	,c#3	, 914.400,	3000.000,1099
U-25	,Seismic#1	, 60.960,	200.000,1100
U-25	,Seismic#2	, 60.960,	200.000,1101
U-25	,Seismic#3	, 60.960,	200.000,1102

U-25	, Seismic#4 ,	60.960,	200.000,1103
U-25	, Seismic#5 ,	60.960,	200.000,1104
U-25	, Seismic#6 ,	60.960,	200.000,1105
U-25	, Seismic#7 ,	60.960,	200.000,1106
U-25	, Seismic#8 ,	60.960,	200.000,1107
U-25	, Seismic#9 ,	60.960,	200.000,1108
U-25	, Seismic#10,	60.960,	200.000,1109
U-25	, Seismic#11,	60.960,	200.000,1110
U-25	, Seismic#12,	60.960,	200.000,1111
U-25	, Seismic#13,	60.960,	200.000,1112
U-25	, Seismic#14,	60.960,	200.000,1113
U-25	, Seismic#15,	60.960,	200.000,1114
U-25	, Seismic#16,	60.960,	200.000,1115
U-25	, Seismic#17,	60.960,	200.000,1116
U-25	, Seismic#18,	60.960,	200.000,1117
U-25	, Seismic#19,	60.960,	200.000,1118
US-25	, #1 ,	16.150,	53.000,1119
US-25	, #2 ,	16.150,	53.000,1120
US-25	, #3 ,	15.850,	52.000,1121
US-25	, #4 ,	15.240,	50.000,1122
US-25	, #5 ,	15.850,	52.000,1123
US-25	, #6 ,	15.850,	52.000,1124
US-25	, #7 ,	15.850,	52.000,1125
US-25	, #8 ,	15.850,	52.000,1126
US-25	, #9 ,	15.240,	50.000,1127
US-25	, #10 ,	15.240,	50.000,1128
US-25	, #11 ,	15.850,	52.000,1129
US-25	, #12 ,	15.850,	52.000,1130
US-25	, #13 ,	15.850,	52.000,1131
US-25	, #14 ,	15.240,	50.000,1132
US-25	, #15 ,	15.240,	50.000,1133
US-25	, #16 ,	15.240,	50.000,1134
US-25	, #17 ,	15.240,	50.000,1135
US-25	, #18 ,	15.240,	50.000,1136
US-25	, #19 ,	15.240,	50.000,1137
US-25	, #20 ,	15.240,	50.000,1138
US-25	, #21 ,	15.240,	50.000,1139
U-5	, Seismic#1 ,	42.670,	140.000,1140
U-5	, Seismic#2 ,	42.670,	140.000,1141
U-25	, Seismic#20,	42.670,	140.000,1142
U-25	, Seismic#21,	42.670,	140.000,1143
U-25	, Seismic#22,	43.890,	144.000,1144
U-25	, Seismic#23,	44.200,	145.000,1145
U-25	, Seismic#24,	44.810,	147.000,1146
U-26	, Seismic#1 ,	42.670,	140.000,1147
U-29	, Seismic#1 ,	43.280,	142.000,1148
U-30	, Seismic#1 ,	43.280,	142.000,1149
U-30	, Seismic#2 ,	42.670,	140.000,1150
UE-25	, a#1 ,	762.300,	2501.000,1160
USW	, H-1 ,	1828.800,	6000.000,1161
USW	, H-3 ,	1219.200,	4000.000,1162
USW	, H-4 ,	1219.200,	4000.000,1163
USW	, H-5 ,	1219.200,	4000.000,1164
USW	, H-6 ,	1219.810,	4002.000,1165

UE-25	,p#1	, 1805.330,	5923.000,1166
UE-25	,b#1	, 1219.810,	4002.000,1167
UE-25	,J#11	, 405.080,	1329.000,1168
UE-25	,J#11Prime	, 67.060,	220.000,1169
UE-25	,J#12	, 347.170,	1139.000,1170
UE-25	,J#13	, 1063.140,	3488.000,1171
USW	,G-1	, 1828.800,	6000.000,1172
USW	,G-2	, 1830.630,	6006.000,1173
USW	,G-3	, 1533.450,	5031.000,1174
USW	,G-4	, 915.310,	3003.000,1175
USW	,GU-3	, 805.890,	2644.000,1176
UE-25	,WT#3	, 348.080,	1142.000,1177
UE-25	,WT#4	, 481.580,	1580.000,1178
UE-25	,WT#5	, 405.380,	1330.000,1179
UE-25	,WT#6	, 382.980,	1256.500,1180
UE-25	,WT#12	, 398.680,	1308.000,1181
UE-25	,WT#13	, 253.570,	1160.000,1182
UE-25	,WT#14	, 399.290,	1310.000,1183
UE-25	,WT#15	, 414.530,	1360.000,1184
UE-25	,WT#16	, 521.210,	1710.000,1185
UE-25	,WT#17	, 442.870,	1453.000,1186
UE-25	,WT#18	, 622.710,	2043.000,1187
USW	,WT-1	, 514.810,	1689.000,1188
USW	,WT-2	, 627.890,	2060.000,1189
USW	,WT-7	, 490.730,	1610.000,1190
USW	,WT-10	, 430.680,	1413.000,1191
USW	,WT-11	, 440.740,	1446.000,1192
U-25	,TC#2	, 9.140,	30.000,1193
U-25	,TC#3	, 13.720,	45.000,1194
U-25	,TC#4	, 13.720,	45.000,1195
U-25	,TCi#2	, 1.520,	5.000,1196
U-25	,TCi#3	, 1.520,	5.000,1197
U-25	,TCi#4	, 1.520,	5.000,1198
U-25	,TC#1	, 9.140,	30.000,1199
U-25	,TCi#1	, 1.520,	5.000,1200
UE-25	,RF#11	, 23.770,	78.000,1201
USW	,UZ-N15	, 18.260,	59.900,1202
USW	,UZ-N16	, 18.290,	60.000,1203
USW	,UZ-N17	, 18.260,	59.900,1204
USW	,UZ-N36	, 18.230,	59.800,1205
USW	,UZ-N37	, 82.690,	271.300,1206
USW	,UZ-N55	, 77.880,	255.500,1207
USW	,UZ-N11	, 25.730,	84.400,1208
USW	,UZ-N54	, 74.580,	244.700,1209
UE-25	,a#3	, 771.140,	2530.000,1210
USW	,UZ-N38	, 28.740,	94.300,1211
USW	,UZ-N64	, 18.290,	60.000,1212
USW	,UZ-N27	, 61.690,	202.400,1213
USW	,UZ-N53	, 71.480,	234.500,1214
UE-25	,NRG#1	, 45.750,	150.100,1215
USW	,SD-12	, 609.600,	2000.000,1226
UE-25	,NRG#2	, 64.010,	210.000,1239
UE-25	,NRG#3	, 100.580,	330.000,1240
UE-25	,NRG#4	, 224.030,	726.000,1241

UE-25	,NRG#5	, 304.800,	1350.000,1242
USW	,NRG-6	, 335.280,	1100.000,1243
USW	,UZ-14	, 518.160,	1700.000,1258
UE-25	,UZ#16	, 513.940,	1686.160,1264
USW	,UZ-N31	, 54.860,	180.000,1272
USW	,UZ-N32	, 64.010,	210.000,1273
USW	,UZ-N33	, 22.860,	75.000,1274
USW	,UZ-N34	, 22.860,	75.000,1275
USW	,UZ-N35	, 53.340,	175.000,1276
UE-25	,UZN#39	, 38.100,	125.000,1277
USW	,UZ-N57	, 36.580,	120.000,1278
USW	,UZ-N58	, 36.580,	120.000,1279
USW	,UZ-N59	, 36.580,	120.000,1280
USW	,UZ-N61	, 36.580,	120.000,1281
USW	,UZ-N62	, 18.290,	60.000,1282
UE-25	,UZN#63	, 18.290,	60.000,1283
UE-25	,a#7	, 305.410,	1002.000,1294
UE-25	,h#1	, 121.920,	400.000,1295
UE-29	,a#1	, 65.530,	215.000,1296
UE-29	,a#2	, 421.540,	1383.000,1297
UE-25	,RF#1	, 44.200,	145.000,1298
UE-25	,RF#2	, 15.850,	52.000,1299
UE-25	,RF#3	, 46.020,	151.000,1300
UE-25	,RF#3B	, 33.830,	111.000,1301
UE-25	,RF#4	, 93.270,	306.000,1302
UE-25	,RF#5	, 37.190,	122.000,1303
UE-25	,NRG#2a	, 60.960,	265.700,1367
UE-25	,NRG#2b	, ,	329.500,1370
USW	,NRG-7	, ,	302.150,1386

The following table provides borehole identification, total depth and static water depth in feet. The reference number(ref_no) is provided as the relational link to spatial data sets previously provided. These data are also provided as an ASCII file.

