NOTICE

All drawings located at the end of the document.

DRAFT FINAL

PHASE I RFI/RI REPORT
WALNUT CREEK PRIORITY DRAINAGE
OPERABLE UNIT NO. 6

VOLUME 4

APPENDIX B, C (C1-C3.3)

DOCUMENT CLASSIFICATION
REVIEW WAIVER PER
CLASSIFICATION OFFICE

U.S. Department of Energy
Rocky Flats Environmental Technology Site
Golden, Colorado

September 1995

(4047-910-0052-510) (R7-CVRS) (09/25/95 9:13am)

DRAFT FINAL

PHASE I RFI/RI REPORT
WALNUT CREEK PRIORITY DRAINAGE
OPERABLE UNIT NO. 6

VOLUME 4

APPENDIX B, C (C1-C3.3)

U.S. Department of Energy
Rocky Flats Environmental Technology Site
Golden, Colorado

September 1995

TABLE OF CONTENTS

1.0 INTRODUCTION 1-1

1.1 REPORT ORGANIZATION 1-2
1.2 INVESTIGATION OBJECTIVES 1-4
1.3 BACKGROUND 1-5

1.3.1 Plant Operations 1-5
1.3.2 OU6 IHSS Locations and Descriptions 1-6

1.3.2.1 Sludge Dispersal Area (IHSS 141) 1-7
1.3.2.2 North Walnut Creek and South Walnut Creek . . . 1-7
1.3.2.3 A-Series Ponds (IHSSs 142.1 through 142.4) . . . 1-8
1.3.2.4 B-Series Ponds (IHSSs 142.5 through 142.9) . . 1-10
1.3.2.5 Walnut and Indiana (W&I) Pond (IHSS 142.12) 1-11
1.3.2.6 Old Outfall Area (IHSS 143) 1-11
1.3.2.7 Soil Dump Area (IHSS 156.2) 1-13
1.3.2.8 Triangle Area (IHSS 165) 1-14
1.3.2.9 Trenches A, B and C (IHSSs 166.1, 166.2, and 166.3) 1-16
1.3.2.11 East Spray Field Area (IHSS 216.1) 1-18

1.3.3 Previous Investigations 1-19
1.3.4 Ongoing Investigations within OU6 1-22

1.3.4.1 Sediment Sampling Program 1-22
1.3.4.2 Surface Water Sampling Program 1-22
1.3.4.3 Groundwater Sampling Program 1-22

Section Page

1.4 SUMMARIES OF THE OU6 PHASE I RFI/RI WORK PLAN, TECHNICAL MEMORANDA, AND LETTER REPORT 1-23

1.4.1 Summary of the Final OU6 Phase I RFI/RI Work Plan 1-23
1.4.2 Summary of Addendum to Final OU6 Phase I RFI/RI Work Plan (TM1) 1-24
1.4.3 Summary of OU6 Human Health Risk Assessment Exposure Scenarios (TM2) 1-25
1.4.4 Summary of OU6 Human Health Risk Assessment Model Descriptions (TM3) 1-26
1.4.5 Summary of OU6 Human Health Risk Assessment Chemicals of Concern (TM4) 1-27
1.4.6 Summary of OU6 Human Health Risk Assessment Toxicity Assessment (TM5) 1-30
1.4.7. Appendix I, Addendum No. 1, Additional Pond Sediment Investigations 1-31
1.4.8 Summary of the OU6 CDPHE Letter Report (Risk-Based Conservative Screen) 1-32

2.0 OU6 FIELD INVESTIGATION 2-1

2.1 OVERVIEW OF OU6 PHASE I FIELD ACTIVITIES 2-2

2.1.1 Stage 1 Activities - Review Existing Data 2-4
2.1.2 Stage 2 Activities - Preliminary Screening 2-4

2.1.2.1 Radiation Surveys 2-4
2.1.2.2 Soil Gas Survey 2-4

Section | Page

2.1.2.3 Geophysical Survey 2-5

2.1.3 Stage 3 Activities - Soil, Sediment, and Surface Water Sampling 2-6

2.1.3.1 Soil Borings, Soil Cores and Subsurface Soil Sampling 2-6
2.1.3.2 Surface Soil and Dry Sediment Sampling 2-9
2.1.3.3 Stream Sediment, Pond Sediment and Surface Water Sampling 2-10
2.1.3.4 Soil Profiles 2-12

2.1.4 Stage 4 Activities - Monitoring Well Installation and Groundwater Sampling 2-12

2.1.4.1 Monitoring Well Installation 2-12
2.1.4.2 Monitoring Well Development and Groundwater Sampling 2-13

2.1.5 Additional Phase I Investigation Activities 2-13

2.1.5.1 Site Numbering 2-13
2.1.5.2 Engineering Surveying 2-14
2.1.5.3 Data Management 2-14
2.1.5.4 Surface Geologic Mapping and Seep Field Identification 2-15

2.2 SUMMARY OF FIELD INVESTIGATIONS BY IHSS 2-15

DRAFT

Section Page

2.2.1 Sludge Dispersal Area 2-16
2.2.2 A and B-Series Ponds (IHSSs 142.1 through 142.9); W&I Pond (IHSS 142.12); and Walnut Creek Drainages (Non-IHSS) 2-18
2.2.3 Old Outfall Area (IHSS 143) 2-22
2.2.4 Soil Dump Area (IHSS 156.2) 2-25
2.2.5 Triangle Area (IHSS 165) 2-28
2.2.6 Trenches A, B, and C (IHSSs 166.1-3) 2-32
2.2.7 North and South Spray Field Areas (IHSSs 167.1 and 167.3) . 2-35
2.2.8 East Spray Field Area (IHSS 216.1) 2-38

2.3 ECOLOGICAL RISK ASSESSMENT INVESTIGATION 2-40

3.0 PHYSICAL CHARACTERISTICS OF OU6 3-1

3.1 PHYSIOGRAPHIC FEATURES 3-1

3.1.1 Regional 3-1
3.1.2 Operable Unit No. 6 3-3

3.2 DEMOGRAPHY AND LAND USE 3-3

3.2.1 Demographics 3-3
3.2.2 Off-Site Land Use 3-5

3.2.2.1 Current Land Use 3-5
3.2.2.2 Future Land Use 3-6

3.2.3 Onsite Land Use 3-7

DRAFT

Section | Page

3.2.3.1 Current Land Use 3-7
3.2.3.2 Future Land Use 3-7

3.3 METEOROLOGY AND CLIMATOLOGY 3-8
3.4 SOILS 3-9
3.5 GEOLOGY 3-11

3.5.1 Unconsolidated Surface Geologic Units 3-13

3.5.1.1 Rocky Flats Alluvium 3-14
3.5.1.2 High Terrace Alluvium 3-15
3.5.1.3 Valley-Fill Alluvium 3-16
3.5.1.4 Colluvium 3-17
3.5.1.5 Landslides 3-18
3.5.1.6 Man-made Deposits 3-19

3.5.2 Bedrock Geology 3-19

3.5.2.1 Claystones, Siltstones and Sandstones 3-21
3.5.2.2 Top of Bedrock Surface 3-23

3.6 HYDROGEOLOGY 3-23

3.6.1 Regional Hydrogeology 3-23
3.6.2 OU6 Hydrogeology 3-25

3.6.2.1 Upper Hydrostratigraphic Unit 3-26
3.6.2.2 Groundwater Geochemistry 3-32

Section Page

3.7 SURFACE WATER 3-37

3.7.1 Drainage 3-38
3.7.2 Pond Operations 3-39
3.7.3 Pond Capacity 3-41
3.7.4 Runoff Characteristics and Historical Flows 3-42

3.8 ECOLOGY 3-45
3.9 PHYSICAL CHARACTERISTICS OF EACH IHSS 3-45

3.9.1 Sludge Dispersal Area 3-45

3.9.1.1 Site Description 3-45
3.9.1.2 Geology 3-46
3.9.1.3 Hydrogeology 3-47
3.9.1.4 Surface Water 3-47

3.9.2 A-Series Ponds 3-48

3.9.2.1 Site Description 3-48
3.9.2.2 Geology 3-48
3.9.2.3 Hydrogeology 3-51
3.9.2.4 Surface Water 3-52

3.9.3 B-Series Ponds 3-53

3.9.3.1 Site Description 3-53
3.9.3.2 Geology 3-53

DRAFT

Section | Page

3.9.3.3 Hydrogeology 3-57
3.9.3.4 Surface Water 3-57

3.9.4 W & I Pond (IHSS 142.12) 3-58

3.9.4.1 Site Description 3-58
3.9.4.2 Geology 3-58
3.9.4.3 Hydrogeology 3-59
3.9.4.4 Surface Water 3-59

3.9.5 Old Outfall Area (IHSS 143) 3-60

3.9.5.1 Site Description 3-60
3.9.5.2 Geology 3-60
3.9.5.3 Hydrogeology 3-61
3.9.5.4 Surface Water 3-62

3.9.6 Soil Dump Area (IHSS 156.2) 3-62

3.9.6.1 Site Description 3-62
3.9.6.2 Geology 3-62
3.9.6.3 Hydrogeology 3-64
3.9.6.4 Surface Water 3-64

3.9.7 Triangle Area (IHSS 165) 3-64

3.9.7.1 Site Description 3-64
3.9.7.2 Geology 3-65

DRAFT

Section Page

3.9.7.3 Hydrogeology 3-67
3.9.7.4 Surface Water 3-68

3.9.8 Trenches A, B, and C (IHSS 166.1, 166.2, and 166.3) 3-68

3.9.8.1 Site Description 3-68
3.9.8.2 Geology 3-68
3.9.8.3 Hydrogeology 3-70
3.9.8.4 Surface Water 3-70

3.9.9 North Spray Field and South Spray Field Areas (IHSSs 167.1 and 167.3) 3-71

3.9.9.1 Site Description 3-71
3.9.9.2 Geology 3-72
3.9.9.3 Hydrogeology 3-73
3.9.9.4 Surface Water 3-74

3.9.10 East Spray Field Area (IHSS 216.1) 3-74

3.9.10.1 Site Description 3-74
3.9.10.2 Geology 3-75
3.9.10.3 Hydrogeology 3-75
3.9.10.4 Surface Water 3-76

4.0 NATURE AND EXTENT OF CONTAMINATION 4-1

4.1 INTRODUCTION 4-1

DRAFT

Section Page

4.2 DESCRIPTION OF ANALYTICAL DATA USED 4-1

4.2.1 Summary of Media Collected 4-1
4.2.2 Groundwater 4-1
4.2.3 Analytical Data Overview 4-2
4.2.4 Suspect Contaminants 4-2

4.3 BACKGROUND COMPARISON FOR METALS AND RADIONUCLIDES 4-3

4.3.1 Data Aggregation 4-4
4.3.2 Statistical Background Comparison 4-5

4.3.2.1 Formal Statistical Tests 4-5
4.3.2.2 Upper Tolerance Limit Comparison 4-6

4.3.3 Background Comparison Results 4-7
4.3.4 Professional Judgement for Statistical Results 4-7
4.3.5 Background Screening Levels 4-8

4.4 SURFACE SOILS AND DRY SEDIMENTS 4-8

4.4.1 Spray Field Areas 4-10

4.4.1.1 North Spray Field Area (IHSS 167.1) 4-10
4.4.1.2 South Spray Field Area (Historical IHSS 167.3) 4-11

Section Page

4.4.2 Old Outfall Area (IHSS 143) 4-12
4.4.3 Soil Dump and East Spray Field Areas 4-13

4.4.3.1 Soil Dump Area (IHSS 156.2) 4-13
4.4.3.2 East Spray Field Area (IHSS 216.1) 4-15

4.4.4 Sludge Dispersal and Triangle Areas 4-16

4.4.4.1 Sludge Dispersal Area (IHSS 141) 4-16
4.4.4.2 Triangle Area (IHSS 165) 4-18

4.4.5 A-Series Ponds (Dry Sediments) 4-19
4.4.6 B-Series Ponds (Dry Sediments) 4-21

4.5 SUBSURFACE SOILS 4-22

4.5.1 Trenches 4-24

4.5.1.1 Trench A (IHSS 166.1) 4-25
4.5.1.2 Trench B (IHSS 166.2) 4-26
4.5.1.3 Trench C, West and East (IHSS 166.3) 4-27

4.5.2 Spray Field Areas 4-28

4.5.2.1 North Spray Field Area (IHSS 167.1) 4-28
4.5.2.2 South Spray Field Area (Historical IHSS 167.3) 4-29

DRAFT

Section Page

4.5.3 Old Outfall Area (IHSS 143) 4-31
4.5.4 Soil Dump and East Spray Field Areas 4-33

4.5.4.1 Soil Dump Area (IHSS 156.2) 4-33
4.5.4.2 East Spray Field Area (IHSS 216.1) 4-35

4.5.5 Sludge Dispersal and Triangle Areas 4-36

4.5.5.1 Sludge Dispersal Area (IHSS 141) 4-36
4.5.5.2 Triangle Area (IHSS 165) 4-37

4.5.6 Ponds A-4 and B-5 4-40

4.5.6.1 Pond A-4 (IHSS 142.4) 4-40
4.5.6.2 Pond B-5 (IHSS 142.9) 4-40

4.6 GROUNDWATER 4-41

4.6.1 Historical Review of Potential Sources to OU6 Groundwater . 4-43
4.6.2 OU6 UHSU Groundwater 4-45

4.6.2.1 Area 1: Unnamed Tributary Drainage 4-45
4.6.2.2 Area 2: North Walnut Creek Drainage 4-48
4.6.2.3 Area 3: South Walnut Creek Drainage 4-52
4.6.2.4 Area 4: Upgradient Drainage 4-55
4.6.2.5 Area 5: W&I Drainage 4-58
4.6.2.6 Area 6: Old Outfall Area (IHSS 143) 4-60

DRAFT

Section Page

4.7 SURFACE WATER 4-63

4.7.1 Non-IHSS Surface Water (Baseflow) 4-64

4.7.1.1 North Walnut Creek Upstream of OU6 4-65
4.7.1.2 North Walnut Creek Drainage 4-66
4.7.1.3 South Walnut Creek Drainage 4-68
4.7.1.4 McKay Ditch and W&I Effluent 4-69

4.7.2 Non-IHSS Surface Water (Storm Event) 4-70

4.7.2.1 North Walnut Creek Upstream of OU6 4-71
4.7.2.2 North Walnut Creek Drainage 4-72
4.7.2.3 South Walnut Creek Drainage 4-74

4.7.3 A-Series Pond Surface Water 4-75
4.7.4 B-Series Pond Surface Water 4-78
4.7.5 W&I Pond Surface Water (IHSS 142.12) 4-80

4.8 SEDIMENTS 4-81

4.8.1 Non-IHSS Stream Sediments 4-84

4.8.1.1 North Walnut Creek Upstream of OU6 4-84
4.8.1.2 North Walnut Creek Drainage 4-85
4.8.1.3 South Walnut Creek Drainage 4-87
4.8.1.4 McKay Ditch and W&I Effluent 4-88

DRAFT

Section Page

4.8.2 A-Series Pond Sediments 4-90

4.8.2.1 Additional A-Series Pond Sediment Data 4-92

4.8.3 B-Series Pond Sediments 4-92

4.8.3.1 Additional B-Series Pond Sediment Data 4-96

4.8.4 W&I Pond Sediments (IHSS 142.12) 4-96

5.0 FATE AND TRANSPORT OF CHEMICALS OF CONCERN 5-1

5.1 TRANSPORT PROCESSES 5-2

5.1.1 Vadose Zone 5-2
5.1.2 Groundwater 5-2
5.1.3 Surface Water and Sediment Processes 5-4
5.1.4 Air Processes 5-6

5.2 MOBILITY AND BEHAVIOR OF CHEMICALS OF CONCERN 5-8

5.2.1 Primary Physical and Chemical Processes that Influence the Mobility and Behavior of Chemicals 5-8
5.2.2 Physical and Chemical Properties of the Media that Affect Mobility and Behavior 5-12
5.2.3 Physical and Chemical Properties of COCs that Influence Mobility and Behavior 5-16

DRAFT

Section Page

5.2.3.1 Volatile Organic Compounds 5-16
5.2.3.2 Semi-volatile Organic Compounds 5-18
5.2.3.3 Metals 5-18
5.2.4.1 Mobility and Behavior of Organic Compound COCs 5-22
5.2.4.2 Mobility and Behavior of Radionuclides and Metals 5-25

5.3 OU6 COC MIGRATION PATHWAYS 5-28

5.3.1 Area of Concern No. 1 5-30
5.3.2 Area of Concern No. 2 5-31
5.3.3 Area of Concern No. 3 5-33
5.3.4 Area of Concern No. 4 5-36

5.4 GROUNDWATER EVALUATION 5-37

5.4.1 Summary of Vinyl Chloride Modeling 5-38
5.4.2 Nitrate Evaluation 5-39
5.4.3 Trench Area VOC Contamination 5-41

5.5 SURFACE WATER FLOW AND CONTAMINANT TRANSPORT MODELING 5-42

5.5.1 Selection of Modeled Contaminants 5-43
5.5.2 Application of HSPF to the OU6 Surface Water Modeling Study 5-44

DRAFT

Section Page

5.5.2.1 Meteorological Data and Other Hydrologic Inputs 5-47
5.5.2.2 External Module to the HSPF Model: Pond Operation Simulation 5-49
5.5.2.3 Sediment and Water Quality Inputs 5-51

5.5.3 Model Calibrations 5-52

5.5.3.1 Water Quantity Calibration 5-53
5.5.3.2 Sediment Transport Calibration 5-55
5.5.3.3 Reasonableness Check of Simulated Contaminant Concentrations 5-57

5.5.4 Predictions of Long-Term Average COC Concentrations 5-59

5.5.4.1 Meteorological Data Generation and Other Simulation Inputs 5-60
5.5.4.2 Simulation Results 5-60

5.6 AIR MODELING APPROACH AND RESULTS 5-61

5.6.1 Introduction 5-61
5.6.2 Air Dispersion Modeling 5-62
5.6.3 Soil Gas Transport Modeling 5-64

6.0 HUMAN HEALTH RISK ASSESSMENT 6-1

6.1 INTRODUCTION 6-1

DRAFT

Section Page

6.1.1 Site Description 6-1
6.1.2 Guidance Documents 6-3
6.1.3 HHRA Organization 6-3

6.2 DATA EVALUATION AND AGGREGATION 6-4

6.2.1 Chemical Analytical Results Used in Risk Assessment 6-4
6.2.2 Chemical Data Qualifiers 6-7
6.2.3 Data Aggregation for Risk Assessment 6-7