Designator, ID	Total Depth, Water depth,	ref_no
USW ,VH-1	, 2501.000, 606.985,	1095
UE-25 ,c#1	, 3000.000, 1315.681,	1097
UE-25 ,a#1	, 2501.000, 1538.789,	1160
USW ,H-1	, 6000.000, 1880.013,	1161
USW ,H-4	, 4000.000, 1699.558,	1163
USW ,H-6	, 4002.000, 1725.806,	1165
UE-25 ,p#1	, 5923.000, 1187.722,	1166
UE-25 ,b#1	, 4002.000, 1545.351,	1167
UE-25 ,J#13	, 3488.000, 928.523,	1171
USW ,G-2	, 6006.000, 1722.525,	1173
USW ,G-4	, 3003.000, 1768.459,	1175
UE-25 ,WT#3	, 1142.000, 984.359,	1177
UE-25 ,WT#4	, 1580.000, 1440.359,	1178
UE-25 ,WT#6	, 1256.500, 921.961,	1180
UE-25 ,WT#12	, 1308.000, 1135.226,	1181
UE-25 ,WT#13	, 1160.000, 994.143,	1182
UE-25 ,WT#14	, 1310.000, 1135.226,	1183
UE-25 ,WT#15	, 1360.000, 1161.474,	1184
UE-25 ,WT#16	, 1710.000, 1551.913,	1185
UE-25 ,WT#17	, 1453.000, 1292.714,	1186
USW ,WT-1	, 1689.000, 1545.451,	1188
USW ,WT-2	, 2060.000, 1873.451,	1189
USW ,WT-7	, 1610.000, 1381.301,	1190
USW ,WT-10	, 1413.000, 1138.507,	1191
USW ,WT-11	, 1446.000, 1191.003,	1192

The following information is available for the boreholes listed.
 This information was provided in the 1994 Technical Program
 Review under WB 1.2.3.11.2.
 Standard Log Suites for Borehole Geophysical Logging

Dual Induction: 1
 Compensated Density: 2
 SNP (Epithermal Neutron): 3
 Gamma/Spectral: 4
 Dielectric Log: 5
 Magnetic Suscep: 6
 Magnetic Field: 7
 Borehole Gravimeter: 8
 Caliper: 9
 Video: 10
 Gyroscopic: 11
 SP Micro Resist & DLL: 12
 Form. Micro Imager Scanner: 13
 Fluid Density: 14
 Acoustic: 15
 Televiwer: 16
 Contin Temp: 17

ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
#1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
#10	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
#11	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
#12	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
#13	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
#14	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
#15	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
#16	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
#17	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
#18	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
#19	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
#2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
#20	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
#21	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
#3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
#4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
#5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
#6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
#7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
#8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
#9	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
G-1	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
G-2	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
G-3	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
G-4	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
GA-1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
GU-3	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y

ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
H-1	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
H-3	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
H-4	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
H-5	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
H-6	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
J#11	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
J#11Prime	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
J#12	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
J#13	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
NRG#1	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
NRG#2	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
NRG#2a	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
NRG#2b	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
NRG#2d	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
NRG#3	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
NRG#4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
NRG#5	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
NRG-6	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
NRG-7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
RF#1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
RF#10	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
RF#11	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
RF#2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
RF#3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
RF#3B	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
RF#4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
RF#5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
RF#7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
RF#7a	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
RF#8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
RF#9	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
SD-12	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
Seismic#1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Seismic#1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Seismic#1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Seismic#1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Seismic#1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Seismic#10	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Seismic#11	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Seismic#12	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Seismic#13	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Seismic#14	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Seismic#15	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Seismic#16	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Seismic#17	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Seismic#18	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Seismic#19	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Seismic#2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Seismic#2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Seismic#2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Seismic#20	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Seismic#21	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N

ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Seismic#22	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Seismic#23	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Seismic#24	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Seismic#3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Seismic#4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Seismic#5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Seismic#6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Seismic#7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Seismic#8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
Seismic#9	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
TC#1	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
TC#2	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
TC#3	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
TC#4	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
TCi#1	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
TCi#2	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
TCi#3	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
TCi#4	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ#16	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
UZ#4	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ#5	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-1	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
UZ-13	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-14	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
UZ-6	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
UZ-6s	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-7	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-8	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N11	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N15	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N16	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N17	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N24	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N25	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N26	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N27	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N31	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N32	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N33	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N34	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N35	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N36	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N37	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N38	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N40	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N41	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N42	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N43	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N44	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N45	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N46	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N47	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N

ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
UZ-N48	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N49	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N50	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N51	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N52	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N53	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N54	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N55	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N57	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N58	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N59	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N61	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N62	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N64	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N65	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N66	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N67	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N68	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N69	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N70	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N71	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N72	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N73	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N74	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N75	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N76	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N77	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N78	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N79	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N80	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N81	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N82	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N83	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N84	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N86	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N87	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N88	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N89	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N90	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N93	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N94	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N95	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N96	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZ-N98	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#1	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#10	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#12	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#13	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#14	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#18	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#19	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#2	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N

ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
UZN#20	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#21	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#22	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#23	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#28	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#29	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#3	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#30	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#39	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#4	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#5	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#56	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#6	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#60	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#63	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#7	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#8	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#85	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#9	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#91	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#92	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#97	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#1	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
UZN#2	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	N	N	N
VH-1	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
VH-2	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
WT#12	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
WT#13	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
WT#14	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
WT#15	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
WT#16	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
WT#17	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
WT#18	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
WT#3	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
WT#4	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
WT#5	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
WT#6	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
WT-1	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
WT-10	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
WT-11	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
WT-2	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
WT-7	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
a#1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
a#1	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
a#2	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
a#3	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
a#4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
a#5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
a#6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
a#7	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
b#1	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
c#1	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y

ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
c#2	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
c#3	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
h#1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
p#1	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y

The following Boreholes have Lithologic/Stratigraphic information stored in the GENISES.

Lithostratigraphy: Sample identification, unit, reference information, top and bottom depth for each unit.

- J-13
- ue-25b
- ue-25p
- USW G-1
- USW G-2
- USW G-3
- USW G-4
- USW GU-1
- USW H-1
- USW H-3
- USW H-4
- USW H-5
- USW VH-1

Thermal Mechanical Stratigraphy: Sample identification , unit, reference information, top and bottom depth for each unit.

- UE-25a #1
- UE-25a #4
- UE-25a #5
- UE-25a #6
- UE-25a #7
- UE-25b #1
- USW G-1
- USW G-2
- USW G-4
- USW GU-3
- USW H-1
- USW H-3
- USW H-4
- USW H-5
- USW H-6

The following provides the study plan description for test activities by borehole.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier	Purpose
U-25 Seismic #23	To understand the gas transport mechanism, direction, flux and travel time within the unsaturated zone. Design and implement methods for extracting pore fluids from the tuff. Provide independent evidence of flow direction, flux, and travel time of water in the unsaturated zone. Determine the extent of the water-rock interaction. Model geochemical evolution of ground water in the unsaturated zone.
U-25 TC #1	To understand the gas transport mechanism, direction, flux and travel time within the unsaturated zone. Design and implement methods for extracting pore fluids from the tuff. Provide independent evidence of flow direction, flux, and travel time of water in the unsaturated zone. Determine the extent of the water-rock interaction. Model geochemical evolution of ground water in the unsaturated zone.
U-25 TC #2	To understand the gas transport mechanism, direction, flux and travel time within the unsaturated zone. Design and implement methods for extracting pore fluids from the tuff. Provide independent evidence of flow direction, flux, and travel time of water in the unsaturated zone. Determine the extent of the water-rock interaction. Model geochemical evolution of ground water in the unsaturated zone.
U-25 TC #3	To understand the gas transport mechanism, direction, flux and travel time within the unsaturated zone. Design and implement methods for extracting pore fluids from the tuff. Provide independent evidence of flow direction, flux, and travel time of water in the unsaturated zone. Determine the extent of the water-rock interaction. Model geochemical evolution of ground water in the unsaturated zone.
U-25 TC #4	To understand the gas transport mechanism, direction, flux and travel time within the unsaturated zone. Design and implement methods for extracting pore fluids from the tuff. Provide independent evidence of flow direction, flux, and travel time of water in the unsaturated zone. Determine the extent of the water-rock interaction. Model geochemical evolution of ground water in the unsaturated zone.
UE-25 HRF UZP#1	To understand the gas transport mechanism, direction, flux and travel time within the unsaturated zone. Design and implement methods for extracting pore fluids from the tuff. Provide independent evidence of

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

UE-25 J-11

flow direction, flux, and travel time of water in the unsaturated zone. Determine the extent of the water-rock interaction. Model geochemical evolution of ground water in the unsaturated zone.

To determine the vertical and lateral variability and emplacement history of stratigraphic units and lithostratigraphic subunits within the Yucca Mountain site area.

UE-25 J-12

To define the potentiometric distribution hydraulic properties, and recharge and discharge for the regional ground-water flow system to determine the magnitude and direction of ground-water flow.

To determine the vertical and lateral variability and emplacement history of stratigraphic units and lithostratigraphic subunits within the Yucca Mountain site area.

To investigate the hydraulic characteristics of paleoflood events. Compare them with modern flooding and related geomorphic processes. Determine past infiltration and percolation history at Yucca Mountain through isotopic and chemical analysis of water from the unsaturated zone. Determine past hydrologic conditions in the regional discharge area. Estimate the conditions and rates of infiltration and ground-water recharge during the Quaternary.

UE-25 J-13

Obtain measurements of chlorine isotope distributions to help quantify the percolation of precipitation in the unsaturated zone.

To apply the models to predict the system response to changing external and internal conditions. Evaluate the accuracy of the models using stochastic modeling, conventional statistical analyses, and sensitivity analyses. Integrate data and analyses to synthesize a comprehensive qualitative and quantitative description of the site unsaturated-zone hydrogeologic system under present as well as probable, or possible, future conditions.