6.3 CHEMICALS OF CONCERN 6-8

6.3.1 Process for Selecting OU-Wide COCs 6-9
6.3.2 Summary of OU-Wide COCs 6-11
6.3.3 Chemicals without Toxicity Factors 6-13
6.3.4 Special-Case COCs 6-13
6.3.5 Chemical of Interest (COIs) 6-13

6.4 EXPOSURE SCENARIOS 6-14

6.4.1 Current and Future Land Use 6-14
6.4.2 Onsite Exposure Areas 6-16
6.4.3 Receptors Selected for Quantitative Risk Assessment 6-17
6.4.4 Exposure Pathways 6-18
6.5 EXPOSURE POINT CONCENTRATIONS 6-19

6.5.1 Calculating the Concentration Term 6-19
6.5.2 Surface Soil 6-20

DRAFT

Section Page

6.5.3 Subsurface Soil 6-20
6.5.4 Groundwater 6-21
6.5.6 Pond Surface Water 6-21
6.5.7 Stream/Dry Sediment 6-22
6.5.8 Air Concentrations from Wind Erosion of Surface Soil 6-22
6.5.9 Onsite Air Concentrations from Construction Activities 6-22
6.5.10 Basement Air 6-23
6.5.11 Modeled Surface Water and Sediment

6.6 ESTIMATING CHEMICAL INTAKES 6-24

6.6.1 General Intake Equation 6-25
6.6.2 Pathway-Specific Intake Equations and Exposure Factors 6-26
6.6.3 Age-weighted Soil Ingestion Rate 6-26
6.6.4 Chemical-Specific Exposure Factors 6-27

6.7 TOXICITY ASSESSMENT 6-27
6.8 RISK CHARACTERIZATION 6-28

6.8.1 Hazard Index for Noncarcinogenic Effects 6-28
6.8.2 Carcinogenic Risk 6-29
6.8.3 AOC No. 1 6-30
6.8.4 AOC No. 2 6-31
6.8.5 AOC No. 3 6-31
6.8.6 AOC No. 4 6-32
6.8.7 1994 Pond Sediment Samples 6-32
6.8.8 Summary of Cumulative Hazard/Risk Results 6-33

Section Page

6.8.9 Evaluation of Health Hazards from Potential Exposure to Lead in OU6 6-33

6.9 RADIATION DOSE CALCULATIONS 6-34

6.9.1 Calculating Annual Radiation Doses 6-34
6.9.2 Radiation Protection Standards 6-36
6.9.3 Radiation Dose Estimates 6-37

6.10 UNCERTAINTIES AND LIMITATIONS 6-38

6.10.1 Identification of COCs 6-38
6.10.2 Exposure Point Concentrations 6-39
6.10.3 Media Not Evaluated 6-40
6.10.4 Exposure Scenarios and Pathways 6-40
6.10.5 Toxicity Assessment 6-40
6.10.6 Evaluation of Risk Associated with Special-Case COCs 6-41
6.10.7 Evaluation of Risk Associated with Chemical of Interest (COIs) 6-41

6.11 SUMMARY AND CONCLUSIONS 6-43

6.11.1 Summary 6-43
6.11.2 Conclusions 6-45

7.0 SUMMARY OF ECOLOGICAL RISK ASSESSMENT FOR THE WOMAN CREEK WATERSHED AT RFETS 7-1

DRAFT

Section Page

7.1 SUMMARY OF RFETS ECOLOGICAL RISK ASSESSMENT METHODOLOGY 7-2
7.2 PRELIMINARY EXPOSURE AND RISK SCREEN 7-3
7.3 PROBLEM FORMULATION AND RISK CHARACTERIZATION . . . 7-5

7.3.1 Problem Formulation 7-5
7.3.2 Risk Characterization 7-7

7.3.2.1 Summary of Risks to Aquatic Life 7-7
7.3.2.2 Summary of Risks to Aquatic-Feeding Birds 7-9
7.3.2.3 Summary of Risks to Terrestrial-Feeding Raptors 7-10
7.3.2.4 Summary of Risks to Small Mammals 7-11
7.3.2.5 Summary of Risks to Vegetation Communities . 7-12
7.3.2.6 Summary of Risks from Radionuclides 7-13

7.4 CONCLUSIONS 7-13

8.0 CONCLUSIONS AND RECOMMENDATIONS 8-1

8.1 SUMMARY 8-1
8.2 RECOMMENDATIONS 8-5

9.0 REFERENCES 9-1

DRAFT

LIST OF TABLES

TABLE 1.4-1 OU6 PHASE I RFI/RI DATA QUALITY OBJECTIVES (FROM DOE 1992a)

TABLE 2.1-1 SUMMARY OF OU6 PHASE I FIELD ACTIVITIES
TABLE 2.1-2 SUMMARY OF STANDARD OPERATING PROCEDURES USED IN THE OU6 RFI/RI FIELD INVESTIGATION
TABLE 2.1-3 LIST OF DCNs TO THE OU6 RFI/RI WORK PLAN AND TM1 IMPLEMENTED IN PERFORMING THE PHASE I FIELD WORK
TABLE 2.1-4 OU6 PHASE I ANALYTICAL PROGRAM
TABLE 2.1-5 OU6 PHASE I RFI/RI ANALYTICAL PARAMETERS
TABLE 2.1-6 SAMPLE CONTAINERS, SAMPLE PRESERVATION, AND SAMPLE HOLDING TIMES (SURFACE WATER AND GROUNDWATER)
TABLE 2.1-7 QUALITY CONTROL SAMPLES AND COLLECTION/ANALYSIS FREQUENCY
TABLE 2.1-8 OU6 PHASE I MONITORING WELL INSTALLATION INFORMATION
TABLE 2.1-9 OU6 PHASE I RFI/RI SITE NUMBERS AND SURVEY COORDINATES
TABLE 2-1-10 OU6 PHASE I STREAM SURFACE WATER (BASEFLOW/STORM EVENT) AND SEDIMENT SAMPLE SURVEY COORDINATES

TABLE 2.2-1 OU6 IHSS PROPOSED AND COMPLETED PHASE I INVESTIGATIONS
TABLE 2.2-2 OU6 PHASE I POND WATER AND SEDIMENT SAMPLING SITES, SAMPLE NUMBERS AND SEDIMENT SAMPLE DEPTHS
TABLE 2.2-3 OU6 PHASE I STREAM FLOW RATE MEASUREMENTS

TABLE 3.2-1 SUMMARY OF POPULATION SECTORS IN AND NEAR THE ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

DRAFT

TABLE 3.3-1 1993 ANNUAL CLIMATIC SUMMARY
TABLE 3.3-2 ROCKY FLATS WIND FREQUENCY DISTRIBUTION BY PERCENT IN 1993; STABILITY INDEXES A THROUGH F, AND ALL

TABLE 3.4-1 SOIL UNITS WITHIN THE OU6 AREA

TABLE 3.5-1 OU6 PHASE I STRATIGRAPHIC DATA
TABLE 3.5-2 HISTORICAL BORING AND MONITORING WELL INFORMATION INCLUDING STRATIGRAPHIC DATA
TABLE 3.5-3 OU6 PHASE I GRAIN SIZE DATA FOR SELECTED SOIL SAMPLES
TABLE 3.5-4 OU6 POND SEDIMENT SOIL CLASSIFICATION
TABLE 3.5-5 BOREHOLES AND MONITORING WELLS THAT PENETRATED QUATERNARY ROCKY FLATS ALLUVIUM
TABLE 3.5-6 BOREHOLES AND MONITORING WELLS THAT PENETRATED QUATERNARY HIGH TERRACE ALLUVIUM
TABLE 3.5-7 BOREHOLES AND MONITORING WELLS THAT PENETRATED QUATERNARY VALLEY-FILL ALLUVIUM
TABLE 3.5-8 BOREHOLES AND MONITORING WELLS THAT PENETRATED QUATERNARY COLLUVIUM
TABLE 3.5-9 BOREHOLES AND MONITORING WELLS THAT PENETRATED QUATERNARY MAN-MADE DEPOSITS
TABLE 3.5-10 BOREHOLES AND MONITORING WELLS THAT PENETRATED UPPER CRETACEOUS CLAYSTONE AND/OR SILTSTONE
TABLE 3.5-11 BOREHOLES AND MONITORING WELLS THAT PENETRATED THE UPPER CRETACEOUS ARAPAHOE NO. 1 SANDSTONE

TABLE 3.6-1 OU6 AND OTHER OU INVESTIGATIONS APRIL 1993 HYDROGEOLOGIC DATA

TABLE 3.6-2 ESTIMATED HYDRAULIC CONDUCTIVITY OF UHSU MATERIAL BASED ON 1986 AND 1987 AQUIFER TESTS
TABLE 3.6-3 STIFF DIAGRAM GROUNDWATER DATA

TABLE 3.7-1 OU6 POND CAPACITY AND TOTAL RUNOFF VOLUME (EG&G 1992C)
TABLE 3.7-2 WALNUT CREEK BASIN-WIDE CHARACTERISTICS UPSTREAM OF INDIANA STREET
TABLE 3.7-3 FLOW VOLUMES AND RUNOFF COEFFICIENTS FOR OU6 GS10 AND GS03

TABLE 3.9-1 WALNUT CREEK DRAINAGE BASIN CHARACTERISTICS
TABLE 3.9-2 OU6 PONDS IHSSs 142.1 THROUGH 142.9

TABLE 4.3-1 ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE OU6 BACKGROUND COMPARISON SUMMARY
TABLE 4.3-2 OU6 BACKGROUND COMPARISON SUMMARY OF SURFACE SOIL METALS (CONCENTRATION UNIT: mg/kg)
TABLE 4.3-3 OU6 BACKGROUND COMPARISON SUMMARY OF SURFACE SOIL RADIONUCLIDES (CONCENTRATION UNIT: pCi/g)
TABLE 4.3-4 OU6 BACKGROUND COMPARISON SUMMARY OF SUBSURFACE SOIL METALS (CONCENTRATION UNIT: mg/kg)
TABLE 4.3-5 OU6 BACKGROUND COMPARISON SUMMARY OF SUBSURFACE SOIL RADIONUCLIDES (CONCENTRATION UNIT: pCi/g)
TABLE 4.3-6 OU6 BACKGROUND COMPARISON SUMMARY OF UHSU GROUNDWATER TOTAL METALS (CONCENTRATION UNIT: µg/l)
TABLE 4.3-7 OU6 BACKGROUND COMPARISON SUMMARY OF UHSU GROUNDWATER DISSOLVED METALS (CONCENTRATION UNIT: µg/l)

TABLE 4.3-8 OU6 BACKGROUND COMPARISON SUMMARY OF UHSU GROUNDWATER TOTAL RADIONUCLIDES (CONCENTRATION UNIT: pCi/l)

TABLE 4.3-9 OU6 BACKGROUND COMPARISON SUMMARY OF UHSU GROUNDWATER DISSOLVED RADIONUCLIDES (CONCENTRATION UNIT: pCi/l)

TABLE 4.3-10 OU6 BACKGROUND COMPARISON SUMMARY OF STREAM (BASEFLOW) SURFACE WATER TOTAL METALS (CONCENTRATION UNIT: µg/l)

TABLE 4.3-11 OU6 BACKGROUND COMPARISON SUMMARY OF STREAM (BASEFLOW) SURFACE WATER DISSOLVED METALS (CONCENTRATION UNIT: µg/l)

TABLE 4.3-12 OU6 BACKGROUND COMPARISON SUMMARY OF STREAM (BASEFLOW) SURFACE WATER TOTAL RADIONUCLIDES (CONCENTRATION UNIT: pCi/l)

TABLE 4.3-13 OU6 BACKGROUND COMPARISON SUMMARY OF STREAM (BASEFLOW) SURFACE WATER DISSOLVED RADIONUCLIDES (CONCENTRATION UNIT: pCi/l)

TABLE 4.3-14 OU6 BACKGROUND COMPARISON SUMMARY OF POND SURFACE WATER TOTAL METALS (CONCENTRATION UNIT: µg/l)

TABLE 4.3-15 OU6 BACKGROUND COMPARISON SUMMARY OF POND SURFACE WATER DISSOLVED METALS (CONCENTRATION UNIT: µg/l)

TABLE 4.3-16 OU6 BACKGROUND COMPARISON SUMMARY OF POND SURFACE WATER TOTAL RADIONUCLIDES (CONCENTRATION UNIT: pCi/l)

TABLE 4.3-17 OU6 BACKGROUND COMPARISON SUMMARY OF POND SURFACE WATER DISSOLVED RADIONUCLIDES (CONCENTRATION UNIT: pCi/l)

TABLE 4.3-18 OU6 BACKGROUND COMPARISON SUMMARY OF STREAM SEDIMENT METALS (CONCENTRATION UNIT: mg/kg)
TABLE 4.3-19 OU6 BACKGROUND COMPARISON SUMMARY OF STREAM SEDIMENT RADIONUCLIDES (CONCENTRATION UNIT: pCi/g)
TABLE 4.3-20 OU6 BACKGROUND COMPARISON SUMMARY OF POND SEDIMENTS METALS (CONCENTRATION UNIT: mg/kg)
TABLE 4.3-21 OU6 BACKGROUND COMPARISON SUMMARY OF POND SEDIMENT RADIONUCLIDES (CONCENTRATION UNIT: pCi/g)

TABLE 4.4-1 ANALYTES DETECTED IN SURFACE SOILS AT IHSS 167.1 (NORTH SPRAY FIELD AREA)
TABLE 4.4-2 ANALYTES DETECTED IN SURFACE SOILS AT IHSS 167.3 (HISTORICAL SOUTH SPRAY FIELD AREA)
TABLE 4.4-3 ANALYTES DETECTED IN SURFACE SOILS AT IHSS 143 (OLD OUTFALL AREA)
TABLE 4.4-4 ANALYTES DETECTED IN SURFACE SOILS AT IHSS 156.2 (SOIL DUMP AREA)
TABLE 4.4-5 ANALYTES DETECTED IN SURFACE SOILS AT IHSS 216.1 (EAST SPRAY FIELD AREA)
TABLE 4.4-6 ANALYTES DETECTED IN SURFACE SOILS AT IHSS 141 (SLUDGE DISPERSAL AREA)
TABLE 4.4-7 ANALYTES DETECTED IN SURFACE SOILS AT IHSS 165 (TRIANGLE AREA)
TABLE 4.4-8 ANALYTES DETECTED IN SURFACE SOILS (DRY SEDIMENTS) AT IHSS 142.1 (POND A-1)
TABLE 4.4-9 ANALYTES DETECTED IN SURFACE SOILS (DRY SEDIMENTS) AT IHSS 142.2 (POND A-2)
TABLE 4.4-10 ANALYTES DETECTED IN SURFACE SOILS (DRY SEDIMENTS) AT IHSS 142.3 (POND A-3)

TABLE 4.4-11 ANALYTES DETECTED IN SURFACE SOILS (DRY SEDIMENTS) AT IHSS 142.4 (POND A-4)
TABLE 4.4-12 ANALYTES DETECTED IN SURFACE SOILS (DRY SEDIMENTS) AT IHSS 142.5 (POND B-1)
TABLE 4.4-13 ANALYTES DETECTED IN SURFACE SOILS (DRY SEDIMENTS) AT IHSS 142.6 (POND B-2)
TABLE 4.4-14 ANALYTES DETECTED IN SURFACE SOILS (DRY SEDIMENTS) AT IHSS 142.7 (POND B-3)
TABLE 4.4-15 ANALYTES DETECTED IN SURFACE SOILS (DRY SEDIMENTS) AT IHSS 142.8 (POND B-4)
TABLE 4.4-16 ANALYTES DETECTED IN SURFACE SOILS (DRY SEDIMENTS) AT IHSS 142.9 (POND B-5)

TABLE 4.5-1 ANALYTES DETECTED IN SUBSURFACE SOILS AT IHSS 166.1 (TRENCH A)
TABLE 4.5-2 ANALYTES DETECTED IN SUBSURFACE SOILS AT IHSS 166.2 (TRENCH B)
TABLE 4.5-3 ANALYTES DETECTED IN SUBSURFACE SOILS AT IHSS 166.3 (TRENCH C, WEST)
TABLE 4.5-4 ANALYTES DETECTED IN SUBSURFACE SOILS AT IHSS 166.3 (TRENCH C, EAST)
TABLE 4.5-5 ANALYTES DETECTED IN SUBSURFACE SOILS AT IHSS 167.1 (NORTH SPRAY FIELD AREA)
TABLE 4.5-6 ANALYTES DETECTED IN SUBSURFACE SOILS AT IHSS 167.3 (HISTORICAL SOUTH SPRAY FIELD AREA)
TABLE 4.5-7 ANALYTES DETECTED IN SUBSURFACE SOILS AT IHSS 143 (OLD OUTFALL AREA)
TABLE 4.5-8 ANALYTES DETECTED IN SUBSURFACE SOILS AT IHSS 156.2 (SOIL DUMP AREA)

TABLE 4.5-9 ANALYTES DETECTED IN SUBSURFACE SOILS AT IHSS 216.1 (EAST SPRAY FIELD AREA)
TABLE 4.5-10 ANALYTES DETECTED IN SUBSURFACE SOILS AT IHSS 141 (SLUDGE DISPERSAL AREA)
TABLE 4.5-11 ANALYTES DETECTED IN SUBSURFACE SOILS AT IHSS 165 (TRIANGLE AREA)
TABLE 4.5-12 ANALYTES DETECTED IN SUBSURFACE SOILS AT IHSS 142.4 (POND A-4)
TABLE 4.5-13 ANALYTES DETECTED IN SUBSURFACE SOILS AT IHSS 142.9 (POND B-5)