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses,

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

To collect basic data on surface-water at, and peripheral to, Yucca Mountain and its hydrologic flow system. Use the streamflow data to describe the runoff characteristics of the area and access the response of runoff to precipitation. Assess the potential for flood hazards and related fluvial-debris hazards to the Yucca Mountain Project.

To determine the rate of movement of radionuclides along the potential flow paths to the accessible environment. Examine the effect of diffusion, adsorption, dispersion, anion exclusion, sorption kinetics, and colloid movement in the flow geometrics and hydrologic conditions that are expected to exist along the flow paths to the accessible environment in the scenarios to be used for performance assessment.

To determine the solubilities or concentration limits for dissolved species of important waste elements under conditions characteristic of the repository and along flow paths from the repository to the accessible environment.

To determine the stability of waste element colloids under conditions characteristic of the repository and along flow paths from the repository to the accessible environment.

To determine the vertical and lateral variability and emplacement history of stratigraphic units and lithostratigraphic subunits within the Yucca Mountain site area.

To identify and assess the mineral and energy resource potential at the proposed repository site at YM. Conduct a geochemical sampling program for precious, base, and strategic metals; energy resources; and industrial minerals. Assess the potential for geothermal energy and hydrocarbon resources. Assess the potential for undiscovered resources and future exploration.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

To investigate the hydraulic characteristics of paleoflood events. Compare them with modern flooding and related geomorphic processes. Determine past infiltration and percolation history at Yucca Mountain through isotopic and chemical analysis of water from the unsaturated zone. Determine past hydrologic conditions in the regional discharge area. Estimate the conditions and rates of infiltration and ground-water recharge during the Quaternary.

To measure the diffusivity and kinetics of adsorption in a purely diffusive system, that is, no advection.

To provide sorption coefficients for key radionuclides as a function of solid phase composition, ground-water composition, waste element concentration, and the presence of particulates and colloids.

To synthesize available data to develop a conceptual model. Make a qualitative analysis of how the system is functioning. Develop and evaluate porous-media and fracture-network methods for simulating ground-water flow and solute transport. Estimate ground-water flow direction and magnitude for input to ground-water travel time calculations.

UE-25 NRG-1

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

UE-25 NRG-2

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier -----	Purpose -----
UE-25 NRG-3	To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.
UE-25 NRG-4	To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.
UE-25 NRG-5	To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.
UE-25 NRG-6	To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.
UE-25 PSF#7	To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

characteristics.

UE-25 PTH#1

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

UE-25 PTH#2

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

UE-25 PTH#3

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

UE-25 PTH#4

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

UE-25 PTH#5

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

UE-25 PTH#6

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

UE-25 RF#1

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

UE-25 RF#10

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

UE-25 RF#11

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

To provide construction and testing support for exploratory studies for characterization of the soil and rock conditions that will

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

influence or be influenced by the construction of surface facilities.

UE-25 RF#2

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

UE-25 RF#3

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

UE-25 RF#3B

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

UE-25 RF#4

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

UE-25 RF#5

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

	unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.
UE-25 RF#7	To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.
UE-25 RF#7A	To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.
UE-25 RF#8	To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.
UE-25 RF#9	To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.
UE-25 UZ#16	Obtain measurements of chlorine isotope distributions to help quantify the percolation of precipitation in the unsaturated zone.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

To describe spatial variations in chemical composition of ground water. Identify chemical and physical processes that influence ground-water chemistry. Use hydrochemical data to aid the identification and/or quantification of ground-water travel times; flow paths; fluxes to, from, and within the saturated zone; and climatic conditions during past periods of recharge.

To determine the frequency, distribution, characteristics, and relative chronology of structural features within the Yucca Mtn site area.

To understand the gas transport mechanism, direction, flux and travel time within the unsaturated zone. Design and implement methods for extracting pore fluids from the tuff. Provide independent evidence of flow direction, flux, and travel time of water in the unsaturated zone. Determine the extent of the water-rock interaction. Model geochemical evolution of ground water in the unsaturated zone.

UE-25 UZ#4

Develop and validate conceptual and numerical models describing gas flow and liquid water and solute movement in unsaturated, fractured rock at the laboratory and sub-REV scales.

Obtain measurements of chlorine isotope distributions to help quantify the percolation of precipitation in the unsaturated zone.

To apply the models to predict the system response to changing external and internal conditions. Evaluate the accuracy of the models using stochastic modeling, conventional statistical analyses, and sensitivity analyses. Integrate data and analyses to synthesize a comprehensive qualitative and quantitative description of the site unsaturated-zone hydrogeologic system under present as well as probable, or possible, future conditions.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

UE-25 UZ#5

To determine the frequency, distribution, characteristics, and relative chronology of structural features within the Yucca Mtn site area.

To measure the diffusivity and kinetics of adsorption in a purely diffusive system, that is, no advection.

Develop and validate conceptual and numerical models describing gas flow and liquid water and solute movement in unsaturated, fractured rock at the laboratory and sub-REV scales.

Obtain measurements of chlorine isotope distributions to help quantify the percolation of precipitation in the unsaturated zone.

To apply the models to predict the system response to changing external and internal conditions. Evaluate the accuracy of the models using stochastic modeling, conventional statistical analyses, and sensitivity analyses. Integrate data and analyses to synthesize a comprehensive qualitative and quantitative description of the site unsaturated-zone hydrogeologic system under present as well as probable, or possible, future conditions.

To describe the pre-waste-emplacement gas-flow field. Identify structural controls on fluid flow. Determine conductive and dispersive properties of the unsaturated zone for gas flow. Model the transport of water and tracers in the gas phase.

UE-25 UZN #1

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

UE-25 UZN #10

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

UE-25 UZN #12

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

UE-25 UZN #13

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

UE-25 UZN #14

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

UE-25 UZN #18

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

UE-25 UZN #19

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

UE-25 UZN #2

Develop and validate conceptual and numerical models describing gas flow and liquid water and solute movement in unsaturated, fractured rock at the laboratory and sub-REV scales.

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties,

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

UE-25 UZN #20

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

UE-25 UZN #21

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

UE-25 UZN #22

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

UE-25 UZN #23

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

UE-25 UZN #28

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

UE-25 UZN #29

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

UE-25 UZN #3

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

UE-25 UZN #30

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

UE-25 UZN #4

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

UE-25 UZN #5

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

UE-25 UZN #56

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

UE-25 UZN #6

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

UE-25 UZN #60

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

UE-25 UZN #7

Develop and validate conceptual and numerical models describing gas flow and liquid water and solute movement in unsaturated, fractured rock at the laboratory and sub-REV scales.

To characterize the area surrounding Yucca Mountain in terms of

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

UE-25 UZN #8

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

UE-25 UZN #85

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

To determine the present in situ hydrologic properties of the unsaturated zone hydrogeologic units and structural features. Determine the present vertical and lateral variation of percolation flux through the hydrogeologic units and structural features. Determine the effective hydraulic conductivity, storage properties, and transport properties as functions of moisture content or

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

potential.

UE-25 UZN #9

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

UE-25 UZN #97

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

UE-25 UZN#63

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

To determine the present in situ hydrologic properties of the unsaturated zone hydrogeologic units and structural features. Determine the present vertical and lateral variation of percolation flux through the hydrogeologic units and structural features. Determine the effective hydraulic conductivity, storage properties, and transport properties as functions of moisture content or potential.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier	Purpose
UE-25 UZNC #1	To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.
UE-25 UZNC #2	To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.
UE-25 WT#12	To define the potentiometric distribution hydraulic properties, and recharge and discharge for the regional ground-water flow system to determine the magnitude and direction of ground-water flow. To describe spatial variations in chemical composition of ground water. Identify chemical and physical processes that influence ground-water chemistry. Use hydrochemical data to aid the identification and/or quantification of ground-water travel times; flow paths; fluxes to, from, and within the saturated zone; and climatic conditions during past periods of recharge. To determine the hydrogeologic nature of the Solitario Canyon fault in the saturated zone. Determine the time and spatial variation of the potentiometric surface. Determine the character, magnitude, and causes of water-level fluctuations. Estimate elastic and hydraulic properties. Determine transport properties of the saturated zone. Evaluate the relation between hydraulic properties and fracture characteristics.
UE-25 WT#13	To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

To define the potentiometric distribution hydraulic properties, and recharge and discharge for the regional ground-water flow system to determine the magnitude and direction of ground-water flow.

To describe spatial variations in chemical composition of ground water. Identify chemical and physical processes that influence ground-water chemistry. Use hydrochemical data to aid the identification and/or quantification of ground-water travel times; flow paths; fluxes to, from, and within the saturated zone; and climatic conditions during past periods of recharge.

To determine the hydrogeologic nature of the Solitario Canyon fault in the saturated zone. Determine the time and spatial variation of the potentiometric surface. Determine the character, magnitude, and causes of water-level fluctuations. Estimate elastic and hydraulic properties. Determine transport properties of the saturated zone. Evaluate the relation between hydraulic properties and fracture characteristics.

UE-25 WT#14

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

To define the potentiometric distribution hydraulic properties, and recharge and discharge for the regional ground-water flow system to determine the magnitude and direction of ground-water flow.