TABLE 4.6-1 ANALYTES DETECTED IN OU6 UHSU GROUNDWATER - AREA 1 (UNNAMED TRIBUTARY DRAINAGE)
TABLE 4.6-2 ANALYTES DETECTED IN OU6 UHSU GROUNDWATER - AREA 2 (NORTH WALNUT CREEK DRAINAGE)
TABLE 4.6-3 ANALYTES DETECTED IN OU6 UHSU GROUNDWATER - AREA 3 (SOUTH WALNUT CREEK DRAINAGE)
TABLE 4.6-4 ANALYTES DETECTED IN OU6 UHSU GROUNDWATER - AREA 4 (UPGRADIENT DRAINAGE)
TABLE 4.6-5 ANALYTES DETECTED IN OU6 UHSU GROUNDWATER - AREA 5 (WALNUT AND INDIANA DRAINAGE)
TABLE 4.6-6 ANALYTES DETECTED IN OU6 UHSU GROUNDWATER - AREA 6 (IHSS 143)

TABLE 4.7-1 ANALYTES DETECTED IN SURFACE WATER (BASEFLOW) NORTH WALNUT CREEK UPSTREAM OF OU6
TABLE 4.7-2 ANALYTES DETECTED IN SURFACE WATER (BASEFLOW) IN THE NORTH WALNUT CREEK DRAINAGE

DRAFT

TABLE 4.7-3 ANALYTES DETECTED IN SURFACE WATER (BASEFLOW) IN THE SOUTH WALNUT CREEK DRAINAGE
TABLE 4.7-4 ANALYTES DETECTED IN SURFACE WATER (BASEFLOW) IN THE McKAY DITCH AND W AND I EFFLUENT
TABLE 4.7-5 ANALYTES DETECTED IN SURFACE WATER (STORM EVENT) NORTH WALNUT CREEK UPSTREAM OF OU6
TABLE 4.7-6 ANALYTES DETECTED IN SURFACE WATER (STORM EVENT) NORTH WALNUT CREEK DRAINAGE
TABLE 4.7-7 ANALYTES DETECTED IN SURFACE WATER (STORM EVENT) IN THE SOUTH WALNUT CREEK DRAINAGE
TABLE 4.7-8 ANALYTES DETECTED IN POND SURFACE WATER AT IHSS 142.1 (POND A-1)
TABLE 4.7-9 ANALYTES DETECTED IN POND SURFACE WATER AT IHSS 142.2 (POND A-2)
TABLE 4.7-10 ANALYTES DETECTED IN POND SURFACE WATER AT IHSS 142.3 (POND A-3)
TABLE 4.7-11 ANALYTES DETECTED IN POND SURFACE WATER AT IHSS 142.4 (POND A-4)
TABLE 4.7-12 ANALYTES DETECTED IN POND SURFACE WATER AT IHSS 142.5 (POND B-1)
TABLE 4.7-13 ANALYTES DETECTED IN POND SURFACE WATER AT IHSS 142.6 (POND B-2)
TABLE 4.7-14 ANALYTES DETECTED IN POND SURFACE WATER AT IHSS 142.7 (POND B-3)
TABLE 4.7-15 ANALYTES DETECTED IN POND SURFACE WATER AT IHSS 142.8 (POND B-4)
TABLE 4.7-16 ANALYTES DETECTED IN POND SURFACE WATER AT IHSS 142.9 (POND B-5)

TABLE 4.7-17 ANALYTES DETECTED IN POND SURFACE WATER AT IHSS 142.12 (W AND I POND)

TABLE 4.8-1 ANALYTES DETECTED IN STREAM SEDIMENTS NORTH WALNUT CREEK UPSTREAM OF OU6

TABLE 4.8-2 ANALYTES DETECTED IN STREAM SEDIMENTS NORTH WALNUT CREEK DRAINAGE

TABLE 4.8-3 ANALYTES DETECTED IN STREAM SEDIMENTS SOUTH WALNUT CREEK DRAINAGE

TABLE 4.8-4 ANALYTES DETECTED IN STREAM SEDIMENTS McKAY DITCH AND W AND I EFFLUENT

TABLE 4.8-5 ANALYTES DETECTED IN POND SEDIMENTS AT IHSS 142.1 (POND A-1)

TABLE 4.8-6 ANALYTES DETECTED IN POND SEDIMENTS AT IHSS 142.2 (POND A-2)

TABLE 4.8-7 ANALYTES DETECTED IN POND SEDIMENTS AT IHSS 142.3 (POND A-3)

TABLE 4.8-8 ANALYTES DETECTED IN POND SEDIMENTS AT IHSS 142.4 (POND A-4)

TABLE 4.8-9 ANALYTES DETECTED IN POND SEDIMENTS AT IHSS 142.5 (POND B-1)

TABLE 4.8-10 ANALYTES DETECTED IN POND SEDIMENTS AT IHSS 142.6 (POND B-2)

TABLE 4.8-11 ANALYTES DETECTED IN POND SEDIMENTS AT IHSS 142.7 (POND B-3)

TABLE 4.8-12 ANALYTES DETECTED IN POND SEDIMENTS AT IHSS 142.8 (POND B-4)

DRAFT

TABLE 4.8-14 ANALYTES DETECTED IN POND SEDIMENTS AT IHSS 142.12 (W AND I POND)
TABLE 4.8-15 ANALYTES DETECTED IN POND SEDIMENTS AT IHSS 142.1 (POND A-1)
TABLE 4.8-16 ANALYTES DETECTED IN POND SEDIMENTS AT IHSS 142.2 (POND A-2)
TABLE 4.8-17 ANALYTES DETECTED IN POND SEDIMENTS AT IHSS 142.3 (POND A-3)
TABLE 4.8-18 ANALYTES DETECTED IN POND SEDIMENTS AT IHSS 142.5 (POND B-1)
TABLE 4.8-19 ANALYTES DETECTED IN POND SEDIMENTS AT IHSS 142.6 (POND B-2)
TABLE 4.8-20 ANALYTES DETECTED IN POND SEDIMENTS AT IHSS 142.7 (POND B-3)
TABLE 4.8-21 ANALYTES DETECTED IN POND SEDIMENTS AT IHSS 142.8 (POND B-4)

TABLE 5.1-1 ROCKY FLATS OU6, SUMMARY OF CHEMICALS OF CONCERN

TABLE 5.2-1 PHYSICAL AND CHEMICAL PROPERTIES OF ORGANIC COMPOUND COCs AT OU6
TABLE 5.2-2 PHYSICAL AND CHEMICAL PROPERTIES OF INORGANIC COMPOUND COCs AT OU6
TABLE 5.2-3 RADIOACTIVE HALF-LIVES FOR RADIONUCLIDE COCs
TABLE 5.2-4 BIODEGRADATION RATES FOR ORGANIC COMPOUND COCs
TABLE 5.2-5 CALCULATED DISTRIBUTION COEFFICIENTS AND RETARDATION VALUES FOR ORGANIC COMPOUND COCs IN GROUNDWATER

TABLE 5.2-6 SOIL-WATER DISTRIBUTION COEFFICIENTS, K_d (cm^3/g) FOR RADIONUCLIDE COCs

TABLE 5.5-1 RESULTS OF POND SEDIMENTATION RATES CALIBRATION

TABLE 5.5-2 COMPARISON OF MEASURED AND PREDICTED TSS CONCENTRATIONS ALONG WALNUT CREEK DURING THE 1993 CALIBRATION TIME INTERVAL

TABLE 5.5-3 COMPARISON OF MEASURED AND A PREDICTED CONTAMINANT CONCENTRATIONS IN POND WATER

TABLE 5.5-4 MODELED NEW DEPOSITED SEDIMENT VOLUME AND CHEMICAL CONCENTRATIONS IN SEDIMENT

TABLE 5.5-5 LONG-TERM AVERAGE CONCENTRATIONS IN SEDIMENT (0-2') AND SURFACE WATER

TABLE 5.6-1 ANNUAL AVERAGE AIR CONCENTRATIONS ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE WIND EROSION AT OU6 AREA OF CONCERN NO. 1, 1990

TABLE 5.6-2 ANNUAL AVERAGE AIR CONCENTRATIONS ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE WIND EROSION AT OU6 AREA OF CONCERN NO. 2 FOR A 30-ACRE SITE, 1990

TABLE 5.6-3 SUMMARY OF THE ANNUAL AVERAGE AIR CONCENTRATIONS DURING HEAVY CONSTRUCTION ACTIVITIES ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE WIND EROSION AT AOC NO. 1

TABLE 5.6-4 SUMMARY OF THE ANNUAL AVERAGE AIR CONCENTRATIONS DURING HEAVY CONSTRUCTION ACTIVITIES ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE WIND EROSION AT AOC NO. 2

DRAFT

TABLE 5.6-5 SOIL GAS TRANSPORT MODEL AT THE ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE FOR A 30-ACRE SITE AT OU6 AOC NO. 2

TABLE 6.3-1 SUMMARY OF CHEMICALS OF CONCERN

TABLE 6.3-2 METALS DETECTED AT 5% OR GREATER FREQUENCY SURFACE SOIL

TABLE 6.3-3 CONCENTRATION/TOXICITY SCREEN SURFACE SOIL NONCARCINOGENS

TABLE 6.3-4 CONCENTRATION/TOXICITY SCREEN SURFACE SOIL RADIONUCLIDES

TABLE 6.3-5 ORGANIC COMPOUNDS AND METALS DETECTED AT 5% OR GREATER FREQUENCY SUBSURFACE SOIL

TABLE 6.3-6 CONCENTRATION/TOXICITY SCREEN SUBSURFACE SOIL NONCARCINOGENS

TABLE 6.3-7 CONCENTRATION/TOXICITY SCREEN SUBSURFACE SOIL CARCINOGENS

TABLE 6.3-8 CONCENTRATION/TOXICITY SCREEN SUBSURFACE SOIL RADIONUCLIDES

TABLE 6.3-9 ORGANIC COMPOUNDS AND TOTAL METALS DETECTED AT 5% OR GREATER FREQUENCY GROUNDWATER

TABLE 6.3-10 CONCENTRATION/TOXICITY SCREEN GROUNDWATER NONCARCINOGENS

TABLE 6.3-11 CONCENTRATION/TOXICITY SCREEN GROUNDWATER CARCINOGENS

TABLE 6.3-12 CONCENTRATION/TOXICITY SCREEN GROUNDWATER RADIONCLUDES

TABLE 6.3-13 ORGANIC COMPOUNDS AND METALS DETECTED AT 5% OR GREATER FREQUENCY POND SEDIMENT

TABLE 6.3-14 CONCENTRATION/TOXICITY SCREEN POND SEDIMENT NONCARCINOGENS
TABLE 6.3-15 CONCENTRATION/TOXICITY SCREEN POND SEDIMENT CARCINOGENS
TABLE 6.3-16 CONCENTRATION/TOXICITY SCREEN POND SEDIMENT RADIONCLIDES
TABLE 6.3-17 ORGANIC COMPOUNDS AND TOTAL METALS DETECTED AT 5% OR GREATER FREQUENCY POND SURFACE WATER
TABLE 6.3-18 CONCENTRARITON/TOXICITY SCREEN POND SURFACE WATER NONCARCINOGENS
TABLE 6.3-19 CONCENTRARITON/TOXICITY SCREEN POND SURFACE WATER CARCINOGENS
TABLE 6.3-20 ORGANIC COMPOUNDS AND METAL DETECTED AT 5% OR GREATER FREQUENCY STREAM SEDIMENT
TABLE 6.3-21 CONCENTRATION/TOXICITY SCREEN STREAM SEDIMENT NONCARCINOGENS
TABLE 6.3-22 CONCENTRATION/TOXICITY SCREEN STREAM SEDIMENT CARCINOGENS
TABLE 6.3-23 CONCENTRATION/TOXICITY SCREEN STREAM SEDIMENT RADIONUCLIDES

TABLE 6.4-1 SUMMARY OF CURRENT AND FUTURE LAND USES
TABLE 6.4-2 POTENTIALLY COMPLETE EXPOSURE PATHWAYS TO BE QUANTITATIVELY EVALUATED

TABLE 6.5-1 MAXIMUM AND RME CONCENTRATIONS FOR CHEMICALS OF CONCERN SURFACE SOIL
TABLE 6.5-2 MAXIMUM AND RME CONCENTRATIONS FOR CHEMICALS OF CONCERN SUBSURFACE SOIL

DRAFT

TABLE 6.5-3 MAXIMUM CONCENTRATIONS FOR CHEMICALS OF CONCERN GROUNDWATER
TABLE 6.5-4 MAXIMUM ND RME CONCENTRATIONS FOR CHEMICALS OF CONCERN POND SEDIMENT (0-2 FT)
TABLE 6.5-5 MAXIMUM AND RME CONCENTRATIONS FOR CHEMICALS OF CONCERN POND SURFACE WATER
TABLE 6.5-6 MAXIMUM AND RME CONCENTRATIONS FOR CHEMICALS OF CONCERN STREAM/DRY SEDIMENTS
TABLE 6.5-7 FIVE YEAR AIR CONCENTRATIONS FROM WIND EROSION OF SURFACE SOIL AOC NO. 1
TABLE 6.5-8 FIVE YEAR AIR CONCENTRATIONS FROM WIND EROSION OF SURFACE SOIL AOC NO. 2, 30-ACRE AREA
TABLE 6.5-9 FIVE YEAR AIR CONCENTRATIONS FROM WIND EROSION OF SURFACE SOIL AOC NO. 2
TABLE 6.5-10 SUMMARY OF ANNUAL AVERAGE AIR CONCENTRATIONS FROM WIND EROSION AND CONSTRUCTION ACTIVITIES AOC NO. 1
TABLE 6.5-10 SUMMARY OF ANNUAL AVERAGE AIR CONCENTRATIONS FROM WIND EROSION AND CONSTRUCTION ACTIVITIES AOC NO. 1
TABLE 6.5-11 SUMMARY OF ANNUAL AVERAGE AIR CONCENTRATIONS FOR WIND EROSION AND CONSTRUCTION ACTIVITIES AOC NO. 2
TABLE 6.5-12 INDOOR AIR CONCENTRATIONS OF VOCs FROM SOIL GAS TRANSPORT
TABLE 6.5-13 ESTIMATED FUTURE SEDIMENT AND SURFACE WATER CONCENTRATIONS FROM SURFACE RUNOFF AOC NO. 3 AND AOC NO. 4

TABLE 6.6-1 AGE-WEIGHTED SOIL AND SEDIMENT INGESTION RATES FOR CARCINOGENS AND RADIONUCLIDES
TABLE 6.6-2 SOIL MATRIX EFFECTS

TABLE 6.6-3 DERIVATION OF 0.5 SOIL-MATRIX EFFECT
TABLE 6.6-4 DERMAL ABSORPTION FRACTIONS AND DERMAL PERMEABILITY CONSTANTS FOR COCs IN SOIL AND SURFACE WATER

TABLE 6.7-1 TOXICITY FACTORS FOR CHEMICALS OF CONCERN ORGANIC COMPOUNDS AND METALS
TABLE 6.7-2 SLOPE FACTORS FOR RADIONUCLIDES
TABLE 6.7-3 EFFECTIVE DOSE COEFFICIENTS FOR RADIONUCLIDES

TABLE 6.8-1 SUMMARY OF ESTIMATED HEALTH RISK AOC NO. 1
TABLE 6.8-2 SUMMARY OF ESTIMATED HEALTH RISK AOC NO. 2
TABLE 6. 8-3 SUMMARY OF ESTIMATED HEALTH RISK AOC NO. 3
TABLE 6.8-4 SUMMARY OF ESTIMATED HEALTH RISK AOC NO. 4

TABLE 6.9-1 SUMMARY OF ANNUAL RADIATION DOSE, AOC NO. 1
TABLE 6.9-2 SUMMARY OF ANNUAL RADIATION DOSE, AOC NO. 2
TABLE 6.9-3 SUMMARY OF ANNUAL RADIATION DOSE, AOC NO. 3
TABLE 6.9-4 SUMMARY OF ANNUAL RADIATION DOSE, AOC NO. 4

TABLE 6.10-1 SUMMARY OF HEALTH RISKS FOR SPECIAL-CASE CHEMICALS OF CONCERN AND CHEMICALS OF INTEREST (COIs)

TABLE 7.3-1 SUMMARY OF RISKS ESTIMATES FOR ECOCs BY SOURCE AREA WALNUT CREEK WATERSHED
TABLE 7.3-1 SUMMARY OF ECOLOGICAL RISKS FOR WALNUT CREEK WATERSHED

LIST OF FIGURES

FIGURE 1.3-1 LOCATION OF THE ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
FIGURE 1.3-2 RFETS AND OU6 BOUNDARIES
FIGURE 1.3-3 LOCATION AND IDENTIFICATION OF OU6 IHSSs AND DIVERSION STRUCTURES ALONG NORTH & SOUTH WALNUT CREEKS (PAGES 1 AND 2)
FIGURE 1.3-4 SLUDGE DISPERSAL AREA (IHSS 141), SOIL DUMP AREA (IHSS 156.2), AND TRIANGLE AREA (IHSS 165)
FIGURE 1.3-5 A-SERIES PONDS: A-1 THROUGH A-4 (IHSSs 142.1-142.4)
FIGURE 1.3-6 B-SERIES PONDS: B-1 THROUGH B-5 (IHSSs 142.5-142.9) AND EAST SPRAY FIELD AREA (IHSS 216.1)
FIGURE 1.3-7 OLD OUTFALL AREA (IHSS 143)
FIGURE 1.3-8 OLD OUTFALL AREA (IHSS 143) LOCATION OF CULVERTS AND OUTFALL CATCHMENT BASIN IN FEBRUARY 1971; AND SOIL SAMPLE RESULTS FROM SOIL REMOVAL ACTIVITIES CONDUCTED BETWEEN FEBRUARY AND AUGUST 1971
FIGURE 1.3-9 TRENCHES A, B, AND C (IHSSs 166.1-166.3), NORTH SPRAY FIELD AND SOUTH SPRAY FIELD AREAS (IHSSs 167.1 AND 167.3)

FIGURE 2.1-1 ELECTROMAGNETIC SURVEY (IHSSs 166.1-166.3)
FIGURE 2.1-2 TYPICAL LITHOLOGIC AND CHEMICAL SAMPLING FOR SOIL BORINGS
FIGURE 2.1-3 RFP SURFACE SOIL SAMPLING JIG
FIGURE 2.1-4 TYPICAL ALLUVIAL MONITORING WELL DETAIL
FIGURE 2.1-5 TYPICAL MONITORING WELL FEATURES AT GROUND SURFACE

FIGURE 2.2-1 SURFACE SOIL SAMPLE AND MONITORING WELL LOCATIONS (IHSS 141)
FIGURE 2.2-2 GERMANIUM SURVEY POINTS FOR IHSSs 141, 156.2 AND 165
FIGURE 2.2-3 SURFACE WATER, WET SEDIMENT, AND DRY SEDIMENT SAMPLE SITES, POND A-1 (IHSS 142.1)
FIGURE 2.2-4 SURFACE WATER, WET SEDIMENT, AND DRY SEDIMENT SAMPLE SITES, POND A-2 (IHSS 142.2)
FIGURE 2.2-5 SURFACE WATER, WET SEDIMENT, AND DRY SEDIMENT SAMPLE SITES, POND A-3 (IHSS 142.3)
FIGURE 2.2-6 SURFACE WATER, WET SEDIMENT, AND DRY SEDIMENT SAMPLE SITES AND MONITORING WELL LOCATIONS, POND A-4 (IHSS 142.4)
FIGURE 2.2-7 SURFACE WATER, WET SEDIMENT, AND DRY SEDIMENT SAMPLE SITES, POND B-1 (IHSS 142.5)
FIGURE 2.2-8 SURFACE WATER, WET SEDIMENT, AND DRY SEDIMENT SAMPLE SITES, POND B-2 (IHSS 142.6)
FIGURE 2.2-9 SURFACE WATER, WET SEDIMENT, AND DRY SEDIMENT SAMPLE SITES, POND B-3 (IHSS 142.7)
FIGURE 2.2-10 SURFACE WATER, WET SEDIMENT, AND DRY SEDIMENT SAMPLE SITES, POND B-4 (IHSS 142.8)
FIGURE 2.2-11 SURFACE WATER, WET SEDIMENT, AND DRY SEDIMENT SAMPLE SITES AND MONITORING WELL LOCATION, POND B-5 (IHSS 142.9)
FIGURE 2.2-12 SURFACE WATER AND WET SEDIMENT SAMPLE SITES, W&I POND (IHSS 142.12)
FIGURE 2.2-13 STREAM SURFACE WATER AND SEDIMENT SAMPLE LOCATIONS
FIGURE 2.2-14 SURFACE SOIL, SOIL BORING AND MONITORING WELL LOCATIONS, OLD OUTFALL AREA (IHSS 143)

FIGURE 2.2-15 SURFACE SOIL AND SUBSURFACE SOIL SAMPLE LOCATIONS, AND MONITORING WELL LOCATION (IHSS 156.2)
FIGURE 2.2-16 SOIL GAS SAMPLE LOCATIONS (IHSS 165)
FIGURE 2.2-17 SURFACE SOIL SAMPLING LOCATIONS AND LOCATION OF SOIL PROFILE PIT 60092 (IHSS 165)
FIGURE 2.2-18 SOIL CORE, SOIL BORING, AND MONITORING WELL LOCATIONS (IHSS 165)
FIGURE 2.2-19 SOIL BORING AND MONITORING WELL LOCATIONS (IHSSs 166.1-3)
FIGURE 2.2-20 SURFACE SOIL, SOIL BORING, AND MONITORING WELL LOCATIONS (IHSS 167.1)
FIGURE 2.2-21 SURFACE SOIL SAMPLING SITE, SOIL BORING, SOIL PROFILE PIT 60192 AND MONITORING WELL LOCATION (IHSS 167.3)
FIGURE 2.2-22 SURFACE SOIL, SOIL BORING, AND SOIL PROFILE PIT 60292 LOCATIONS (IHSS 216.1)

FIGURE 3.1-1 THREE DIMENSIONAL SURFACE MAP OU6 STUDY AREA

FIGURE 3.2-1 1989 POPULATION AND (HOUSEHOLDS) SECTOR 1-5
FIGURE 3.2-2 PROJECTED 2010 POPULATION AND (HOUSEHOLDS) SECTOR 1-5

FIGURE 3.3-1 1993 ANNUAL WIND ROSE FOR THE ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

FIGURE 3.4-1 SURFACE SOIL MAP

FIGURE 3.5-1 SOIL BORING AND MONITORING WELL LOCATIONS (IHSSs 143, 166.1-3, 167.1, AND 167.3)

FIGURE 3.5-2 SOIL BORING, SOIL CORE, AND MONITORING WELL LOCATIONS (IHSSs 141, 142.4, 142.9, 156.2, 165, AND 216.1)
FIGURE 3.5-3 LOCAL STRATIGRAPHIC COLUMN OF THE OU6 AREA, ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
FIGURE 3.5-4 UNCONSOLIDATED SURFACE DEPOSITS IN THE AREA OF THE ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
FIGURE 3.5-5 DIAGRAMMATIC CROSS SECTION SHOWING STRATIGRAPHIC RELATIONSHIPS OF QUATERNARY DEPOSITS IN THE VICINITY OF ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
FIGURE 3.5-6 SCHEMATIC GEOLOGIC CROSS SECTION THROUGH TERRACE ALLUVIUMS ALONG SOUTH WALNUT CREEK HILLSIDE
FIGURE 3.5-7 NORTH-SOUTH GEOLOGIC CROSS SECTION A-A' TRAVERSE ACROSS THE DRAINAGES OF NORTH WALNUT AND SOUTH WALNUT CREEKS AND THE UNNAMED TRIBUTARY (PARTS 1 AND 2)
FIGURE 3.5-8 WEST-EAST GEOLOGIC CROSS SECTION B-B' ALONG NORTH WALNUT CREEK (PARTS 1 AND 2)
FIGURE 3.5-9 WEST-EAST GEOLOGIC CROSS SECTION C-C' ALONG SOUTH WALNUT CREEK (PARTS 1 AND 2)

FIGURE 3.6-1 UPPER HYDROSTRATIGRAPHIC UNIT POTENTIOMETRIC SURFACE MAP (APRIL, 1993)
FIGURE 3.6-2 UPPER HYDROSTRATIGRAPHIC UNIT SATURATED THICKNESS OF SURFACE MATERIALS MAP (APRIL, 1993)
FIGURE 3.6-3 LOCATIONS OF BACKGROUND MONITORING WELLS USED IN STIFF DIAGRAM EVALUATION
FIGURE 3.6-4 STIFF DIAGRAMS FOR BACKGROUND MONITORING WELLS SCREENED IN VALLEY-FILL ALLUVIUM

FIGURE 3.6-5 STIFF DIAGRAMS FOR BACKGROUND MONITORING WELLS SCREENED IN ROCKY FLATS ALLUVIUM (PAGES 1 AND 2)
FIGURE 3.6-6 STIFF DIAGRAMS FOR BACKGROUND MONITORING WELLS SCREENED IN COLLUVIUM
FIGURE 3.6-7 STIFF DIAGRAMS FOR BACKGROUND MONITORING WELLS SCREENED IN WEATHERED CLAYSTONE
FIGURE 3.6-8 STIFF DIAGRAMS FOR BACKGROUND MONITORING WELLS SCREENED IN CRETACEOUS ARAPAHOE FORMATION (PAGES 1 AND 2)
FIGURE 3.6-9 GROUNDWATER STIFF DIAGRAMS FOR SELECTED UHSU AND LHSU WELLS

FIGURE 3.7-1 ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE DRAINAGE BASIN MAP
FIGURE 3.7-2 VOLUMES, INFLOWS, AND OUTFLOWS FOR POND A-4
FIGURE 3.7-3 MONTHLY PRECIPITATION AND FLOWS AT OU6 GAUGING STATIONS GS03, GS10, GS11, AND GS13

FIGURE 3.9-1 BUILDING 995 SLUDGE DRYING BEDS LOCATION MAP
FIGURE 3.9-2 NORTH-SOUTH GEOLOGIC CROSS SECTION D-D' OF BUILDING 995 SLUDGE DRYING BEDS
FIGURE 3.9-3 WEST-EAST GEOLOGIC CROSS SECTION E-E' THROUGH IHSS 156.2
FIGURE 3.9-4 SOUTHWEST-NORTHEAST GEOLOGIC CROSS SECTION F-F' THROUGH IHSS 156.2
FIGURE 3.9-5 SOUTH-NORTH GEOLOGIC CROSS SECTION G-G' THROUGH IHSS 165
FIGURE 3.9-6 WEST-EAST GEOLOGIC CROSS SECTION H-H' THROUGH IHSS 166.1

FIGURE 3.9-7 SOUTH-NORTH GEOLOGIC CROSS SECTION I-I' THROUGH IHSSs 166.1-166.3

FIGURE 4.4-1 ANALYTE ABBREVIATIONS, LABORATORY QUALIFIERS, AND VALIDATION CODES
FIGURE 4.4-2 PCOC METALS (IHSSs 167.1 AND 167.3) SURFACE SOILS
FIGURE 4.4-3 PCOC RADIONUCLIDES (IHSSs 167.1 AND 167.3) SURFACE SOILS
FIGURE 4.4-4 SEMIVOLATILE ORGANIC COMPOUNDS (IHSS 143) SURFACE SOILS
FIGURE 4.4-5 PCOC METALS (IHSS 143) SURFACE SOILS
FIGURE 4.4-6 PCOC RADIONUCLIDES (IHSS 143) SURFACE SOILS
FIGURE 4.4-7 PCOC METALS (IHSSs 156.2 AND 216.1) SURFACE SOILS
FIGURE 4.4-8 PCOC RADIONUCLIDES (IHSSs 156.2 AND 216.1) SURFACE SOILS
FIGURE 4.4-9 PCOC METALS (IHSSs 141 AND 165) SURFACE SOILS
FIGURE 4.4-10 PCOC RADIONUCLIDES (IHSSs 141 AND 165) SURFACE SOILS
FIGURE 4.4-11 PESTICIDES/PCBs (IHSSs 141 AND 165) SURFACE SOILS
FIGURE 4.4-12 PESTICIDES/PCBs AND SEMIVOLATILE ORGANIC COMPOUNDS (IHSS 142.1-142.4) SURFACE SOILS (DRY SEDIMENTS)
FIGURE 4.4-13 PCOC METALS (IHSSs 142.1-142.4) SURFACE SOILS (DRY SEDIMENTS)
FIGURE 4.4-14 PCOC RADIONUCLIDES (IHSSs 142.1-142.4) SURFACE SOILS (DRY SEDIMENTS)
FIGURE 4.4-15 SEMIVOLATILE ORGANIC COMPOUNDS (IHSSs 142.5-142.9) SURFACE SOILS (DRY SEDIMENTS)
FIGURE 4.4-16 PCOC METALS (IHSSs 142.5-142.9) SURFACE SOILS (DRY SEDIMENTS)
FIGURE 4.4-17 PCOC RADIONUCLIDES (IHSSs 142.5-142.9) SURFACE SOILS (DRY SEDIMENTS)

FIGURE 4.5-1 SUSPECT VOCs: 2-BUTANONE, ACETONE, AND TOLUENE (IHSSs 166.1 AND 166.2) SUBSURFACE SOILS
FIGURE 4.5-2 SUSPECT VOCs: 2-BUTANONE, ACETONE, AND TOLUENE (IHSS 166.3) SUBSURFACE SOILS
FIGURE 4.5-3 VOLATILE ORGANIC COMPOUNDS (IHSSs 166.1-166.3) SUBSURFACE SOILS
FIGURE 4.5-4 PCOC METALS (IHSSs 166.1-166.3) SUBSURFACE SOILS
FIGURE 4.5-5 PCOC RADIONUCLIDES (IHSSs 166.1-166.3) SUBSURFACE SOILS
FIGURE 4.5-6 SUSPECT VOCs: 2-BUTANONE, METHYLENE CHLORIDE, AND TOLUENE (IHSSs 167.1 AND 167.3) SUBSURFACE SOILS
FIGURE 4.5-7 PCOC METALS (IHSSs 167.1 AND 167.3) SUBSURFACE SOILS
FIGURE 4.5-8 PCOC RADIONUCLIDES (IHSSs 167.1 AND 167.3) SUBSURFACE SOILS
FIGURE 4.5-9 SUSPECT ORGANIC COMPOUNDS: 2-BUTANONE, ACETONE, DI-N-OCTYL PHTHALATE METHYLENE CHLORIDE, AND TOLUENE (IHSS 143) SUBSURFACE SOILS
FIGURE 4.5-10 SEMIVOLATILE ORGANIC COMPOUNDS AND PESTICIDES/PCBs (IHSS 143) SUBSURFACE SOILS
FIGURE 4.5-11 PCOC METALS (IHSS 143) SUBSURFACE SOILS
FIGURE 4.5-12 PCOC RADIONUCLIDES (IHSS 143) SUBSURFACE SOILS
FIGURE 4.5-13 SUSPECT VOCs: 2-BUTANONE, ACETONE, AND TOLUENE (IHSS 156.2) SUBSURFACE SOILS
FIGURE 4.5-14 SUSPECT VOCs: 2-BUTANONE, ACETONE, AND TOLUENE (IHSS 216.1) SUBSURFACE SOILS
FIGURE 4.5-15 VOLATILE ORGANIC COMPOUNDS (IHSSs 156.2 AND 216.1) SUBSURFACE SOILS
FIGURE 4.5-16 PCOC METALS (IHSSs 156.2 AND 216.1) SUBSURFACE SOILS
FIGURE 4.5-17 PCOC RADIONUCLIDES (IHSSs 156.2 AND 216.1) SUBSURFACE SOILS

FIGURE 4.5-18 SUSPECT ORGANIC COMPOUNDS: 2-BUTANONE, ACETONE, BIS (2-ETHYLHEXYL) PHTHALATE, DI-N-OCTYLPHTHALATE, DIETHYL PHTHALATE, METHYLENE CHLORIDE, AND TOLUENE (IHSSs 141 AND 165) SUBSURFACE SOILS
FIGURE 4.5-19 ORGANIC COMPOUNDS (IHSSs 141 AND 165) SUBSURFACE SOILS
FIGURE 4.5-20 PCOC METALS (IHSSs 141 AND 165) SUBSURFACE SOILS
FIGURE 4.5-21 PCOC RADIONUCLIDES (IHSSs 141 AND 165) SUBSURFACE SOILS
FIGURE 4.5-22 SUSPECT VOC: TOLUENE (IHSSs 142.4 AND 142.9) SUBSURFACE SOILS

FIGURE 4.6-1 LOCATION MAP AREA 1 THROUGH AREA 6 (GROUNDWATER)
FIGURE 4.6-2 SUSPECT ORGANIC COMPOUNDS: ACETONE AND METHYLENE CHLORIDE AREA 1 (UNNAMED TRIBUTARY DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993
FIGURE 4.6-3 ORGANIC COMPOUNDS AREA 1 (UNNAMED TRIBUTARY DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993
FIGURE 4.6-4 TOTAL METALS AREA 1 (UNNAMED TRIBUTARY DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993
FIGURE 4.6-5 DISSOLVED METALS AREA 1 (UNNAMED TRIBUTARY DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993
FIGURE 4.6-6 TOTAL RADIONUCLIDES AREA 1 (UNNAMED TRIBUTARY DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993
FIGURE 4.6-7 DISSOLVED RADIONUCLIDES AREA 1 (UNNAMED TRIBUTARY DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993

FIGURE 4.6-8 NITRATE/NITRITE AREA 1 (UNNAMED TRIBUTARY DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993

FIGURE 4.6-9 SUSPECT ORGANIC COMPOUNDS: ACETONE, BIS (2-ETHYLHEXYL) PHTHALATE, DIETHYL PHTHALATE AND METHYLENE CHLORIDE AREA 2 (NORTH WALNUT CREEK DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993

FIGURE 4.6-10 ORGANIC COMPOUNDS AREA 2 (NORTH WALNUT CREEK DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993

FIGURE 4.6-11 TOTAL METALS AREA 2 (NORTH WALNUT CREEK DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993

FIGURE 4.6-12 DISSOLVED METALS AREA 2 (NORTH WALNUT CREEK DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993

FIGURE 4.6-13 TOTAL RADIONUCLIDES AREA 2 (NORTH WALNUT CREEK DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993

FIGURE 4.6-14 DISSOLVED RADIONUCLIDES AREA 2 (NORTH WALNUT CREEK DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993

FIGURE 4.6-15 NITRATE/NITRITE AREA 2 (NORTH WALNUT CREEK DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993

FIGURE 4.6-16 SUSPECT ORGANIC COMPOUNDS: ACETONE AND METHYLENE CHLORIDE AREA 3 (SOUTH WALNUT CREEK DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993

FIGURE 4.6-17 ORGANIC COMPOUNDS AREA 3 (SOUTH WALNUT CREEK DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993

FIGURE 4.6-18 TOTAL METALS AREA 3 (SOUTH WALNUT CREEK DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993

FIGURE 4.6-19 DISSOLVED METALS AREA 3 (SOUTH WALNUT CREEK DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993

FIGURE 4.6-20 TOTAL RADIONUCLIDES AREA 3 (SOUTH WALNUT CREEK DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993

FIGURE 4.6-21 DISSOLVED RADIONUCLIDES AREA 3 (SOUTH WALNUT CREEK DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993

FIGURE 4.6-22 SUSPECT ORGANIC COMPOUNDS: ACETONE AND METHYLENE CHLORIDE AREA 4 (UPGRADIENT DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993

FIGURE 4.6-23 ORGANIC COMPOUNDS AREA 4 (UPGRADIENT DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993

FIGURE 4.6-24 TOTAL METALS AREA 4 (UPGRADIENT DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993

FIGURE 4.6-25 DISSOLVED METALS AREA 4 (UPGRADIENT DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993

FIGURE 4.6-26 TOTAL RADIONUCLIDES AREA 4 (UPGRADIENT DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993

FIGURE 4.6-27 DISSOLVED RADIONUCLIDES AREA 4 (UPGRADIENT DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993

FIGURE 4.6-28 NITRATE/NITRITE AREA 4 (UPGRADIENT DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993