To describe spatial variations in chemical composition of ground water. Identify chemical and physical processes that influence ground-water chemistry. Use hydrochemical data to aid the identification and/or quantification of ground-water travel times; flow paths; fluxes to, from, and within the saturated zone; and climatic conditions during past periods of recharge.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

UE-25 WT#15

To determine the hydrogeologic nature of the Solitario Canyon fault in the saturated zone. Determine the time and spatial variation of the potentiometric surface. Determine the character, magnitude, and causes of water-level fluctuations. Estimate elastic and hydraulic properties. Determine transport properties of the saturated zone. Evaluate the relation between hydraulic properties and fracture characteristics.

To identify appropriate trench locations to investigate the possible occurrences of late Quaternary surface faulting in the vicinity of planned critical surface facilities. Using surface and trench mapping locate sites without evidence of significant late Quaternary faulting.

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

To define the potentiometric distribution hydraulic properties, and recharge and discharge for the regional ground-water flow system to determine the magnitude and direction of ground-water flow.

To describe spatial variations in chemical composition of ground water. Identify chemical and physical processes that influence ground-water chemistry. Use hydrochemical data to aid the identification and/or quantification of ground-water travel times; flow paths; fluxes to, from, and within the saturated zone; and climatic conditions during past periods of recharge.

To determine the hydrogeologic nature of the Solitario Canyon fault in the saturated zone. Determine the time and spatial variation of the potentiometric surface. Determine the character, magnitude, and causes of water-level fluctuations. Estimate elastic and hydraulic properties. Determine transport properties of the saturated zone. Evaluate the relation between hydraulic properties and fracture

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

UE-25 WT#16

characteristics.

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

To define the potentiometric distribution hydraulic properties, and recharge and discharge for the regional ground-water flow system to determine the magnitude and direction of ground-water flow.

To describe spatial variations in chemical composition of ground water. Identify chemical and physical processes that influence ground-water chemistry. Use hydrochemical data to aid the identification and/or quantification of ground-water travel times; flow paths; fluxes to, from, and within the saturated zone; and climatic conditions during past periods of recharge.

To determine the hydrogeologic nature of the Solitario Canyon fault in the saturated zone. Determine the time and spatial variation of the potentiometric surface. Determine the character, magnitude, and causes of water-level fluctuations. Estimate elastic and hydraulic properties. Determine transport properties of the saturated zone. Evaluate the relation between hydraulic properties and fracture characteristics.

UE-25 WT#17

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

To define the potentiometric distribution hydraulic properties, and

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

recharge and discharge for the regional ground-water flow system to determine the magnitude and direction of ground-water flow.

To describe spatial variations in chemical composition of ground water. Identify chemical and physical processes that influence ground-water chemistry. Use hydrochemical data to aid the identification and/or quantification of ground-water travel times; flow paths; fluxes to, from, and within the saturated zone; and climatic conditions during past periods of recharge.

To determine the hydrogeologic nature of the Solitario Canyon fault in the saturated zone. Determine the time and spatial variation of the potentiometric surface. Determine the character, magnitude, and causes of water-level fluctuations. Estimate elastic and hydraulic properties. Determine transport properties of the saturated zone. Evaluate the relation between hydraulic properties and fracture characteristics.

UE-25 WT#18

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

To define the potentiometric distribution hydraulic properties, and recharge and discharge for the regional ground-water flow system to determine the magnitude and direction of ground-water flow.

To describe spatial variations in chemical composition of ground water. Identify chemical and physical processes that influence ground-water chemistry. Use hydrochemical data to aid the

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

identification and/or quantification of ground-water travel times; flow paths; fluxes to, from, and within the saturated zone; and climatic conditions during past periods of recharge.

To determine the hydrogeologic nature of the Solitario Canyon fault in the saturated zone. Determine the time and spatial variation of the potentiometric surface. Determine the character, magnitude, and causes of water-level fluctuations. Estimate elastic and hydraulic properties. Determine transport properties of the saturated zone. Evaluate the relation between hydraulic properties and fracture characteristics.

UE-25 WT#3

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

To define the potentiometric distribution hydraulic properties, and recharge and discharge for the regional ground-water flow system to determine the magnitude and direction of ground-water flow.

To describe spatial variations in chemical composition of ground water. Identify chemical and physical processes that influence ground-water chemistry. Use hydrochemical data to aid the identification and/or quantification of ground-water travel times; flow paths; fluxes to, from, and within the saturated zone; and climatic conditions during past periods of recharge.

To determine the hydrogeologic nature of the Solitario Canyon fault in the saturated zone. Determine the time and spatial variation of the potentiometric surface. Determine the character, magnitude, and causes of water-level fluctuations. Estimate elastic and hydraulic properties. Determine transport properties of the saturated zone. Evaluate the relation between hydraulic properties and fracture characteristics.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

UE-25 WT#4

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

To define the potentiometric distribution hydraulic properties, and recharge and discharge for the regional ground-water flow system to determine the magnitude and direction of ground-water flow.

To describe spatial variations in chemical composition of ground water. Identify chemical and physical processes that influence ground-water chemistry. Use hydrochemical data to aid the identification and/or quantification of ground-water travel times; flow paths; fluxes to, from, and within the saturated zone; and climatic conditions during past periods of recharge.

To determine the hydrogeologic nature of the Solitario Canyon fault in the saturated zone. Determine the time and spatial variation of the potentiometric surface. Determine the character, magnitude, and causes of water-level fluctuations. Estimate elastic and hydraulic properties. Determine transport properties of the saturated zone. Evaluate the relation between hydraulic properties and fracture characteristics.

UE-25 WT#5

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

characteristics.

To define the potentiometric distribution hydraulic properties, and recharge and discharge for the regional ground-water flow system to determine the magnitude and direction of ground-water flow.

To describe spatial variations in chemical composition of ground water. Identify chemical and physical processes that influence ground-water chemistry. Use hydrochemical data to aid the identification and/or quantification of ground-water travel times; flow paths; fluxes to, from, and within the saturated zone; and climatic conditions during past periods of recharge.

To determine the hydrogeologic nature of the Solitario Canyon fault in the saturated zone. Determine the time and spatial variation of the potentiometric surface. Determine the character, magnitude, and causes of water-level fluctuations. Estimate elastic and hydraulic properties. Determine transport properties of the saturated zone. Evaluate the relation between hydraulic properties and fracture characteristics.

To identify appropriate trench locations to investigate the possible occurrences of late Quaternary surface faulting in the vicinity of planned critical surface facilities. Using surface and trench mapping locate sites without evidence of significant late Quaternary faulting.

UE-25 WT#6

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

To define the potentiometric distribution hydraulic properties, and recharge and discharge for the regional ground-water flow system to determine the magnitude and direction of ground-water flow.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

To describe spatial variations in chemical composition of ground water. Identify chemical and physical processes that influence ground-water chemistry. Use hydrochemical data to aid the identification and/or quantification of ground-water travel times; flow paths; fluxes to, from, and within the saturated zone; and climatic conditions during past periods of recharge.

To determine the hydrogeologic nature of the Solitario Canyon fault in the saturated zone. Determine the time and spatial variation of the potentiometric surface. Determine the character, magnitude, and causes of water-level fluctuations. Estimate elastic and hydraulic properties. Determine transport properties of the saturated zone. Evaluate the relation between hydraulic properties and fracture characteristics.

To provide air quality and meteorological environmental field activity planning and monitoring documents, field data, and topical reports containing the results of field data analyses.

UE-25 a #1

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

To define the potentiometric distribution hydraulic properties, and recharge and discharge for the regional ground-water flow system to determine the magnitude and direction of ground-water flow.

To determine the frequency, distribution, characteristics, and relative chronology of structural features within the Yucca Mtn site area.

To determine the vertical and lateral variability and emplacement history of stratigraphic units and lithostratigraphic subunits within the Yucca Mountain site area.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

To identify appropriate trench locations to investigate the possible occurrences of late Quaternary surface faulting in the vicinity of planned critical surface facilities. Using surface and trench mapping locate sites without evidence of significant late Quaternary faulting.

To investigate the hydraulic characteristics of paleoflood events. Compare them with modern flooding and related geomorphic processes. Determine past infiltration and percolation history at Yucca Mountain through isotopic and chemical analysis of water from the unsaturated zone. Determine past hydrologic conditions in the regional discharge area. Estimate the conditions and rates of infiltration and ground-water recharge during the Quaternary.

To provide laboratory characterization of thermal expansion behavior and the spatial variability thereof for each new core hole and for the Exploratory Studies Facility.

To provide laboratory characterizations of the mechanical properties of intact rock and the spatial variability thereof for each new core hole and for the ESF. These properties are used in mechanical and thermomechanical calculations of stresses and deformations induced by the presence of underground openings in unit TSw2 and surrounding units, and by the presence of heat-producing waste in unit TSw2.

UE-25 a #3

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

UE-25 a #4

Develop and validate conceptual and numerical models describing gas flow and liquid water and solute movement in unsaturated, fractured rock at the laboratory and sub-REV scales.

To apply the models to predict the system response to changing external and internal conditions. Evaluate the accuracy of the models

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

using stochastic modeling, conventional statistical analyses, and sensitivity analyses. Integrate data and analyses to synthesize a comprehensive qualitative and quantitative description of the site unsaturated-zone hydrogeologic system under present as well as probable, or possible, future conditions.

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

UE-25 a #5

Develop and validate conceptual and numerical models describing gas flow and liquid water and solute movement in unsaturated, fractured rock at the laboratory and sub-REV scales.

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

UE-25 a #6

Develop and validate conceptual and numerical models describing gas flow and liquid water and solute movement in unsaturated, fractured rock at the laboratory and sub-REV scales.