FIGURE 4.6-29 SUSPECT ORGANIC COMPOUNDS: BIS(2-ETHYLHEXYL) PHTHALATE AND METHYLENE CHLORIDE AREA 5 (W&I

DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993
FIGURE 4.6-30 ORGANIC COMPOUNDS AREA 5 (W&I DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993
FIGURE 4.6-31 TOTAL METALS AREA 5 (W&I DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993
FIGURE 4.6-32 DISSOLVED METALS AREA 5 (W&I DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993
FIGURE 4.6-33 TOTAL RADIONUCLIDES AREA 5 (W&I DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993
FIGURE 4.6-34 DISSOLVED RADIONUCLIDES AREA 5 (W&I DRAINAGE) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993
FIGURE 4.6-35 ORGANIC COMPOUNDS AREA 6 (IHSS 143) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993
FIGURE 4.6-36 TOTAL METALS AREA 6 (IHSS 143) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993
FIGURE 4.6-37 DISSOLVED METALS AREA 6 (IHSS 143) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993
FIGURE 4.6-38 TOTAL RADIONUCLIDES AREA 6 (IHSS 143) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993
FIGURE 4.6-39 DISSOLVED RADIONUCLIDES AREA 6 (IHSS 143) UHSU GROUNDWATER 1st QUARTER 1991 - 4th QUARTER 1993

FIGURE 4.7-1 ORGANIC COMPOUNDS OU6 DRAINAGES SURFACE WATER (BASEFLOW)
FIGURE 4.7-2 PCOC TOTAL METALS OU6 DRAINAGES SURFACE WATER (BASEFLOW)
FIGURE 4.7-3 PCOC DISSOLVED METALS OU6 DRAINAGES SURFACE WATER (BASEFLOW)

FIGURE 4.7-4 PCOC TOTAL RADIONUCLIDES OU6 DRAINAGES SURFACE WATER (BASEFLOW)
FIGURE 4.7-5 ORGANIC COMPOUNDS OU6 DRAINAGES SURFACE WATER (STORM EVENT)
FIGURE 4.7-6 PCOC TOTAL METALS OU6 DRAINAGES SURFACE WATER (STORM EVENT)
FIGURE 4.7-7 PCOC DISSOLVED METALS OU6 DRAINAGES SURFACE WATER (STORM EVENT)
FIGURE 4.7-8 PCOC TOTAL RADIONUCLIDES OU6 DRAINAGES SURFACE WATER (STORM EVENT)
FIGURE 4.7-9 SUSPECT ORGANIC COMPOUNDS: DI-N-BUTYL PHTHALATE AND METHYLENE CHLORIDE (IHSSs 142.1 - 142.4) POND SURFACE WATER
FIGURE 4.7-10 PCOC TOTAL METALS (IHSSs 142.1 - 142.4) POND SURFACE WATER
FIGURE 4.7-11 PCOC DISSOLVED METALS (IHSSs 142.1 - 142.4) POND SURFACE WATER
FIGURE 4.7-12 PCOC TOTAL RADIONUCLIDES (IHSSs 142.1 - 142.4) POND SURFACE WATER
FIGURE 4.7-13 PCOC DISSOLVED RADIONUCLIDES (IHSSs 142.1 - 142.4) POND SURFACE WATER
FIGURE 4.7-14 SUSPECT ORGANIC COMPOUNDS: ACETONE, DI-N-BUTYL PHTHALATE, AND METHYLENE CHLORIDE (IHSSs 142.5 - 142.9) POND SURFACE WATER
FIGURE 4.7-15 ORGANIC COMPOUNDS (IHSSs 142.5 - 142.9) POND SURFACE WATER
FIGURE 4.7-16 PCOC TOTAL METALS (IHSSs 142.5 - 142.9) POND SURFACE WATER

DRAFT

FIGURE 4.7-16 PCOC TOTAL METALS (IHSSs 142.5 - 142.9) POND SURFACE WATER
FIGURE 4.7-17 PCOC DISSOLVED METALS (IHSSs 142.5 - 142.9) POND SURFACE WATER
FIGURE 4.7-18 PCOC TOTAL RADIONUCLIDES (IHSSs 142.5 - 142.9) POND SURFACE WATER
FIGURE 4.7-19 PCOC DISSOLVED RADIONUCLIDES (IHSSs 142.5 - 142.9) POND SURFACE WATER
FIGURE 4.7-20 SUSPECT VOLATILE ORGANIC COMPOUND (ACETONE) (IHSS 142.12) POND WATER
FIGURE 4.7-21 PCOC TOTAL METALS (IHSS 142.12) POND SURFACE WATER
FIGURE 4.7-22 PCOC DISSOLVED METALS (IHSS 142.12) POND SURFACE WATER
FIGURE 4.7-23 PCOC TOTAL RADIONUCLIDES (IHSS 142.12) POND SURFACE WATER

FIGURE 4.8-1 SUSPECT ORGANIC COMPOUNDS: ACETONE, BIS(2-ETHYLHEXYL) PHTHALATE, BUTYL BENZYL PHTHALATE, DI-N-BUTYL PHTHALATE, AND METHYLENE CHLORIDE OU6 DRAINAGES STREAM SEDIMENTS
FIGURE 4.8-2 ORGANIC COMPOUNDS OU6 DRAINAGES STREAM SEDIMENTS
FIGURE 4.8-3 PCOC METALS OU6 DRAINAGES STREAM SEDIMENTS
FIGURE 4.8-4 PCOC RADIONUCLIDES OU6 DRAINAGES STREAM SEDIMENTS
FIGURE 4.8-5 SUSPECT ORGANIC COMPOUNDS: 2-BUTANONE, ACETONE, BIS(2-ETHYLHEXYL) PHTHALATE, BUTYL BENZYL PHTHALATE, DI-N-BUTYL PHTHALATE, AND TOLUENE (IHSSs 142.1 - 142.4) POND SEDIMENTS
FIGURE 4.8-6 VOLATILE AND SEMIVOLATILE ORGANIC COMPOUNDS AND PESTICIDES/PCBs (IHSSs 142.1 - 142.4) POND SEDIMENTS
FIGURE 4.8-7 PCOC METALS (IHSSs 142.1 - 142.4) POND SEDIMENTS

FIGURE 4.8-8 PCOC RADIONUCLIDES (IHSSs 142.1 - 142.4) POND SEDIMENTS
FIGURE 4.8-9 SUSPECT ORGANIC COMPOUNDS: 2-BUTANONE, ACETONE, BIS(2-ETHYLHEXYL) PHTHALATE, BUTYL BENZYL PHTHALATE, DI-N-BUTYL PHTHALATE, METHYLENE CHLORIDE, TOLUENE (IHSSs 142.5 - 142.9) POND SEDIMENTS
FIGURE 4.8-10 SEMIVOLATILE ORGANIC COMPOUNDS AND PESTICIDES/PCBs (IHSSs 142.5 - 142.9) POND SEDIMENTS 0'-2' DEPTH
FIGURE 4.8-11 SEMIVOLATILE ORGANIC COMPOUNDS AND PESTICIDES/PCBs (IHSSs 142.5 - 142.9) POND SEDIMENTS 2'-4' DEPTH
FIGURE 4.8-12 PCOC METALS (IHSSs 142.5 - 142.9) POND SEDIMENTS 0'-2' DEPTH
FIGURE 4.8-13 PCOC METALS (IHSSs 142.5 - 142.9) POND SEDIMENTS 2'-4' DEPTH
FIGURE 4.8-14 PCOC RADIONUCLIDES (IHSSs 142.5 - 142.9) POND SEDIMENTS 0'-2' DEPTH
FIGURE 4.8-15 PCOC RADIONUCLIDES (IHSSs 142.5 - 142.9) POND SEDIMENTS 2'-4' DEPTH
FIGURE 4.8-16 SUSPECT ORGANIC COMPOUNDS: 2-BUTANONE, ACETONE, BIS(2-ETHYLHEXYL) PHTHALATE, TOLUENE (IHSS 142.12) POND SEDIMENTS
FIGURE 4.8-17 SEMIVOLATILE ORGANIC COMPOUNDS AND PESTICIDES/PCBs (IHSS 142.12) POND SEDIMENTS
FIGURE 4.8-18 ADDITIONAL PCBs (IHSSs 142.1 THROUGH 142.4) POND SEDIMENTS
FIGURE 4.8-19 ADDITIONAL RADIONUCLIDES (IHSSs 142.1 THROUGH 142.4) POND SEDIMENTS
FIGURE 4.8-20 ADDITIONAL PCBs (IHSSs 142.5 THROUGH 142.9) POND SEDIMENTS
FIGURE 4.8-21 ADDITIONAL RADIONUCLIDES (IHSSs 142.5 THROUGH 142.9) POND SEDIMENTS

FIGURE 5.3-1 AREA OF CONCERN 1 (NORTH SPRAY FIELD) MIGRATION PATHWAYS OF CHEMICALS OF CONCERN
FIGURE 5.3-2 AREA OF CONCERN 2 (SLUDGE DISPERSAL AREA, SOIL DUMP, AND TRIANGLE AREA) MIGRATION PATHWAYS OF CHEMICALS OF CONCERN
FIGURE 5.3-3 AREA OF CONCERN 3 (A-SERIES PONDS, B-SERIES PONDS) MIGRATION PATHWAYS OF CHEMICALS OF CONCERN
FIGURE 5.4-1 WELL 3086 NITRATE/NITRITE CONCENTRATIONS VS. TIME
FIGURE 5.4-2 WELL 1586 NITRATE/NITRITE CONCENTRATIONS VS. TIME
FIGURE 5.4-3 WELL 1786 NITRATE/NITRITE CONCENTRATIONS VS. TIME
FIGURE 5.5-1 GS03 FLOWS - SIMULATED AND OBSERVED
FIGURE 5.5-2 GS03 FLOWS IN APRIL SIMULATED AND OBSERVED
FIGURE 5.5-3 GS103 FLOWS - SIMULATED AND OBSERVED
FIGURE 5.5-4 POND A3 VOLUMES SIMULATED AND OBSERVED

FIGURE 6.1-1 LOCATION AND IDENTIFICATION OF OU6 IHSSs AND DIVERSION STRUCTURES ALONG NORTH & SOUTH WALNUT CREEKS
FIGURE 6.2-1 AREAS OF CONCERN WITHIN OPERABLE UNIT NO. 6
FIGURE 6.3-1 PROCESS FOR IDENTIFYING CHEMICALS OF CONCERN
FIGURE 6.4-1 AREA OF CONCERN NO. 1
FIGURE 6.4-2 AREA OF CONCERN NO. 2 AND 30 ACRE MAXIMUM EXPOSURE AREA
FIGURE 6.4-3 AREA OF CONCERN NO. 3
FIGURE 6.4-4 AREA OF CONCERN NO. 4
FIGURE 6.4-5 CONCEPTUAL SITE MODEL FOR HUMAN EXPOSURE PATHWAYS

FIGURE 7.2-1 ERA SOURCE AREAS IN WALNUT CREEK WATERSHED
FIGURE 7.2-2 HAZARD INDICES FOR WALNUT CREEK WATERSHED

LIST OF PLATES

PLATE 3.5-1 BOREHOLE AND MONITORING WELL LOCATIONS OF OU6 HISTORICAL AND OTHER INVESTIGATIONS (OU2, OU4, AND OU7)
PLATE 3.5-2 SURFACE GEOLOGIC MAP OF OU6 STUDY AREA
PLATE 3.5-3 BEDROCK SURFACE MAP OF OU6 STUDY AREA
PLATE 5.5-1 WALNUT CREEK DRAINAGE AREA AND OU6 IHSSs
PLATE 5.5-2 ELEMENTS OF OU6 SURFACE WATER MODEL

LIST OF APPENDIXES

APPENDIX B OU6 PHASE I FIELD SURVEY DATA

APPENDIX B1 OU6 PHASE I GROUND-BASED RADIATION SURVEY DATA

B1.1 OU6 PHASE I HPGe GAMMA-RAY SURVEY DATA
B1.2 OU6 PHASE I HPGe RADIOISOTOPE AND EXPOSURE ISOCONCENTRATION MAPS

APPENDIX B2 OU6 PHASE I FIDLER SURVEY DATA
APPENDIX B3 OU6 PHASE I SOIL GAS SURVEY DATA
APPENDIX B4 OU6 PHASE I GEOPHYSICAL SURVEY (IHSSs 166.1, 166.2, AND 166.3)

B4.1 OU6 PHASE I EM SURVEY METHOD AND FIELD PROGRAM
B4.2 OU6 PHASE I EM-31 CONDUCTIVITY CONTOUR MAPS

DRAFT

APPENDIX B5 OU6 PHASE I POND SEDIMENT SAMPLE GAMMA RADIATION SCREENING RESULTS

APPENDIX C OU6 SITE CHARACTERIZATION DATA AND DATA FROM OU2, OU4, AND OU7

APPENDIX C1 OU6 PHASE I SITE LOCATION SURVEY DATA AND ARC/INFO COVERAGE DATA

APPENDIX C2 OU6 PHASE I BORING LITHOLOGY AND MONITORING WELL CONSTRUCTION LOGS

C2.1 IHSS 141 - MONITORING WELL CONSTRUCTION LOG

C2.2 IHSS 142.4 - MONITORING WELL CONSTRUCTION LOG

C2.3 IHSS 142.9 - MONITORING WELL CONSTRUCTION LOG

C2.4 IHSS 143 - BORING LITHOLOGY AND MONITORING WELL CONSTRUCTION LOGS

C2.5 IHSS 156.2 - BORING LITHOLOGY AND MONITORING WELL CONSTRUCTION LOGS

C2.6 IHSS 165 - BORING LITHOLOGY AND MONITORING WELL CONSTRUCTION LOGS

C2.7 IHSS 166.1 - BORING LITHOLOGY LOGS

C2.8 IHSS 166.2 - BORING LITHOLOGY AND MONITORING WELL CONSTRUCTION LOGS

C2.9 IHSS 166.3 - BORING LITHOLOGY AND MONITORING WELL CONSTRUCTION LOGS

C2.10 IHSS 167.1 - BORING LITHOLOGY AND MONITORING WELL CONSTRUCTION LOGS

C2.11 IHSS 167.2 - BORING LITHOLOGY LOGS

C2.12 IHSS 167.3 - BORING LITHOLOGY AND MONITORING WELL CONSTRUCTION LOGS
C2.13 IHSS 216.1 - BORING LITHOLOGY LOGS

APPENDIX C3 HISTORICAL INVESTIGATIONS BORING LITHOLOGY AND MONITORING WELL CONSTRUCTION LOGS; AND IHSS 141 VADOSE ZONE DATA

APPENDIX C3.1 OU2 HISTORICAL INVESTIGATIONS BORING LITHOLOGY AND MONITORING WELL CONSTRUCTION LOGS
APPENDIX C3.2 OU4 HISTORICAL INVESTIGATIONS BORING LITHOLOGY AND MONITORING WELL CONSTRUCTION LOGS
APPENDIX C3.3 OU6 HISTORICAL INVESTIGATIONS BORING LITHOLOGY AND MONITORING WELL CONSTRUCTION LOGS
APPENDIX C3.4 LANDFILL/OU7 HISTORICAL INVESTIGATIONS BORING LITHOLOGY AND MONITORING WELL CONSTRUCTION LOGS
APPENDIX C3.5 IHSS 141 VADOSE ZONE DATA
APPENDIX C3.6 PROTECTED AREA (PA) AND SOUTH OF PA HISTORICAL INVESTIGATIONS BORING LITHOLOGY AND MONITORING WELL CONSTRUCTION LOGS
APPENDIX C4 OU6 PHASE I POND SEDIMENT CORE LITHOLOGIC DATA
APPENDIX C5 OU6 AND OTHER INVESTIGATIONS GROUNDWATER ELEVATION DATA

DRAFT

APPENDIX C6 OU6 AND OTHER INVESTIGATIONS GROUNDWATER HYDROGRAPHS

APPENDIX D OU6 PHASE I ANALYTICAL DATA

APPENDIX D1 OU6 PHASE I SURFACE SOIL AND DRY SEDIMENT DATA
APPENDIX D2 OU6 PHASE I SUBSURFACE SOIL DATA
APPENDIX D3 OU6 PHASE I AND HISTORICAL GROUNDWATER DATA
APPENDIX D4 OU6 PHASE I SURFACE WATER AND SEDIMENT DATA
APPENDIX D5 OU6 PHASE I FIELD PARAMETERS
APPENDIX D6 OU6 PHASE I BIOLOGICAL DATA
APPENDIX D7 BACKGROUND AND OU6 PHASE I HISTOGRAMS AND BOX PLOTS
APPENDIX D8 LOG-NORMAL AND NORMAL PROBABILITY PLOTS
APPENDIX D9 OU6 PHASE I POND SEDIMENT DATA (Stoller)

APPENDIX E PHASE I QUALITY ASSURANCE/QUALITY CONTROL

APPENDIX F ENVIRONMENTAL EVALUATION

APPENDIX G OU6 GROUNDWATER MODELING

APPENDIX H OU6 SURFACE WATER MODELING

APPENDIX I OU6 AIR MODELING

APPENDIX J OU6 PHASE I BASELINE HUMAN HEALTH RISK ASSESSMENT

DRAFT

OU6 LIST OF ACRONYMS AND ABBREVIATIONS

1,1-DCA	1,1-dichloroethane
1,1-DCE	1,1-dichloroethene
1,1,1-TCA	1,1,1-trichloroethane
1,2-DCA	1,2-dichlorothane
1,2-DCE	1,2-dichloroethene
ac-ft	acre-feet
AEC	Atomic Energy Commission
af	man-made deposits
AGS	above ground surface
Am-241	Americium-241
AMSL	above mean sea level
AOC	Area of Concern
ARARs	applicable or relevant and appropriate requirements
BGS	below ground surface
BSL	Background Screening Level
Ca^{+2}	calcium
$CaCO_3$	calcium carbonate
CCl_4	Carbon tetrachloride
CDPHE	Colorado Department of Public Health and Environment
CDH	Colorado Department of Health
CEARP	Comprehensive Environmental Assessment & Response Program
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cfs	cubic feet per second
CHC	chlorinated hydrocarbons
$CHCl_3$	chloroform
Cis-1,2-DCE	cis-1,2-dichloroethene
CLC	common laboratory contaminants

DRAFT

cm/sec	centimeters per second
cm	centimeter
COCs	chemicals of concern
CRQL	contract required quantitation limit
C_s-137	Cesium-137
CSM	conceptual site model
DCN	document change notice
d/m/l	disintegrations per minute per liter
DLG	Digital Line Graph
DOE	Department of Energy
DQO	Data Quality Objective
DRCOG	Denver Regional Council of Governments
ECD	Electron Capture Detector
EM	Electromagnetic
EMD	Environmental Management Department
EMRGs	Environmental Management Radiological Guidelines
EPA	Environmental Protection Agency
ER	Environmental Restoration
ERDA	Energy Research and Development Administration
ERP	Environmental Restoration Program
FDM	Fugitive Dust Model
FIDLER	field instrument for the detection of low-energy radiation
FSP	field sampling plan
GAC	granular activated carbon
gal	gallon
GS	gauging station
HCO^{3-}	bicarbonate
HEAST	Health Effects Assessment Summary Tables
HHRA	Human Health Risk Assessment

DRAFT

HPGe	high purity germanium
HRR	Historical Release Report
HSP	Health and Safety Plan
ID	inside diameter
IHSS	Individual Hazardous Substance Site
in/hr	inches per hour
IRIS	Integrated Risk Information System
K; (K^+)	hydraulic conductivity; (symbol for potassium)
Ka	Cretaceous Arapahoe Formation
Kl	Cretaceous Laramie Formation
LHSU	lower hydrostratigraphic unit
mCi	millicurie
meq/l	milliequivalents
Mgal	millions of gallons
ml	milliliter
mm	millimeters
MSL	mean sea level
Na+	sodium
NAAQS	National Ambient Air Quality Standards
NPDES	National Pollutant Discharge Elimination System
OU	operable unit
OVM	organic vapor monitor
PA	protected area
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
PCOC	potential chemical of concern
pCi/g	picocuries per gram
PID	photoionization detector

DRAFT

Pu-239/240	plutonium-239/240
PVC	polyvinyl chloride
QA/QC	quality assurance/quality control
QAPjP	Quality Assurance Project Plan
Qc	Quaternary colluvium
QC	quality control
Q_{ls}	Quarternary landslides
Qrf	Quaternary Rocky Flats Alluvium
Qt	Quaternary Terrace Alluvium
Qvf	Quaternary Valley-Fill Alluvium
Ra-226	radium-226
RAD screen	radiological screen
RBC	risk-based concentration
RCRA	Resource Conservation and Recovery Act
RFA	Rocky Flats Alluvium
RfCs	reference air concentrations
RfDs	noncarcinogenic reference doses
RFEDS	Rocky Flats Environmental Database System
RFETS	Rocky Flats Environmental Technology Site
RFI/RI	RCRA Facility Investigation/Remedial Investigation
RFP	Rocky Flats Plant
RI	remedial investigation
SEAM	Superfund Exposure Assessment Manual
SFs	carcinogenic slope factors
SO_4^{2-}	sulfate
SOP	Standard Operating Procedure
sq ft	square feet
sq mi	square mile

DRAFT

Sr-89,90	strontium-89,90
STP	Sewage Treatment Plant
SVOC	semivolatile organic compound
SWMU	Solid Waste Management Unit
TAL	target analyte list
TCE	trichloroethene
TCL	Target Compound List
TM	Technical Memorandum
TOC	total organic carbon
µg/kg	micrograms per kilogram
µg/l	microgram per liter
U-233/234	uranium-233/234
U-235	uranium-235
U-238	uranium-238
UHSU	upper hydrostratigraphic unit
USACE	U.S. Army Corps of Engineers
USCS	Unified Soil Classification System
UTL	upper tolerance limit
VOC	volatile organic compound
WARP	Well Abandonment and Replacement Program
W&I	Walnut and Indiana

DRAFT

APPENDIX B
OU6 PHASE I FIELD SURVEY DATA

APPENDIX B
TABLE OF CONTENTS

B1 OU6 PHASE I GROUND-BASED RADIATION SURVEY DATA

B1.1 OU6 PHASE I HPGe GAMMA-RAY SURVEY DATA
B1.2 OU6 PHASE I HPGe RADIOISOTOPE AND EXPOSURE ISOCONCENTRATION MAPS

B2 OU6 PHASE I FIDLER SURVEY DATA

B3 OU6 PHASE I SOIL GAS SURVEY DATA

B4 OU6 PHASE I GEOPHYSICAL SURVEY (IHSSs 166.1, 166.2, and 166.3)

B4.1 OU6 PHASE I EM SURVEY METHOD AND FIELD PROGRAM
B4.2 OU6 PHASE I EM-31 CONDUCTIVITY CONTOUR MAPS

B5 OU6 PHASE I POND SEDIMENT SAMPLE GAMMA RADIATION SCREENING RESULTS

DRAFT

LIST OF ACRONYMS AND ABBREVIATIONS

AGL	above the ground level
Am-241	Americium 241
Bi-214	Bismith 214
CI	contour interval
cm	centimeter
CPM	counts per minute
Cs-137	Cesium 137
EM	electromagnetic
EPA	Environmental Protection Agency
FIDLER	field instrument for the detection of low-energy radiation
GPS	Global Positioning System
HPGe	high purity germanium
IHSS	Individual Hazardous Substance Site
K-40	Potassium 40
KeV	kiloelectron Volts
m	meter
MDA	minimum detectable activity
NOAA	National Oceanic and Atmospheric Administration
NuMAI	Nuclear Material Analysis Program
OU6	Operable Unit No. 6
Pb-214	Lead 214
pCi/g	picocuries per gram
Ra-226	Radium 226
SGS	soil gas site
Th-232	Thorium 232
µg/l	microgram per liter
µR/h	microremms per hour
U-235	Uranium 235
U-238	Uranium 238

DRAFT

APPENDIX B
OU6 PHASE I FIELD SURVEY DATA

Appendix B1 contains the results of the OU6 Phase I ground-based radiation surveys. A high-purity germanium (HPGe) gamma-ray detector was utilized to evaluate whether gamma-emitting radionuclides are present in surface soils. Appendix B1.1 contains the results for each survey station in tabular form. Information listed includes: northings and eastings for each station based on the Colorado Grid Coordinate System, results of individual radionuclide measurements in picocuries per gram (pCi/g), and an exposure estimate at each station in microremms per hour (μR\h). Brief text describing the survey equipment and procedures, natural background radiation assessment, data analysis, and results is also provided. Appendix B1.2 contains radioisotope and exposure isoconcentration maps. The distributions of radionuclide measurements and exposure estimates are graphically illustrated using grid displays and SURFER contour software.

Appendix B2 contains the results of the OU6 Phase I FIDLER surveys. Radiation screening by FIDLER survey was performed at each sample site in OU6 prior to sampling, with the exception of pond water and wet sediment sample locations. The survey data is presented in tabular form and the information listed includes: IHSS number, sample site designation, survey date, background reading, and highest and lowest measurements at each site. All measurements are recorded in counts per minute (CPM).

Appendix B3 contains the OU6 Phase I soil gas survey data in tabular form. The survey data are grouped by collection dates. For each collection date, concentrations of each analyte sampled are listed for each soil gas site (SGS), in micrograms per liter (μg/l). Daily background ambient air results are also shown along with surrogate recoveries, in percent (%), for each sample.

Appendix B4 contains the OU6 Phase I geophysical survey information. This geophysical survey utilized a Geonics EM-31 ground conductivity meter. Appendix B4.1 contains a description of the geophysical method and field survey activities. Appendix B4.2 contains colored contour maps of the distribution of conductivity values across the survey area.

Appendix B5 contains the results of the OU6 Phase I pond sediment sample gamma radiation screening. Radiological screening was performed on extracted pond sediment cores in 5 cm intervals utilizing a FIDLER. Screening results, recorded in CPM, are listed by IHSS designation and depth interval.

DRAFT

Introduction

A radiological survey was conducted at the Rocky Flats Plant Operable Unit 6 (OU-6), during the period 22 April through 3 June, 1993. The survey employed an array of 5, 75%, N-type, high purity germanium (HPGe) gamma ray detectors suspended 6.5 meters above the ground level (AGL).

The processed data from OU-6 indicated that detected radioisotopes were generally consistent with those expected from normal background emitters. At OU-6 there was clear evidence of soil disturbance and there were areas of elevated concentrations of americium 241 (Am-241).

1.0 Survey Procedures and Equipment

OU-6 was sampled using a 100 foot (~30.5m) grid pattern. The grid was laid out using a Global Positioning System (GPS) in the real time differential mode. The GPS was tested twice daily at ENERGY a reference station installed by the National Oceanic and Atmospheric Administration (NOAA). Typically, the accuracy of the GPS was better than two meters. Sampling nodes were tied to Colorado State Planar Coordinate System (State Plane Zone 502) by converting NAD-27 coordinates (latitude and longitude) using Corpsecon version 2.1.

An array of 5, nominally 75% N-type coaxial detectors was used to perform the *in situ* measurements. The array was suspended 6.5 meters above the ground by a pnuematic telescoping mast which was mounted to the rear of a four wheel drive vehicle. Gamma ray data were collected over a 3600 second interval and analyzed with NUclear Material AnaLysis program (NuMAl) running in a PC compatible computer. The raw data were archived on floppy disks and magnetic tape. The analysis continued on the results from NuMAl using SURFER, a contouring package from Golden Software, Inc.

2.0 Natural Background Radiation

Natural background radiation originates from the decay of radioactive elements present in the earth and from cosmic rays entering the earth's atmosphere from space. The radioactive elements present in the earth are uranium and its decay products, thorium and its decay products, and radioactive potassium. Natural terrestrial gamma radiation originates from the decay of these elements. Local concentrations of these nuclides typically produce radiation levels ranging from 1 to 15 uR/h within the United States[1]. The natural terrestrial radiation levels are dependent upon the geologic character immediately surrounding the point of interest.

One member of each of the uranium and thorium decay chains is a noble gas (radon) which can both diffuse through the soil and be transported in the air to othe locations. Therefore, the level of airborne radiation depends on the meteorological conditions, the mineral content of the soil, and soil permeability, etc., existing at each location at a particular time. Typically, the airborne radiation contributes from 1 to 10% of the natural background radiation levels.

Cosmic rays, the space component, interact in a complex manner with the elements of the earth's atmosphere and soil. These interactions and the cosmic rays themselves produce an additional natural source of radiation. Radiation levels due to cosmic rays vary with elevation and geomagnetic latitude. Typical levels in the United States range from 3.3uR/h in Key West, Florida to 7.2uR/h in Flagstaff, Arizona.[1]

3.0 Analysis and Results

Gamma-ray spectra collected by the sampling systems represented an energy range of 20 to 3000 keV. All photopeaks present in the spectra were analyzed and corresponding radionuclides were identified. Those nuclides found present were quantified. Radionuclides resulting from an established decay chain or subchain have been reported as the parent. Lead 214 (Pb-214) and bismith 214 (Bi-214) are offspring of radium 226 (Ra-226) and hence are reported as concentrations of Ra-226.

While it is true that the parent of the chain that Ra-226 is a member is uranium 238 (U-238), and it is often assumed that for undisturbed soils secular equilibrium exists, however in most surface soils secular equilibrium has been disturbed. This phenomenon is due to migration rates of each species being significantly different. Uranium and radium migrate within the soil matrix at different rates due to chemical processes within the matrix. Since they both have long half lives the migration can be observed radiometrically (ie. even if the rate of transport is extremely slow there is ample time for the phenomenon to become apparent, >10E3 years). In populated areas man has also distrubed the equilibrium through his day to day activities of landscaping, construction, agriculture, etc. Therefore, it should not be suprising that surface soils exhibit disequilibrium.

As stated above all detectable photopeaks within the measured spectrum were analyzed. It is useful to know the detectibility of the measuring system. That is, how much activity of a radionuclide must be present before it can be sensed with any certainty. This often referred to as the minimum detectable activity, MDA. The MDA for radionuclides present in the soil is a function of gamma ray energy, distribution in the soil matrix, other present gamma emitting radionuclides, sensor and its geometry, count time analysis methodology; in short there are many factors that can affect MDA.

The analysis software, NuMAl, looks for a photopeak (signal) and then removes the continuum (background) resulting in net photopeak counts. Or:

$$N = T - B$$

where: N = net photopeak counts

T = total counts

B = background counts

It follows then that:

since: $T = N + B$

and: $N = T - B$

so: $N = N + B - B$

then: $\sigma = (SQR (N + (2 * B))) / S$

where: σ = standard deviation

S = count time

The MDA then is defined as:

$$MDA = 3 * \sigma * C$$

where: C = conversion factor normally in units of [(pCi/g)/cps] for distrubed sources.

In the case where there are multiple photopeaks for a single radionuclide the result can be expressed as a weighted average. The photopeak signal is weighted by one over the square of its standard deviation or:

$$AVERAGE = \Sigma(N_i/\sigma_i^2)/(\Sigma(1/\sigma_i^2) \quad \pm \; SQR(1/\Sigma(1/\sigma_i^2))$$

and: $$MDA = 3*C*SQR(1/\Sigma(1/\sigma_i^2))$$

Typical values of MDA for the survey area are given below for selected radionuclides. These values would apply for sources uniformly distributed over the field of view of the survey system and averaged over the top 3cm (~1 inch).

Table I

Typical MDAs for Operable Unit 6

Am-241 ..... 0.14 pCi/g
Cs-137 ..... 0.01 pCi/g
U-235 ..... 0.02 pCi/g
U-238 ..... 0.64 pCi/g
Ra-226 ..... 0.02 pCi/g
Th-232 ..... 0.02 pCi/g
K-40 ..... 0.15 pCi/g

4.0 Survey Results

The data presented in Table II are the results of the survey conducted at OU-6. As the table indicates there is a location assignment based on the 100 foot (~30.5m) grid and based on Colorado Grid Coordinate System. The results of the measurements are given in units of pCi/g. These results are based on a homogeneous three dimensional distribution of the species within the soil matrix and averaged over the top 3 cm (~1.2") of soil. The Am-241 concentration values reported are two sigma values or greater. A zero for Am-241 concentration represents a value less than 0.095 pCi/g.

The data reported in Table II were then processed using SURFER in a effort to display the data as isoconcentration contours for trend analysis. Inclosed are the results of that effort. It is interesting to note that the Am-241 contamination in IHSS 156.2 was more prevalent along the edges of the IHSS as opposed to the interior of the IHSS. The edges of the IHSS sloped away from the center and there was some debris visible .

Table II also includes the raw data file name for each of the spectra collected in OU-6. The raw data as well as the summary data (Table II) are provided on magnetic tape. The raw data follows the EG&G Instruments ADCAM format and included in the header are the measurement specific data (Detector Number, Count Time, Detector Height, Operable Unit, Station, Colorado Grid Coordinate (NAD-27, State Zone 502) N&E, and Date).

DRAFT

References

1. Lindeken, C. L.; Peterson, K. R.; Jones, D. E; and McMillen, R. E. 1972. "Geographical Variations in Environmental Radiation Background in the United States", Proceedings of the Second International Symposium on the Natural Radiation Environment, (Houston, Texas USA 1972) Vol. 1, pp 317-332.

DRAFT

OU-6, 6.5m Detector Ht., 3600s Cnt. Time, Detector 1A66F, 1A62F6F.

File Name	Station	North	East	K-40	Ra-226	Th-232	U-238	U-235	Cs-137	Am-241	Exposure
		feet	feet	pCi/g	pCi/g	pCi/g	pCi/g	pCi/g	pCi/g	pCi/g	uR/h
274.chn	C14	751300	2087100	10.8	0.769	1.15	1.52	0.1	0.295	0.136	6.39
265.chn	C15	751300	2087200	10.2	0.699	1.16	1.16	0.08	0.462	0.19	6.7
275.chn	D11	751200	2086800	11.4	0.793	1.1	1.67	0.08	0.213	0.11	6.71
256.chn	D12	751200	2086900	10.7	0.92	0.911	1.34	0.06	0.0946	0	8.03
255.chn	D13	751200	2087000	11.5	0.984	1.03	1.36	0.07	0.0869	0	8.34
6.chn	D14	751200	2087100	11.8	0.984	1.1	1.29	0.07	0.114	0	6.79
263.chn	D15	751200	2087200	12.1	0.951	1.14	1.55	0.08	0.178	0	7.14
264.chn	D16	751200	2087300	10.1	0.846	1.1	1.34	0.08	0.354	0.197	6.58
270.chn	E08	751100	2086500	10.8	0.754	1.21	1.37	0.08	0.37	0.245	6.87
271.chn	E09	751100	2086600	11	0.796	1.19	1.74	0.08	0.237	0	6.82
259.chn	E10	751100	2086700	10.3	0.648	0.947	1.31	0.06	0.111	0.151	5.84
258.chn	E11	751100	2086800	10.4	0.809	1.01	1.41	0.09	0.0905	0	6.04
257.chn	E12	751100	2086900	11.9	0.915	1.09	1.62	0.08	0.0602	0	6.76
262.chn	E13	751100	2087000	13.3	0.944	1.1	1.31	0.07	0.0693	0	7.26
276.chn	E14	751100	2087100	11.7	0.802	1.08	1.52	0.08	0.202	0.128	6.63
277.chn	E15	751100	2087200	10.4	0.745	1.18	1.39	0.08	0.44	0.158	6.7
268.chn	F04	751000	2086100	17.3	0.921	1.27	1.68	0.08	0.0493	0	8.3
269.chn	F05	751000	2086200	11.6	0.716	1.05	1.3	0.07	0.0794	0	6.34
252.chn	F06	751000	2086300	11	0.679	1.05	1.42	0.07	0.111	0.16	6.12
251.chn	F07	751000	2086400	12	0.733	1.11	1.39	0.08	0.115	0	6.66
9.chn	F08	751000	2086500	11.9	0.89	1.16	1.37	0.09	0.0756	0.16	6.81
8.chn	F09	751000	2086600	11.9	0.931	1.13	1.47	0.09	0.0659	0	6.8
7.chn	F10	751000	2086700	12.1	0.943	1.1	1.64	0.07	0.0473	0	6.78
3.chn	F11	751000	2086800	12.6	0.744	0.92	1.25	0.07	0.0291	0	6.14
1.chn	F12	751000	2086900	14.9	0.853	1.21	1.42	0.08	0.0442	0	7.53
2.chn	F13	751000	2087000	11.1	0.772	1.07	1.38	0.08	0.105	0	6.24
313.chn	G03	750900	2086000	12	0.83	1.12	1.44	0.08	0.0481	0.201	7.03
312.chn	G04	750900	2086100	12.4	0.9	1.2	1.25	0.07	0.0578	0.202	7.15
323.chn	G05	750900	2086200	17.6	1.06	1.32	1.76	0.09	0.0202	0	8.66
282.chn	G06	750900	2086300	17	0.795	1.21	1.67	0.05	0.0113	0	7.77
224.chn	G07	750900	2086400	11.7	0.807	1.04	1.64	0.06	0.0222	0.139	8.18
223.chn	G08	750900	2086500	13.5	0.96	1	1.5	0.06	0.0106	0	7.27
280.chn	G09	750900	2086600	14.7	0.898	1.13	1.59	0.08	0.0245	0	7.24

OU-6, 6.5m Detector Ht., 3600s Cnt. Time, Detector 1A66F, 1A62F6F.