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

evaluate porous-media and fracture-network methods for simulating ground-water flow and solute transport. Estimate ground-water flow direction and magnitude for input to ground-water travel time calculations.

UE-25 c #2

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

To determine the frequency, distribution, characteristics, and relative chronology of structural features within the Yucca Mtn site area.

To determine the hydrogeologic nature of the Solitario Canyon fault in the saturated zone. Determine the time and spatial variation of the potentiometric surface. Determine the character, magnitude, and causes of water-level fluctuations. Estimate elastic and hydraulic properties. Determine transport properties of the saturated zone. Evaluate the relation between hydraulic properties and fracture characteristics.

To synthesize available data to develop a conceptual model. Make a qualitative analysis of how the system is functioning. Develop and evaluate porous-media and fracture-network methods for simulating ground-water flow and solute transport. Estimate ground-water flow direction and magnitude for input to ground-water travel time calculations.

UE-25 c #3

To determine the frequency, distribution, characteristics, and relative chronology of structural features within the Yucca Mtn site area.

To determine the hydrogeologic nature of the Solitario Canyon fault in the saturated zone. Determine the time and spatial variation of the

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

potentiometric surface. Determine the character, magnitude, and causes of water-level fluctuations. Estimate elastic and hydraulic properties. Determine transport properties of the saturated zone. Evaluate the relation between hydraulic properties and fracture characteristics.

To synthesize available data to develop a conceptual model. Make a qualitative analysis of how the system is functioning. Develop and evaluate porous-media and fracture-network methods for simulating ground-water flow and solute transport. Estimate ground-water flow direction and magnitude for input to ground-water travel time calculations.

UE-25 h #1

To determine the frequency, distribution, characteristics, and relative chronology of structural features within the Yucca Mtn site area.

UE-25 p #1

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

To determine the frequency, distribution, characteristics, and relative chronology of structural features within the Yucca Mtn site area.

To determine the hydrogeologic nature of the Solitario Canyon fault in the saturated zone. Determine the time and spatial variation of the potentiometric surface. Determine the character, magnitude, and causes of water-level fluctuations. Estimate elastic and hydraulic properties. Determine transport properties of the saturated zone. Evaluate the relation between hydraulic properties and fracture characteristics.

To determine the solubilities or concentration limits for dissolved

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

species of important waste elements under conditions characteristic of the repository and along flow paths from the repository to the accessible environment.

To determine the stability of waste element colloids under conditions characteristic of the repository and along flow paths from the repository to the accessible environment.

To determine the vertical and lateral variability and emplacement history of stratigraphic units and lithostratigraphic subunits within the Yucca Mountain site area.

To identify Quaternary faults within 100km of Yucca Mountain. Characterize those faults capable of future earthquakes with magnitude such that associated ground shaking could impact design or affect performance of the waste facility.

To identify and assess the mineral and energy resource potential at the proposed repository site at YM. Conduct a geochemical sampling program for precious, base, and strategic metals; energy resources; and industrial minerals. Assess the potential for geothermal energy and hydrocarbon resources. Assess the potential for undiscovered resources and future exploration.

To measure the diffusivity and kinetics of adsorption in a purely diffusive system, that is, no advection.

To synthesize available data to develop a conceptual model. Make a qualitative analysis of how the system is functioning. Develop and evaluate porous-media and fracture-network methods for simulating ground-water flow and solute transport. Estimate ground-water flow direction and magnitude for input to ground-water travel time calculations.

To understand the gas transport mechanism, direction, flux and travel time within the unsaturated zone. Design and implement methods for extracting pore fluids from the tuff. Provide independent evidence of flow direction, flux, and travel time of water in the unsaturated

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

UE-29 UZN #91

zone. Determine the extent of the water-rock interaction. Model geochronal evolution of ground water in the unsaturated zone.

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

UE-29 UZN #92

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To define the potentiometric distribution hydraulic properties, and recharge and discharge for the regional ground-water flow system to determine the magnitude and direction of ground-water flow.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

UE-29 a #1

To apply the models to predict the system response to changing external and internal conditions. Evaluate the accuracy of the models using stochastic modeling, conventional statistical analyses, and sensitivity analyses. Integrate data and analyses to synthesize a comprehensive qualitative and quantitative description of the site unsaturated-zone hydrogeologic system under present as well as probable, or possible, future conditions.

UE-29 a #2

To describe spatial variations in chemical composition of ground

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

USW G-1

water. Identify chemical and physical processes that influence ground-water chemistry. Use hydrochemical data to aid the identification and/or quantification of ground-water travel times; flow paths; fluxes to, from, and within the saturated zone; and climatic conditions during past periods of recharge.

Obtain measurements of chlorine isotope distributions to help quantify the percolation of precipitation in the unsaturated zone.

To apply the models to predict the system response to changing external and internal conditions. Evaluate the accuracy of the models using stochastic modeling, conventional statistical analyses, and sensitivity analyses. Integrate data and analyses to synthesize a comprehensive qualitative and quantitative description of the site unsaturated-zone hydrogeologic system under present as well as probable, or possible, future conditions.

To characterize the ambient state of stress of the YM host rock and surrounding units for use as initial conditions for geochemical models used in the design and performance assessment of the repository underground facilities.

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

To determine the frequency, distribution, characteristics, and relative chronology of structural features within the Yucca Mtn site area.

To determine the rate of movement of radionuclides along the potential flow paths to the accessible environment. Examine the effect of diffusion, adsorption, dispersion, anion exclusion, sorption kinetics, and colloid movement in the flow geometrics and hydrologic conditions

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

that are expected to exist along the flow paths to the accessible environment in the scenarios to be used for performance assessment.

To determine the timing, temperatures, and hydrologic conditions of past alteration at Yucca Mountain and experimentally study the dehydration of smectite, zeolite, and glass.

To determine the vertical and lateral variability and emplacement history of stratigraphic units and lithostratigraphic subunits within the Yucca Mountain site area.

To investigate the hydraulic characteristics of paleoflood events. Compare them with modern flooding and related geomorphic processes. Determine past infiltration and percolation history at Yucca Mountain through isotopic and chemical analysis of water from the unsaturated zone. Determine past hydrologic conditions in the regional discharge area. Estimate the conditions and rates of infiltration and ground-water recharge during the Quaternary.

To provide laboratory characterization of thermal expansion behavior and the spatial variability thereof for each new core hole and for the Exploratory Studies Facility.

To provide laboratory characterizations of the mechanical properties of intact rock and the spatial variability thereof for each new core hole and for the ESF. These properties are used in mechanical and thermomechanical calculations of stresses and deformations induced by the presence of underground openings in unit TSw2 and surrounding units, and by the presence of heat-producing waste in unit TSw2.

USW G-2

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses,

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

To determine the frequency, distribution, characteristics, and relative chronology of structural features within the Yucca Mtn site area.

To determine the vertical and lateral variability and emplacement history of stratigraphic units and lithostratigraphic subunits within the Yucca Mountain site area.

To investigate the hydraulic characteristics of paleoflood events. Compare them with modern flooding and related geomorphic processes. Determine past infiltration and percolation history at Yucca Mountain through isotopic and chemical analysis of water from the unsaturated zone. Determine past hydrologic conditions in the regional discharge area. Estimate the conditions and rates of infiltration and ground-water recharge during the Quaternary.

To provide laboratory characterizations of the mechanical properties of intact rock and the spatial variability thereof for each new core hole and for the ESF. These properties are used in mechanical and thermomechanical calculations of stresses and deformations induced by the presence of underground openings in unit TSw2 and surrounding units, and by the presence of heat-producing waste in unit TSw2.

USW G-3

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

information for evaluating erosion potential and infiltration-runoff characteristics.

To determine the frequency, distribution, characteristics, and relative chronology of structural features within the Yucca Mtn site area.

To determine the timing, temperatures, and hydrologic conditions of past alteration at Yucca Mountain and experimentally study the dehydration of smectite, zeolite, and glass.

To determine the vertical and lateral variability and emplacement history of stratigraphic units and lithostratigraphic subunits within the Yucca Mountain site area.

To identify Quaternary faults within 100km of Yucca Mountain. Characterize those faults capable of future earthquakes with magnitude such that associated ground shaking could impact design or affect performance of the waste facility.

To investigate the hydraulic characteristics of paleoflood events. Compare them with modern flooding and related geomorphic processes. Determine past infiltration and percolation history at Yucca Mountain through isotopic and chemical analysis of water from the unsaturated zone. Determine past hydrologic conditions in the regional discharge area. Estimate the conditions and rates of infiltration and ground-water recharge during the Quaternary.

USW G-4

Obtain measurements of chlorine isotope distributions to help quantify the percolation of precipitation in the unsaturated zone.

To apply the models to predict the system response to changing external and internal conditions. Evaluate the accuracy of the models using stochastic modeling, conventional statistical analyses, and sensitivity analyses. Integrate data and analyses to synthesize a comprehensive qualitative and quantitative description of the site unsaturated-zone hydrogeologic system under present as well as probable, or possible, future conditions.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

To determine the timing, temperatures, and hydrologic conditions of past alteration at Yucca Mountain and experimentally study the dehydration of smectite, zeolite, and glass.

To determine the vertical and lateral variability and emplacement history of stratigraphic units and lithostratigraphic subunits within the Yucca Mountain site area.

To investigate the hydraulic characteristics of paleoflood events. Compare them with modern flooding and related geomorphic processes. Determine past infiltration and percolation history at Yucca Mountain through isotopic and chemical analysis of water from the unsaturated zone. Determine past hydrologic conditions in the regional discharge area. Estimate the conditions and rates of infiltration and ground-water recharge during the Quaternary.

To provide laboratory characterization of thermal conductivity and heat capacity and the spatial variability thereof. Characterize porosity, grain density, and the heat capacity and thermal conductivity of zero porosity material for each new core hole selected for characterization and for the Exploratory Studies Facility.

To provide laboratory characterization of thermal expansion behavior and the spatial variability thereof for each new core hole and for the Exploratory Studies Facility.

To provide laboratory characterizations of the mechanical properties of intact rock and the spatial variability thereof for each new core hole and for the ESF. These properties are used in mechanical and thermomechanical calculations of stresses and deformations induced by

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

the presence of underground openings in unit TSw2 and surrounding units, and by the presence of heat-producing waste in unit TSw2.

To provide sorption coefficients for key radionuclides as a function of solid phase composition, ground-water composition, waste element concentration, and the presence of particulates and colloids.

To synthesize available data to develop a conceptual model. Make a qualitative analysis of how the system is functioning. Develop and evaluate porous-media and fracture-network methods for simulating ground-water flow and solute transport. Estimate ground-water flow direction and magnitude for input to ground-water travel time calculations.

USW GA-1

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

To identify Quaternary faults within 100km of Yucca Mountain. Characterize those faults capable of future earthquakes with magnitude such that associated ground shaking could impact design or affect performance of the waste facility.

To investigate the hydraulic characteristics of paleoflood events. Compare them with modern flooding and related geomorphic processes. Determine past infiltration and percolation history at Yucca Mountain through isotopic and chemical analysis of water from the unsaturated zone. Determine past hydrologic conditions in the regional discharge area. Estimate the conditions and rates of infiltration and

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

USW GU-3

ground-water recharge during the Quaternary.

To apply the models to predict the system response to changing external and internal conditions. Evaluate the accuracy of the models using stochastic modeling, conventional statistical analyses, and sensitivity analyses. Integrate data and analyses to synthesize a comprehensive qualitative and quantitative description of the site unsaturated-zone hydrogeologic system under present as well as probable, or possible, future conditions.

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

To determine the frequency, distribution, characteristics, and relative chronology of structural features within the Yucca Mtn site area.

To determine the timing, temperatures, and hydrologic conditions of past alteration at Yucca Mountain and experimentally study the dehydration of smectite, zeolite, and glass.

To determine the vertical and lateral variability and emplacement history of stratigraphic units and lithostratigraphic subunits within the Yucca Mountain site area.

To provide laboratory characterization of thermal expansion behavior and the spatial variability thereof for each new core hole and for the Exploratory Studies Facility.

To provide laboratory characterizations of the mechanical properties of intact rock and the spatial variability thereof for each new core hole and for the ESF. These properties are used in mechanical and thermomechanical calculations of stresses and deformations induced by

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

USW H-1

the presence of underground openings in unit TSw2 and surrounding units, and by the presence of heat-producing waste in unit TSw2.

Obtain measurements of chlorine isotope distributions to help quantify the percolation of precipitation in the unsaturated zone.

To apply the models to predict the system response to changing external and internal conditions. Evaluate the accuracy of the models using stochastic modeling, conventional statistical analyses, and sensitivity analyses. Integrate data and analyses to synthesize a comprehensive qualitative and quantitative description of the site unsaturated-zone hydrogeologic system under present as well as probable, or possible, future conditions.

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

To investigate the hydraulic characteristics of paleoflood events. Compare them with modern flooding and related geomorphic processes. Determine past infiltration and percolation history at Yucca Mountain through isotopic and chemical analysis of water from the unsaturated zone. Determine past hydrologic conditions in the regional discharge area. Estimate the conditions and rates of infiltration and ground-water recharge during the Quaternary.

USW H-3

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

To determine the timing, temperatures, and hydrologic conditions of past alteration at Yucca Mountain and experimentally study the dehydration of smectite, zeolite, and glass.

To determine the vertical and lateral variability and emplacement history of stratigraphic units and lithostratigraphic subunits within the Yucca Mountain site area.

To identify Quaternary faults within 100km of Yucca Mountain. Characterize those faults capable of future earthquakes with magnitude such that associated ground shaking could impact design or affect performance of the waste facility.

To investigate the hydraulic characteristics of paleoflood events. Compare them with modern flooding and related geomorphic processes. Determine past infiltration and percolation history at Yucca Mountain through isotopic and chemical analysis of water from the unsaturated zone. Determine past hydrologic conditions in the regional discharge area. Estimate the conditions and rates of infiltration and ground-water recharge during the Quaternary.

To measure the diffusivity and kinetics of adsorption in a purely diffusive system, that is, no advection.

USW H-4

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

To determine the timing, temperatures, and hydrologic conditions of past alteration at Yucca Mountain and experimentally study the dehydration of smectite, zeolite, and glass.

To identify and assess the mineral and energy resource potential at the proposed repository site at YM. Conduct a geochemical sampling

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

program for precious, base, and strategic metals; energy resources; and industrial minerals. Assess the potential for geothermal energy and hydrocarbon resources. Assess the potential for undiscovered resources and future exploration.

To synthesize available data to develop a conceptual model. Make a qualitative analysis of how the system is functioning. Develop and evaluate porous-media and fracture-network methods for simulating ground-water flow and solute transport. Estimate ground-water flow direction and magnitude for input to ground-water travel time calculations.

USW H-5

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

To determine the timing, temperatures, and hydrologic conditions of past alteration at Yucca Mountain and experimentally study the dehydration of smectite, zeolite, and glass.

To identify and assess the mineral and energy resource potential at the proposed repository site at YM. Conduct a geochemical sampling program for precious, base, and strategic metals; energy resources; and industrial minerals. Assess the potential for geothermal energy and hydrocarbon resources. Assess the potential for undiscovered resources and future exploration.

To synthesize available data to develop a conceptual model. Make a qualitative analysis of how the system is functioning. Develop and

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

evaluate porous-media and fracture-network methods for simulating ground-water flow and solute transport. Estimate ground-water flow direction and magnitude for input to ground-water travel time calculations.

USW H-6

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

To define the potentiometric distribution hydraulic properties, and recharge and discharge for the regional ground-water flow system to determine the magnitude and direction of ground-water flow.

To determine the hydrogeologic nature of the Solitario Canyon fault in the saturated zone. Determine the time and spatial variation of the potentiometric surface. Determine the character, magnitude, and causes of water-level fluctuations. Estimate elastic and hydraulic properties. Determine transport properties of the saturated zone. Evaluate the relation between hydraulic properties and fracture characteristics.

To identify and assess the mineral and energy resource potential at the proposed repository site at YM. Conduct a geochemical sampling program for precious, base, and strategic metals; energy resources; and industrial minerals. Assess the potential for geothermal energy and hydrocarbon resources. Assess the potential for undiscovered resources and future exploration.

USW UZ-1

Obtain measurements of chlorine isotope distributions to help quantify the percolation of precipitation in the unsaturated zone.

To apply the models to predict the system response to changing external and internal conditions. Evaluate the accuracy of the models using stochastic modeling, conventional statistical analyses, and

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

sensitivity analyses. Integrate data and analyses to synthesize a comprehensive qualitative and quantitative description of the site unsaturated-zone hydrogeologic system under present as well as probable, or possible, future conditions.

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

To describe the pre-waste-emplacement gas-flow field. Identify structural controls on fluid flow. Determine conductive and dispersive properties of the unsaturated zone for gas flow. Model the transport of water and tracers in the gas phase.

To determine in situ the extent to which nonsorbing tracers diffuse into the water-filled pores of the Topopah Spring welded unit.

USW UZ-13

To apply the models to predict the system response to changing external and internal conditions. Evaluate the accuracy of the models using stochastic modeling, conventional statistical analyses, and sensitivity analyses. Integrate data and analyses to synthesize a comprehensive qualitative and quantitative description of the site unsaturated-zone hydrogeologic system under present as well as probable, or possible, future conditions.

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

USW UZ-14

To acquire physical rock samples, analytical data, and basic descriptions of the subsurface geology of the repository site for characterizing the three-dimensional distribution of rock characteristics, and hydrologic and geochemical variables, for the unsaturated zone.

To determine the present in situ hydrologic properties of the unsaturated zone hydrogeologic units and structural features. Determine the present vertical and lateral variation of percolation flux through the hydrogeologic units and structural features. Determine the effective hydraulic conductivity, storage properties, and transport properties as functions of moisture content or potential.

To understand the gas transport mechanism, direction, flux and travel time within the unsaturated zone. Design and implement methods for extracting pore fluids from the tuff. Provide independent evidence of flow direction, flux, and travel time of water in the unsaturated zone. Determine the extent of the water-rock interaction. Model geochemical evolution of ground water in the unsaturated zone.

USW UZ-6

Obtain measurements of chlorine isotope distributions to help quantify the percolation of precipitation in the unsaturated zone.

To apply the models to predict the system response to changing external and internal conditions. Evaluate the accuracy of the models using stochastic modeling, conventional statistical analyses, and sensitivity analyses. Integrate data and analyses to synthesize a comprehensive qualitative and quantitative description of the site unsaturated-zone hydrogeologic system under present as well as probable, or possible, future conditions.