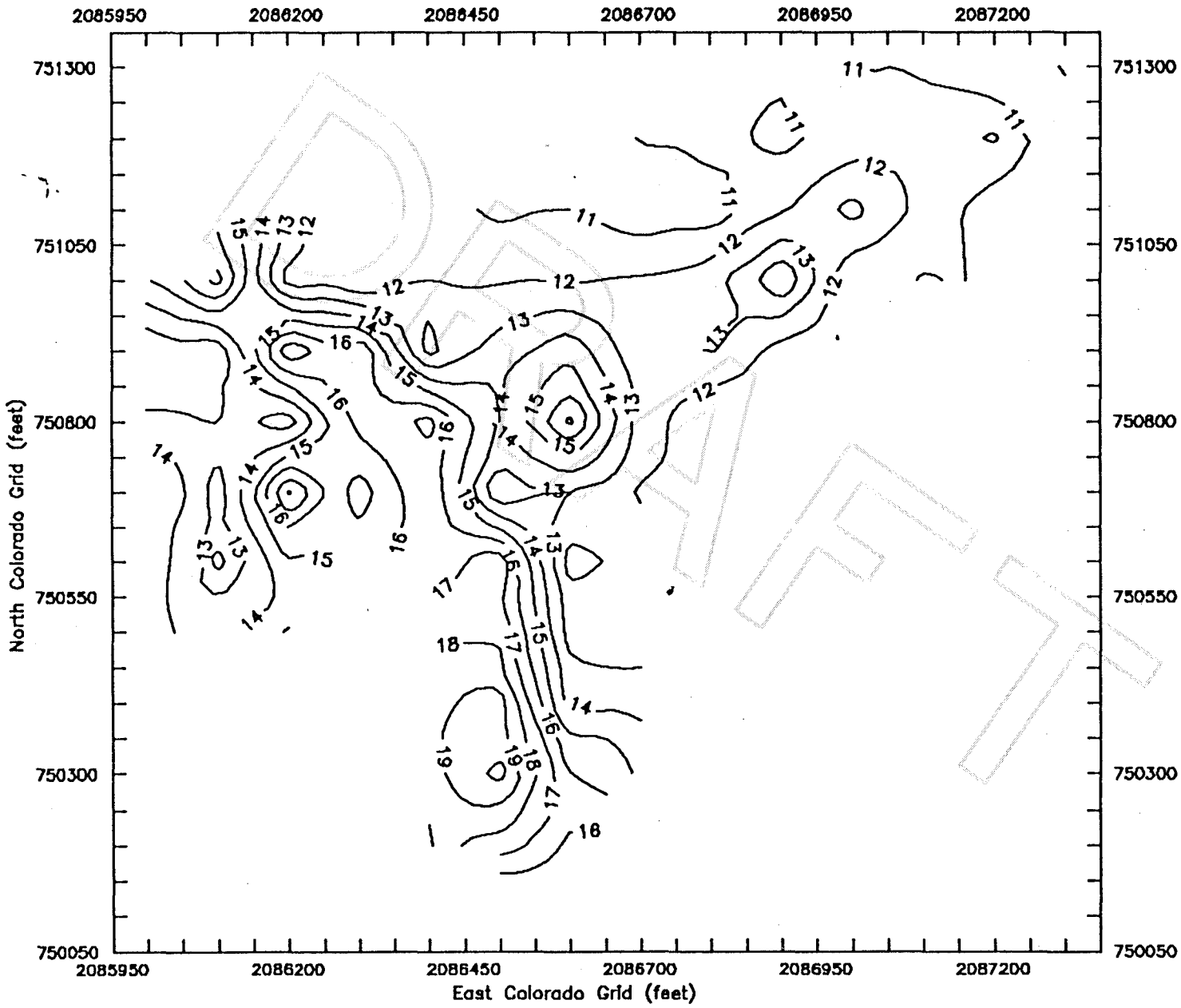
File Name	Station	North	East	K-40	Ra-226	Th-232	U-238	U-235	Cs-137	Am-241	Exposure
		feet	feet	pCi/g	pCi/g	pCi/g	pCi/g	pCi/g	pCi/g	pCi/g	uR/h
227.chn	G10	750900	2086700	12.2	0.758	0.94	1.58	0.05	0.0248	0	6.26
228.chn	G11	750900	2086800	13.1	1.02	1.19	1.49	0.07	0.0402	0	7.43
229.chn	G12	750900	2086900	11.6	0.888	1.09	1.54	0.07	0.0843	0	6.71
317.chn	H04	750800	2086100	13	0.76	1.19	1.55	0.09	0.0966	0.329	7.15
318.chn	H05	750800	2086200	12.5	0.798	1.15	1.51	0.09	0.09	0.376	7.05
324.chn	H06	750800	2086300	16.3	0.972	1.21	1.93	0.08	0.0126	0	8.01
283.chn	H07	750800	2086400	17.3	0.865	1.25	1.8	0.08	0.0102	0	8.04
242.chn	H08	750800	2086500	14	0.786	1.09	1.62	0.09	0.0227	0	6.87
241.chn	H09	750800	2086600	17.2	0.749	1.16	1.31	0.06	0.0301	0	8
231.chn	H10	750800	2086700	12.6	0.788	1.15	1.53	0.06	0.0789	0.218	6.79
230.chn	H11	750800	2086800	11	0.786	1.1	1.37	0.08	0.17	0.186	6.42
307.chn	I03 + 25	750700	2086025	14.8	0.821	1.04	1.59	0.07	0.0466	0.363	7.09
303.chn	I04	750700	2086100	12.5	0.788	1.13	1.5	0.07	0.247	1.03	6.94
304.chn	I05	750700	2086200	18.1	0.86	1.46	1.66	0.08	0.114	0.406	9.11
321.chn	I06	750700	2086300	14.5	0.723	1.19	1.43	0.07	0.09	0.268	7.37
325.chn	I07	750700	2086400	16.8	0.885	1.22	1.48	0.08	0.0162	0	7.94
242.chn	I08	750700	2086500	12.1	0.667	0.966	1.17	0.06	0.0223	0	6.12
237.chn	I09	750700	2086600	13	0.757	1.13	1.46	0.08	0.0555	0.244	7
308.chn	J03 + 25	750600	2086025	14.3	0.851	0.91	1.59	0.07	0.0364	0.397	6.7
302.chn	J04	750600	2086100	11.7	0.814	1.11	1.3	0.07	0.276	1.54	6.76
301.chn	J05	750600	2086200	14.9	0.748	0.966	1.43	0.08	0.0705	0.376	6.91
322.chn	J07	750600	2086400	16.6	0.752	1.15	1.63	0.06	0.086	0.303	7.62
284.chn	J08	750600	2086500	17.6	0.859	1.29	1.69	0.06	0.0252	0.169	8.27
294.chn	J09	750600	2086600	11.6	0.753	1.14	1.49	0.08	0.113	0.375	6.61
309.chn	K03 + 25	750500	2086025	14.2	0.877	0.816	1.79	0.06	0.0301	0.466	6.4
295.chn	K08	750500	2086500	17.8	0.849	1.3	1.68	0.11	0.0553	0.281	8.46
290.chn	K09	750500	2086600	12.5	0.767	1.25	1.59	0.1	0.158	0.322	7.22
296.chn	L08	750400	2086500	19.4	0.804	1.27	2.04	0.09	0.0567	0.347	8.48
289.chn	L09	750400	2086600	13.5	0.802	1.3	1.71	0.09	0.24	0.805	7.71
300.chn	M07	750300	2086400	18.6	0.771	1.09	1.58	0.07	0.0331	0.303	8
297.chn	M08	750300	2086500	20.3	0.779	1.35	1.62	0.09	0.0507	0.236	8.88
288.chn	M09	750320	2086555	17.6	0.883	1.29	1.66	0.09	0.0824	0.493	8.35
287.chn	N09	750204	2086586	15.8	0.882	1.27	1.74	0.07	0.127	0.653	8.07

OU-6, 6.5m Detector Ht., 3600s Cnt. Time, Detector 1A66F, 1A62F6F.

File Name	Station	North	East	K-40	Ra-226	Th-232	U-238	U-235	Cs-137	Am-241	Exposure
		feet	feet	pCi/g	pCi/g	pCi/g	pCi/g	pCi/g	pCi/g	pCi/g	uR/h
293.chn	009	750100	2086600	15.3	0.902	1.17	1.64	0.09	0.164	0.437	7.86

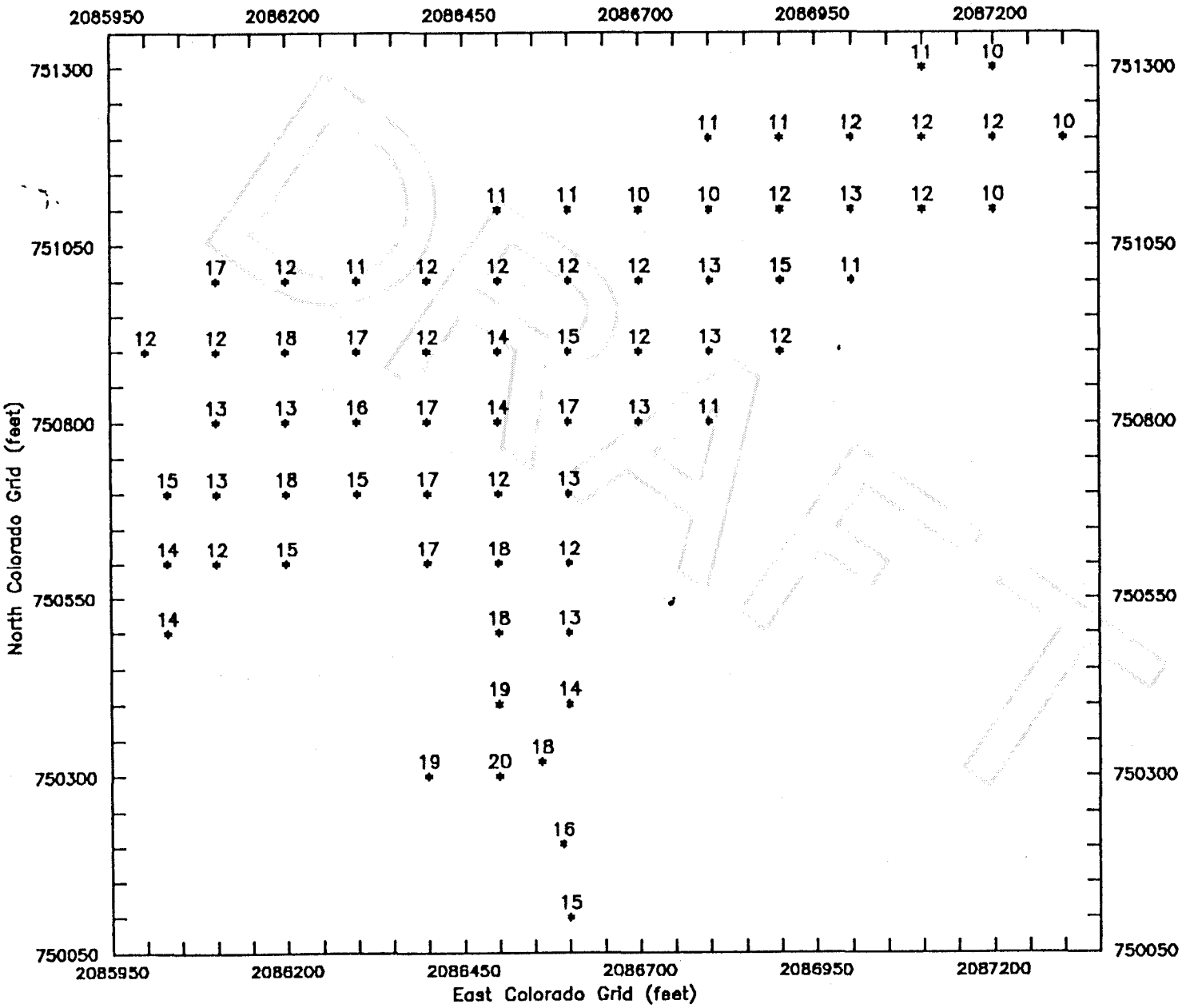
DRAFT

OU-6 K-40 (pCi/g)

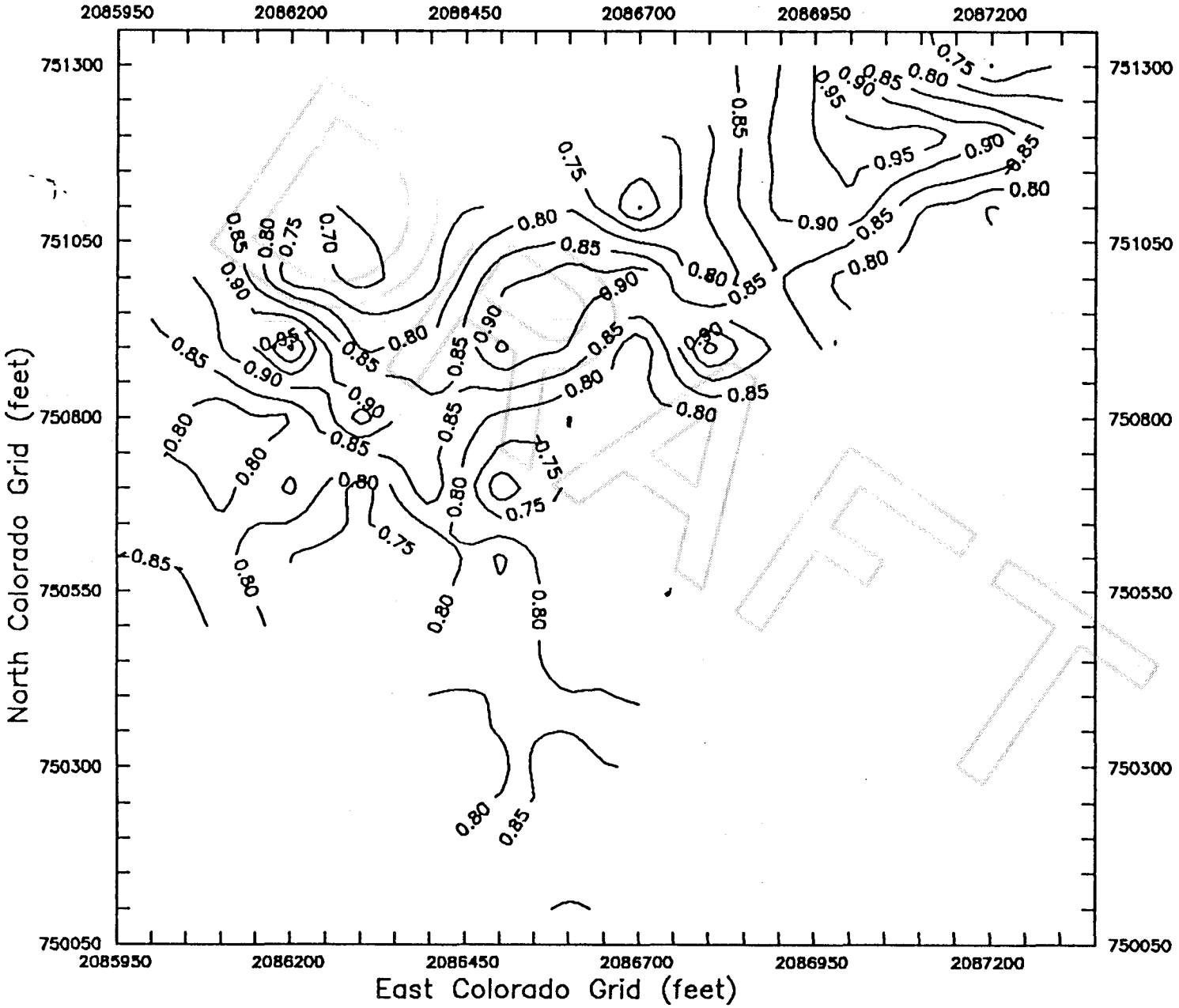


DRAFT

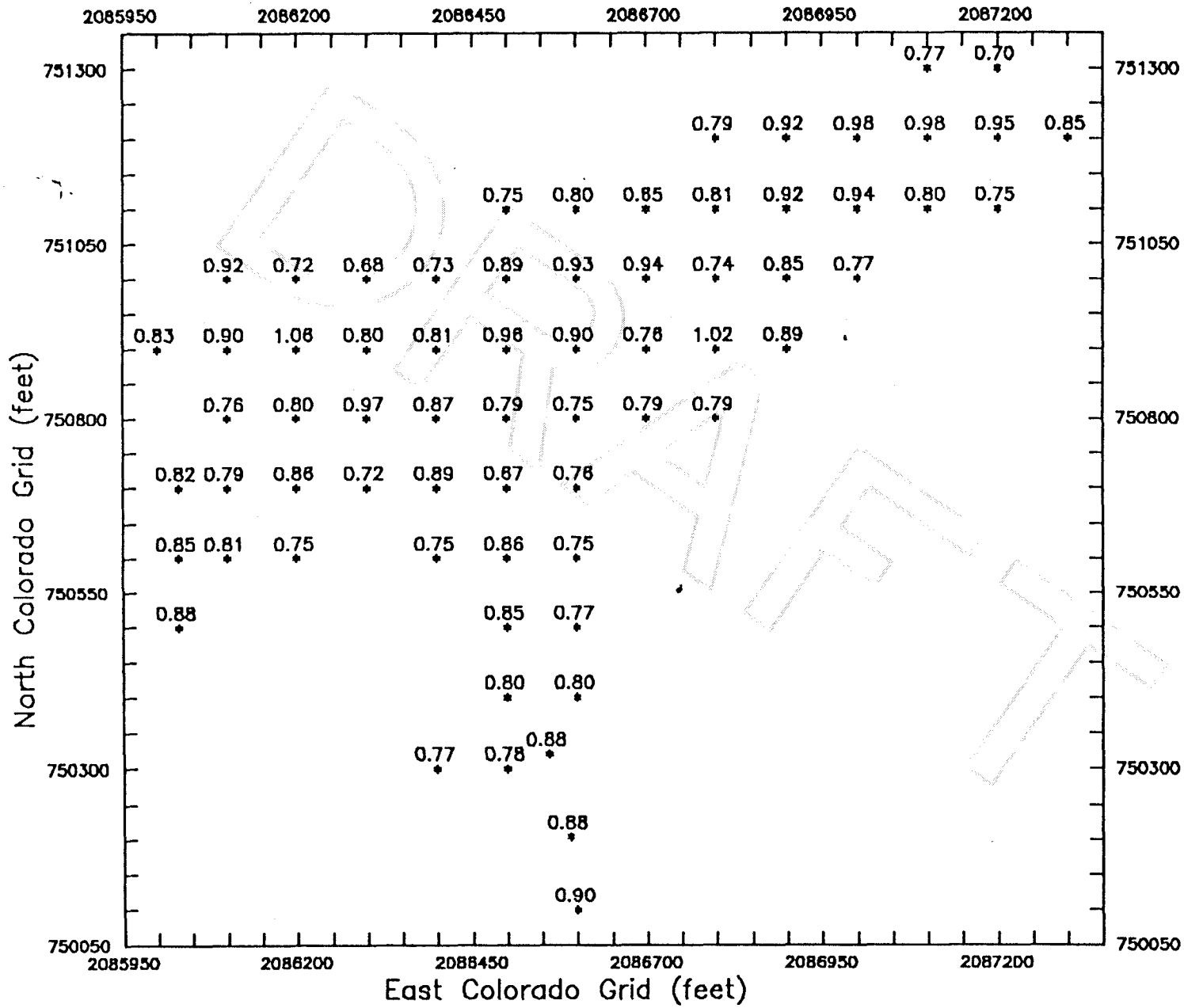
OU-6 K-40 (pCi/g)