To describe the pre-waste-emplacement gas-flow field. Identify structural controls on fluid flow. Determine conductive and dispersive properties of the unsaturated zone for gas flow. Model the transport of water and tracers in the gas phase.

To determine in situ the extent to which nonsorbing tracers diffuse

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

into the water-filled pores of the Topopah Spring welded unit.

To determine the frequency, distribution, characteristics, and relative chronology of structural features within the Yucca Mtn site area.

USW UZ-6s

To apply the models to predict the system response to changing external and internal conditions. Evaluate the accuracy of the models using stochastic modeling, conventional statistical analyses, and sensitivity analyses. Integrate data and analyses to synthesize a comprehensive qualitative and quantitative description of the site unsaturated-zone hydrogeologic system under present as well as probable, or possible, future conditions.

To describe the pre-waste-emplacement gas-flow field. Identify structural controls on fluid flow. Determine conductive and dispersive properties of the unsaturated zone for gas flow. Model the transport of water and tracers in the gas phase.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-7

To apply the models to predict the system response to changing external and internal conditions. Evaluate the accuracy of the models using stochastic modeling, conventional statistical analyses, and sensitivity analyses. Integrate data and analyses to synthesize a comprehensive qualitative and quantitative description of the site unsaturated-zone hydrogeologic system under present as well as probable, or possible, future conditions.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

USW UZ-N11

Obtain measurements of chlorine isotope distributions to help quantify the percolation of precipitation in the unsaturated zone.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

To determine the present in situ hydrologic properties of the unsaturated zone hydrogeologic units and structural features. Determine the present vertical and lateral variation of percolation flux through the hydrogeologic units and structural features. Determine the effective hydraulic conductivity, storage properties, and transport properties as functions of moisture content or potential.

USW UZ-N15

Obtain measurements of chlorine isotope distributions to help quantify the percolation of precipitation in the unsaturated zone.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

To determine the present in situ hydrologic properties of the unsaturated zone hydrogeologic units and structural features. Determine the present vertical and lateral variation of percolation flux through the hydrogeologic units and structural features. Determine the effective hydraulic conductivity, storage properties, and transport properties as functions of moisture content or potential.

USW UZ-N16

Obtain measurements of chlorine isotope distributions to help quantify the percolation of precipitation in the unsaturated zone.

To determine the effective hydraulic conductivity, storage properties,

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

To determine the present in situ hydrologic properties of the unsaturated zone hydrogeologic units and structural features. Determine the present vertical and lateral variation of percolation flux through the hydrogeologic units and structural features. Determine the effective hydraulic conductivity, storage properties, and transport properties as functions of moisture content or potential.

USW UZ-N17

Obtain measurements of chlorine isotope distributions to help quantify the percolation of precipitation in the unsaturated zone.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

To determine the present in situ hydrologic properties of the unsaturated zone hydrogeologic units and structural features. Determine the present vertical and lateral variation of percolation flux through the hydrogeologic units and structural features. Determine the effective hydraulic conductivity, storage properties, and transport properties as functions of moisture content or potential.

USW UZ-N24

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N25

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N26

Develop and validate conceptual and numerical models describing gas flow and liquid water and solute movement in unsaturated, fractured rock at the laboratory and sub-REV scales.

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N27

Obtain measurements of chlorine isotope distributions to help quantify the percolation of precipitation in the unsaturated zone.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

To determine the present in situ hydrologic properties of the unsaturated zone hydrogeologic units and structural features. Determine the present vertical and lateral variation of percolation flux through the hydrogeologic units and structural features. Determine the effective hydraulic conductivity, storage properties, and transport properties as functions of moisture content or potential.

USW UZ-N31

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

To determine the present in situ hydrologic properties of the unsaturated zone hydrogeologic units and structural features. Determine the present vertical and lateral variation of percolation flux through the hydrogeologic units and structural features. Determine the effective hydraulic conductivity, storage properties, and transport properties as functions of moisture content or potential.

USW UZ-N32

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

To determine the present in situ hydrologic properties of the unsaturated zone hydrogeologic units and structural features. Determine the present vertical and lateral variation of percolation flux through the hydrogeologic units and structural features. Determine the effective hydraulic conductivity, storage properties, and transport properties as functions of moisture content or potential.

USW UZ-N33

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

To determine the present in situ hydrologic properties of the unsaturated zone hydrogeologic units and structural features. Determine the present vertical and lateral variation of percolation flux through the hydrogeologic units and structural features. Determine the effective hydraulic conductivity, storage properties, and transport properties as functions of moisture content or potential.

USW UZ-N34

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

To determine the present in situ hydrologic properties of the unsaturated zone hydrogeologic units and structural features. Determine the present vertical and lateral variation of percolation flux through the hydrogeologic units and structural features. Determine the effective hydraulic conductivity, storage properties, and transport properties as functions of moisture content or potential.

USW UZ-N35

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

To determine the present in situ hydrologic properties of the unsaturated zone hydrogeologic units and structural features. Determine the present vertical and lateral variation of percolation flux through the hydrogeologic units and structural features. Determine the effective hydraulic conductivity, storage properties, and transport properties as functions of moisture content or

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

USW UZ-N36

potential.

Obtain measurements of chlorine isotope distributions to help quantify the percolation of precipitation in the unsaturated zone.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

To determine the present in situ hydrologic properties of the unsaturated zone hydrogeologic units and structural features. Determine the present vertical and lateral variation of percolation flux through the hydrogeologic units and structural features. Determine the effective hydraulic conductivity, storage properties, and transport properties as functions of moisture content or potential.

USW UZ-N37

Obtain measurements of chlorine isotope distributions to help quantify the percolation of precipitation in the unsaturated zone

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

To determine the present in situ hydrologic properties of the unsaturated zone hydrogeologic units and structural features. Determine the present vertical and lateral variation of percolation flux through the hydrogeologic units and structural features. Determine the effective hydraulic conductivity, storage properties, and transport properties as functions of moisture content or potential.

USW UZ-N38

Obtain measurements of chlorine isotope distributions to help quantify the percolation of precipitation in the unsaturated zone.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier -----	Purpose -----
USW UZ-N40	To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn. To determine the present in situ hydrologic properties of the unsaturated zone hydrogeologic units and structural features. Determine the present vertical and lateral variation of percolation flux through the hydrogeologic units and structural features. Determine the effective hydraulic conductivity, storage properties, and transport properties as functions of moisture content or potential. To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin. To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.
USW UZ-N41	To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.
USW UZ-N42	To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn. To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier -----	Purpose -----
USW UZ-N43	surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin. To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn. To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin. To determine in situ the extent to which nonsorbing tracers diffuse into the water-filled pores of the Topopah Spring welded unit. To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.
USW UZ-N44	Develop and validate conceptual and numerical models describing gas flow and liquid water and solute movement in unsaturated, fractured rock at the laboratory and sub-REV scales. To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin. To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

USW UZ-N45

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N46

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

To determine the present in situ hydrologic properties of the unsaturated zone hydrogeologic units and structural features. Determine the present vertical and lateral variation of percolation flux through the hydrogeologic units and structural features. Determine the effective hydraulic conductivity, storage properties, and transport properties as functions of moisture content or potential.

USW UZ-N47

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N48

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N49

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N50

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N51

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

US1 #52

surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N53

Obtain measurements of chlorine isotope distributions to help quantify the percolation of precipitation in the unsaturated zone.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

To determine the present in situ hydrologic properties of the unsaturated zone hydrogeologic units and structural features. Determine the present vertical and lateral variation of percolation flux through the hydrogeologic units and structural features. Determine the effective hydraulic conductivity, storage properties, and transport properties as functions of moisture content or potential.

USW UZ-N54

Obtain measurements of chlorine isotope distributions to help quantify

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

the percolation of precipitation in the unsaturated zone.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

To determine the present in situ hydrologic properties of the unsaturated zone hydrogeologic units and structural features. Determine the present vertical and lateral variation of percolation flux through the hydrogeologic units and structural features. Determine the effective hydraulic conductivity, storage properties, and transport properties as functions of moisture content or potential.

USW UZ-N55

Obtain measurements of chlorine isotope distributions to help quantify the percolation of precipitation in the unsaturated zone.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

To determine the present in situ hydrologic properties of the unsaturated zone hydrogeologic units and structural features. Determine the present vertical and lateral variation of percolation flux through the hydrogeologic units and structural features. Determine the effective hydraulic conductivity, storage properties, and transport properties as functions of moisture content or potential.

To understand the gas transport mechanism, direction, flux and travel time within the unsaturated zone. Design and implement methods for extracting pore fluids from the tuff. Provide independent evidence of flow direction, flux, and travel time of water in the unsaturated zone. Determine the extent of the water-rock interaction. Model

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

geochemical evolution of ground water in the unsaturated zone.

USW UZ-N57

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

To determine the present in situ hydrologic properties of the unsaturated zone hydrogeologic units and structural features. Determine the present vertical and lateral variation of percolation flux through the hydrogeologic units and structural features. Determine the effective hydraulic conductivity, storage properties, and transport properties as functions of moisture content or potential.

USW UZ-N58

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

To determine the present in situ hydrologic properties of the unsaturated zone hydrogeologic units and structural features. Determine the present vertical and lateral variation of percolation flux through the hydrogeologic units and structural features. Determine the effective hydraulic conductivity, storage properties, and transport properties as functions of moisture content or potential.

USW UZ-N59

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

To determine the present in situ hydrologic properties of the unsaturated zone hydrogeologic units and structural features.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

USW UZ-N61

Determine the present vertical and lateral variation of percolation flux through the hydrogeologic units and structural features.
Determine the effective hydraulic conductivity, storage properties, and transport properties as functions of moisture content or potential.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

To determine the present in situ hydrologic properties of the unsaturated zone hydrogeologic units and structural features.
Determine the present vertical and lateral variation of percolation flux through the hydrogeologic units and structural features.
Determine the effective hydraulic conductivity, storage properties, and transport properties as functions of moisture content or potential.

USW UZ-N62

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

To determine the present in situ hydrologic properties of the unsaturated zone hydrogeologic units and structural features.
Determine the present vertical and lateral variation of percolation flux through the hydrogeologic units and structural features.
Determine the effective hydraulic conductivity, storage properties, and transport properties as functions of moisture content or potential.

USW UZ-N64

Obtain measurements of chlorine isotope distributions to help quantify the percolation of precipitation in the unsaturated zone.

To determine the effective hydraulic conductivity, storage properties,

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

To determine the present in situ hydrologic properties of the unsaturated zone hydrogeologic units and structural features. Determine the present vertical and lateral variation of percolation flux through the hydrogeologic units and structural features. Determine the effective hydraulic conductivity, storage properties, and transport properties as functions of moisture content or potential.

USW UZ-N65

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N66

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N67

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N68

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N69

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N70

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

USW UZ-N71

estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To describe the pre-waste-emplacement gas-flow field. Identify structural controls on fluid flow. Determine conductive and dispersive properties of the unsaturated zone for gas flow. Model the transport of water and tracers in the gas phase.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N72

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To describe the pre-waste-emplacement gas-flow field. Identify structural controls on fluid flow. Determine conductive and dispersive properties of the unsaturated zone for gas flow. Model the transport of water and tracers in the gas phase.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N73

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

model development for the Fortymile Wash drainage basin.

To describe the pre-waste-emplacement gas-flow field. Identify structural controls on fluid flow. Determine conductive and dispersive properties of the unsaturated zone for gas flow. Model the transport of water and tracers in the gas phase.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N74

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To describe the pre-waste-emplacement gas-flow field. Identify structural controls on fluid flow. Determine conductive and dispersive properties of the unsaturated zone for gas flow. Model the transport of water and tracers in the gas phase.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N75

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To describe the pre-waste-emplacement gas-flow field. Identify structural controls on fluid flow. Determine conductive and dispersive properties of the unsaturated zone for gas flow. Model the transport of water and tracers in the gas phase.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N76

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To describe the pre-waste-emplacement gas-flow field. Identify structural controls on fluid flow. Determine conductive and dispersive properties of the unsaturated zone for gas flow. Model the transport of water and tracers in the gas phase.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N77

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To describe the pre-waste-emplacement gas-flow field. Identify structural controls on fluid flow. Determine conductive and dispersive properties of the unsaturated zone for gas flow. Model the transport of water and tracers in the gas phase.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier -----	Purpose -----
USW UZ-N78	To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin. To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.
USW UZ-N79	To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin. To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.
USW UZ-N80	To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin. To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.
USW UZ-N81	To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N82

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N83

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N84

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

USW UZ-N86

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N87

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N88

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N89

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

USW UZ-N90

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N93

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To describe the pre-waste-emplacement gas-flow field. Identify structural controls on fluid flow. Determine conductive and dispersive properties of the unsaturated zone for gas flow. Model the transport of water and tracers in the gas phase.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N94

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

To describe the pre-waste-emplacement gas-flow field. Identify structural controls on fluid flow. Determine conductive and dispersive properties of the unsaturated zone for gas flow. Model the transport of water and tracers in the gas phase.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N95

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To describe the pre-waste-emplacement gas-flow field. Identify structural controls on fluid flow. Determine conductive and dispersive properties of the unsaturated zone for gas flow. Model the transport of water and tracers in the gas phase.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW UZ-N96

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

USW UZ-N98

To characterize the area surrounding Yucca Mountain in terms of precipitation and other meteorological data and their relationship to surface runoff and infiltration. Provide input into rainfall-runoff model development for the Fortymile Wash drainage basin.

To determine the effective hydraulic conductivity, storage properties, and transport properties pertinent to unsaturated zone infiltration as functions of moisture content or potential; determine the present and estimate the future spatial distribution of infiltration rate over the repository block at Yucca Mtn.

USW VH-1

To determine the vertical and lateral variability and emplacement history of stratigraphic units and lithostratigraphic subunits within the Yucca Mountain site area.

To identify Quaternary faults within 100km of Yucca Mountain. Characterize those faults capable of future earthquakes with magnitude such that associated ground shaking could impact design or affect performance of the waste facility.

To provide information pertaining to the distribution, displacement rate, and age of detachment faults proximal to Yucca Mountain. Determine whether they represent a significant earthquake source or conceal a significant earthquake source at depth.

USW VH-2

To provide information pertaining to the distribution, displacement rate, and age of detachment faults proximal to Yucca Mountain. Determine whether they represent a significant earthquake source or conceal a significant earthquake source at depth.

USW WT-1

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

To define the potentiometric distribution hydraulic properties, and recharge and discharge for the regional ground-water flow system to determine the magnitude and direction of ground-water flow.

To describe spatial variations in chemical composition of ground water. Identify chemical and physical processes that influence ground-water chemistry. Use hydrochemical data to aid the identification and/or quantification of ground-water travel times; flow paths; fluxes to, from, and within the saturated zone; and climatic conditions during past periods of recharge.

To determine the hydrogeologic nature of the Solitario Canyon fault in the saturated zone. Determine the time and spatial variation of the potentiometric surface. Determine the character, magnitude, and causes of water-level fluctuations. Estimate elastic and hydraulic properties. Determine transport properties of the saturated zone. Evaluate the relation between hydraulic properties and fracture characteristics.

USW WT-10

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

To define the potentiometric distribution hydraulic properties, and recharge and discharge for the regional ground-water flow system to determine the magnitude and direction of ground-water flow.

To describe spatial variations in chemical composition of ground water. Identify chemical and physical processes that influence ground-water chemistry. Use hydrochemical data to aid the identification and/or quantification of ground-water travel times; flow paths; fluxes to, from, and within the saturated zone; and climatic conditions during past periods of recharge.

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

USW WT-11

To determine the hydrogeologic nature of the Solitario Canyon fault in the saturated zone. Determine the time and spatial variation of the potentiometric surface. Determine the character, magnitude, and causes of water-level fluctuations. Estimate elastic and hydraulic properties. Determine transport properties of the saturated zone. Evaluate the relation between hydraulic properties and fracture characteristics.

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

To define the potentiometric distribution hydraulic properties, and recharge and discharge for the regional ground-water flow system to determine the magnitude and direction of ground-water flow.

To describe spatial variations in chemical composition of ground water. Identify chemical and physical processes that influence ground-water chemistry. Use hydrochemical data to aid the identification and/or quantification of ground-water travel times; flow paths; fluxes to, from, and within the saturated zone; and climatic conditions during past periods of recharge.

To determine the hydrogeologic nature of the Solitario Canyon fault in the saturated zone. Determine the time and spatial variation of the potentiometric surface. Determine the character, magnitude, and causes of water-level fluctuations. Estimate elastic and hydraulic properties. Determine transport properties of the saturated zone. Evaluate the relation between hydraulic properties and fracture characteristics.

USW WT-2

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses,

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

To define the potentiometric distribution hydraulic properties, and recharge and discharge for the regional ground-water flow system to determine the magnitude and direction of ground-water flow.

To describe spatial variations in chemical composition of ground water. Identify chemical and physical processes that influence ground-water chemistry. Use hydrochemical data to aid the identification and/or quantification of ground-water travel times; flow paths; fluxes to, from, and within the saturated zone; and climatic conditions during past periods of recharge.

To determine the hydrogeologic nature of the Solitario Canyon fault in the saturated zone. Determine the time and spatial variation of the potentiometric surface. Determine the character, magnitude, and causes of water-level fluctuations. Estimate elastic and hydraulic properties. Determine transport properties of the saturated zone. Evaluate the relation between hydraulic properties and fracture characteristics.

USW WT-7

To characterize the soil and rock at and near the surface to provide design issues with the necessary geotechnical information to help locate the surface facilities, conduct foundation design analyses, evaluate soil-structure interactions, and evaluate potentially unstable slopes; provide design issues with hydraulic-related soil information for evaluating erosion potential and infiltration-runoff characteristics.

To define the potentiometric distribution hydraulic properties, and recharge and discharge for the regional ground-water flow system to determine the magnitude and direction of ground-water flow.

To describe spatial variations in chemical composition of ground water. Identify chemical and physical processes that influence

SAMPLING INFORMATION FOR EXISTING BOREHOLES

Activity Identifier

Purpose

ground-water chemistry. Use hydrochemical data to aid the identification and/or quantification of ground-water travel times; flow paths; fluxes to, from, and within the saturated zone; and climatic conditions during past periods of recharge.

To determine the hydrogeologic nature of the Solitario Canyon fault in the saturated zone. Determine the time and spatial variation of the potentiometric surface. Determine the character, magnitude, and causes of water-level fluctuations. Estimate elastic and hydraulic properties. Determine transport properties of the saturated zone. Evaluate the relation between hydraulic properties and fracture characteristics.