2085950
2086200
2086450
2086700
2086950
2087200
751300
751050
750800
750550
750300
750050
North Colorado Grid (feet)
East Colorado Grid (feet)
11 10
11 11 12 12 12 10
11 11 10 10 12 13 12 10
17 12 11 12 12 12 12 13 15 11
12 12 18 17 12 14 15 12 13 12
13 13 16 17 14 17 13 11
15 13 18 15 17 12 13
14 12 15 17 18 12
14 18 13
19 14
18
19 20
16
15

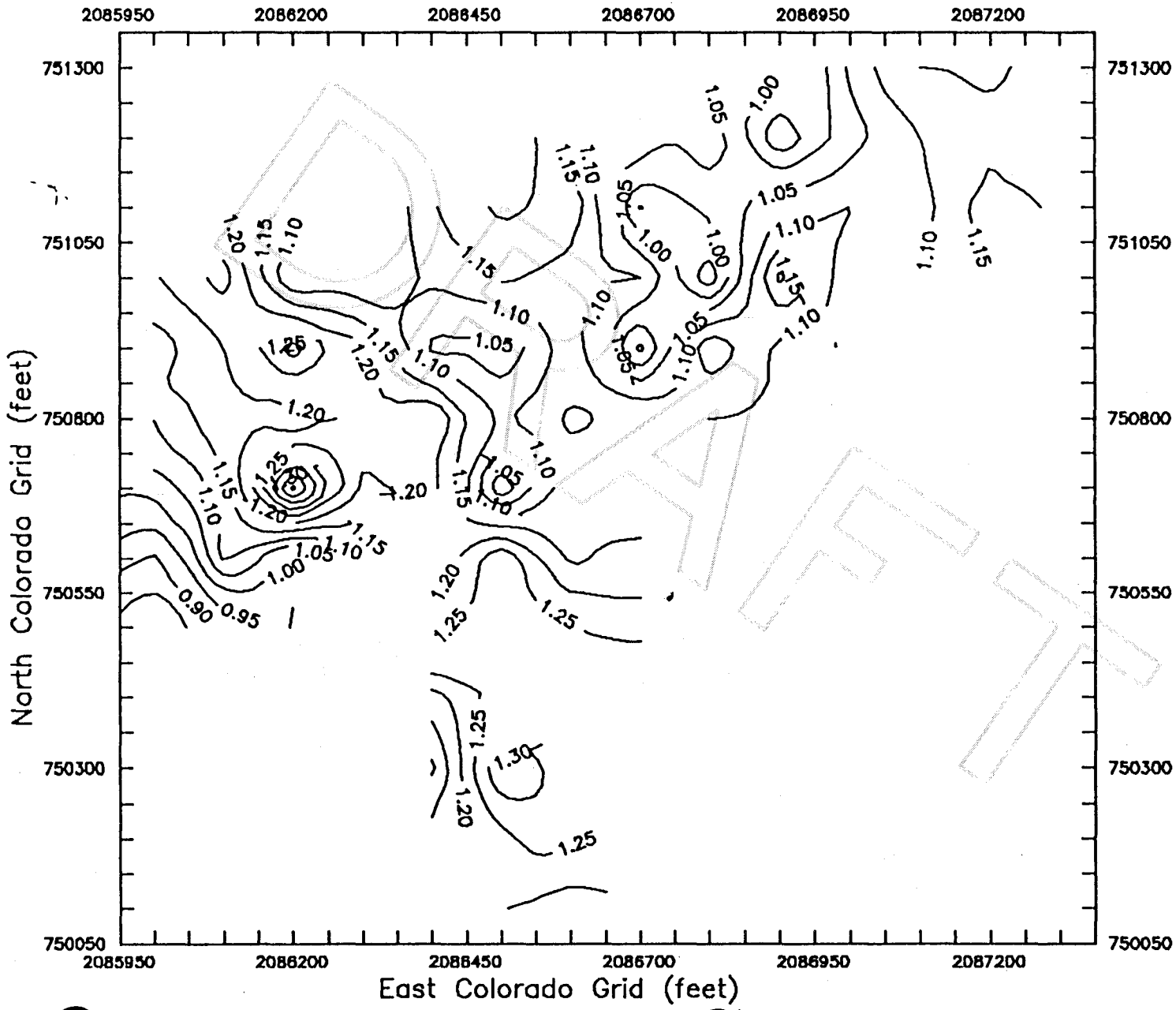
OU-6 Ra-226 (pCi/g)



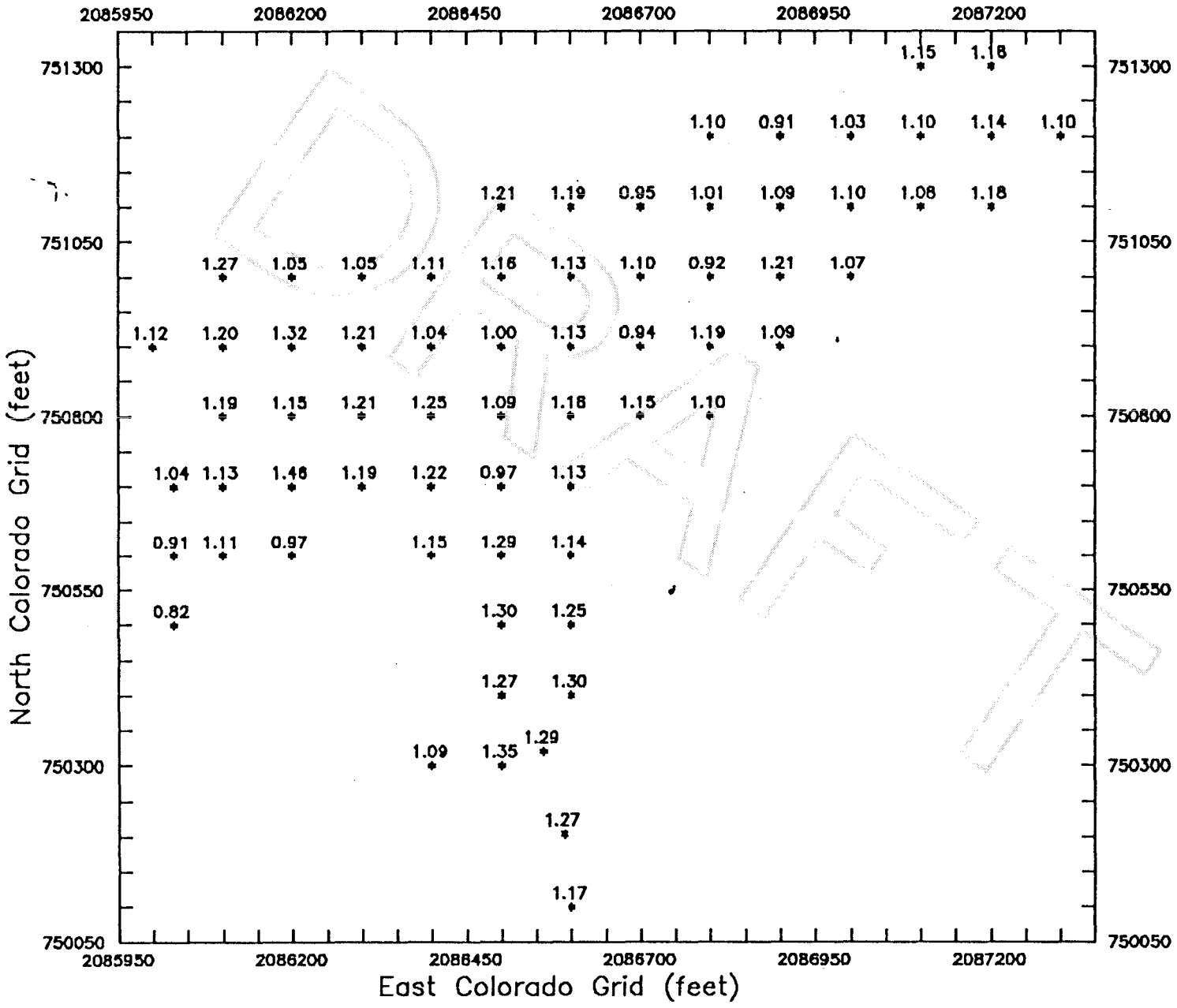
OU-6 Ra-226 (pCi/g)



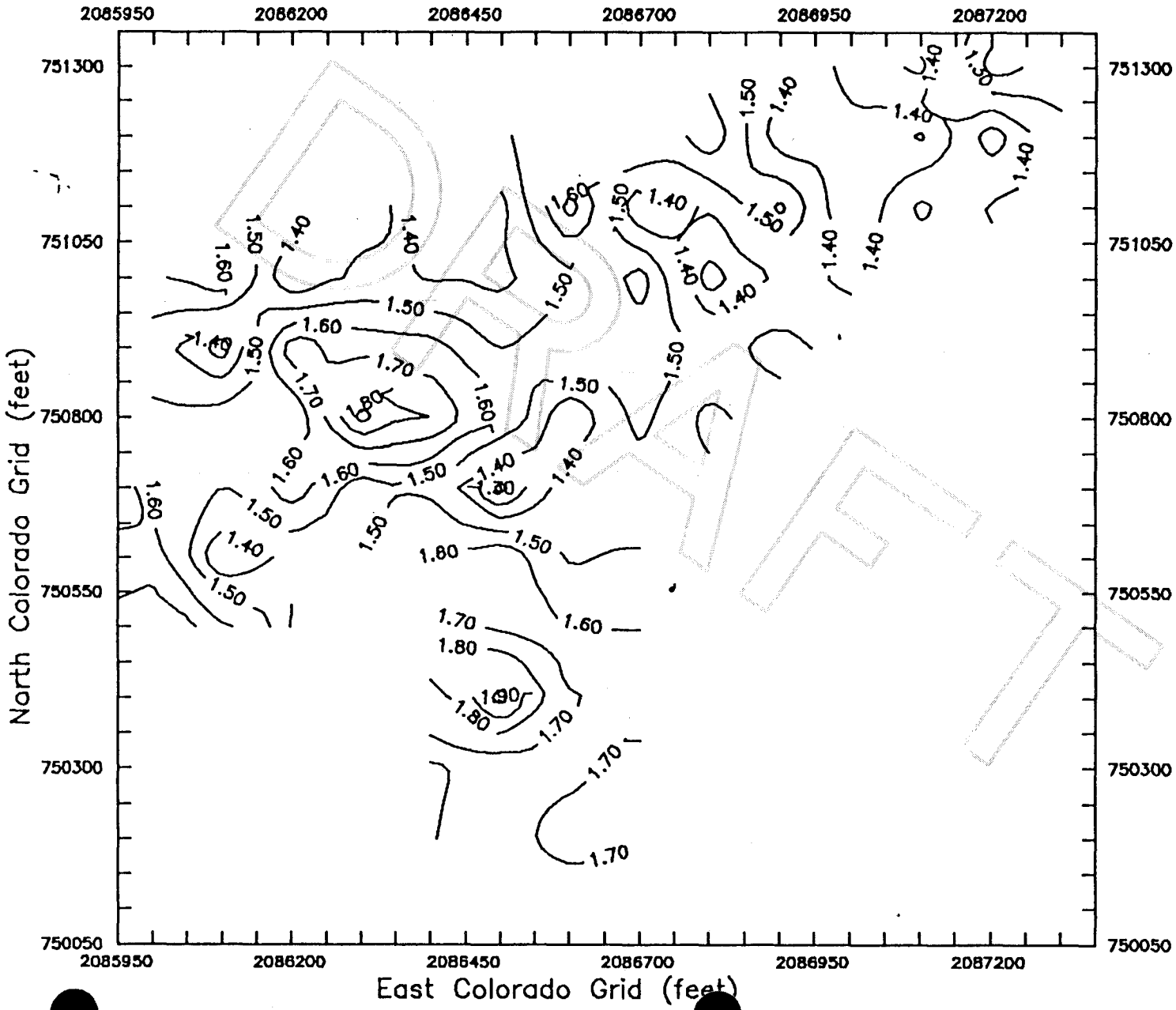
OU-6 Th-232 (pCi/g)



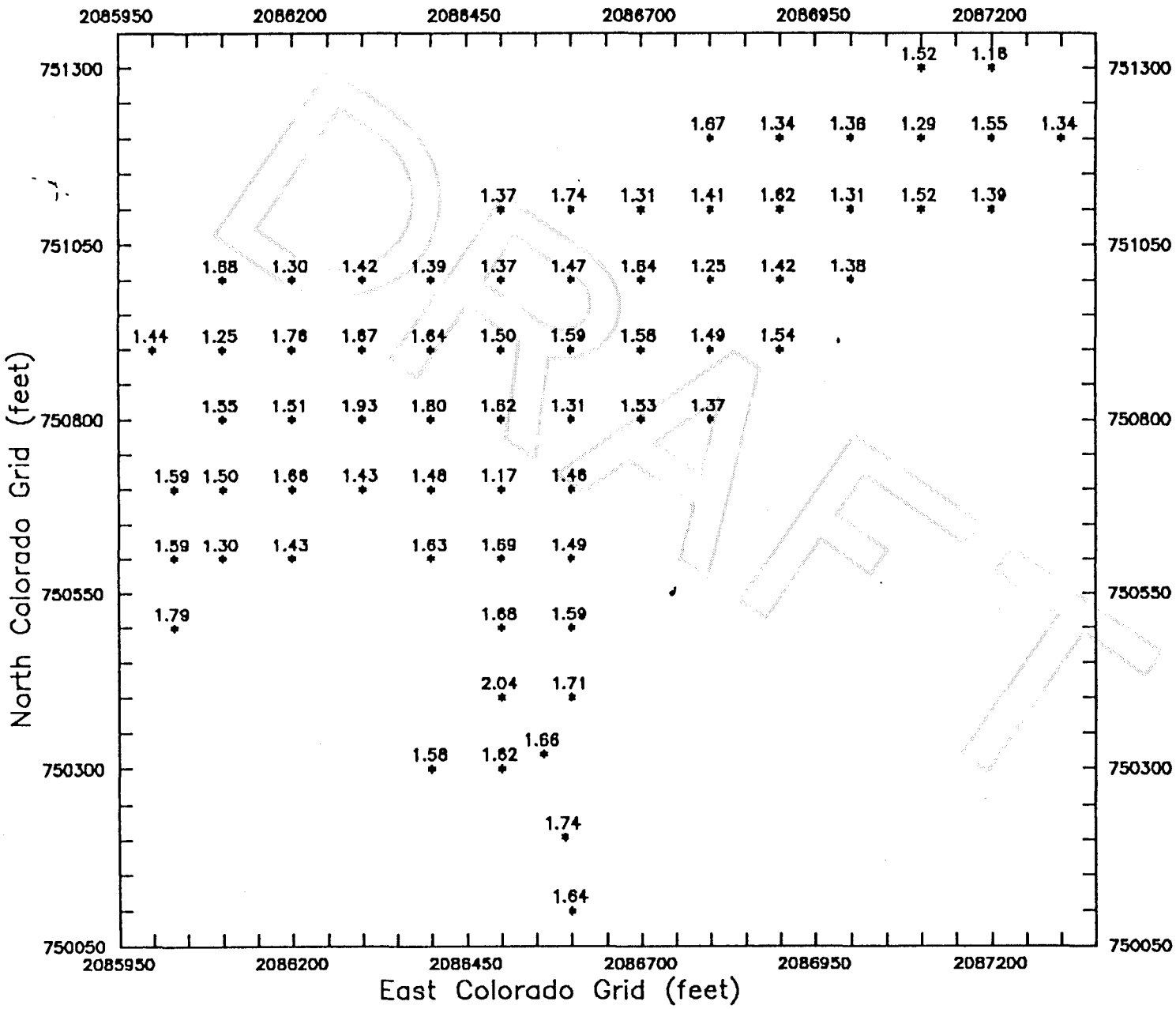
OU-6 Th-232 (pCi/g)



OU-6 U-238 (pCi/g)

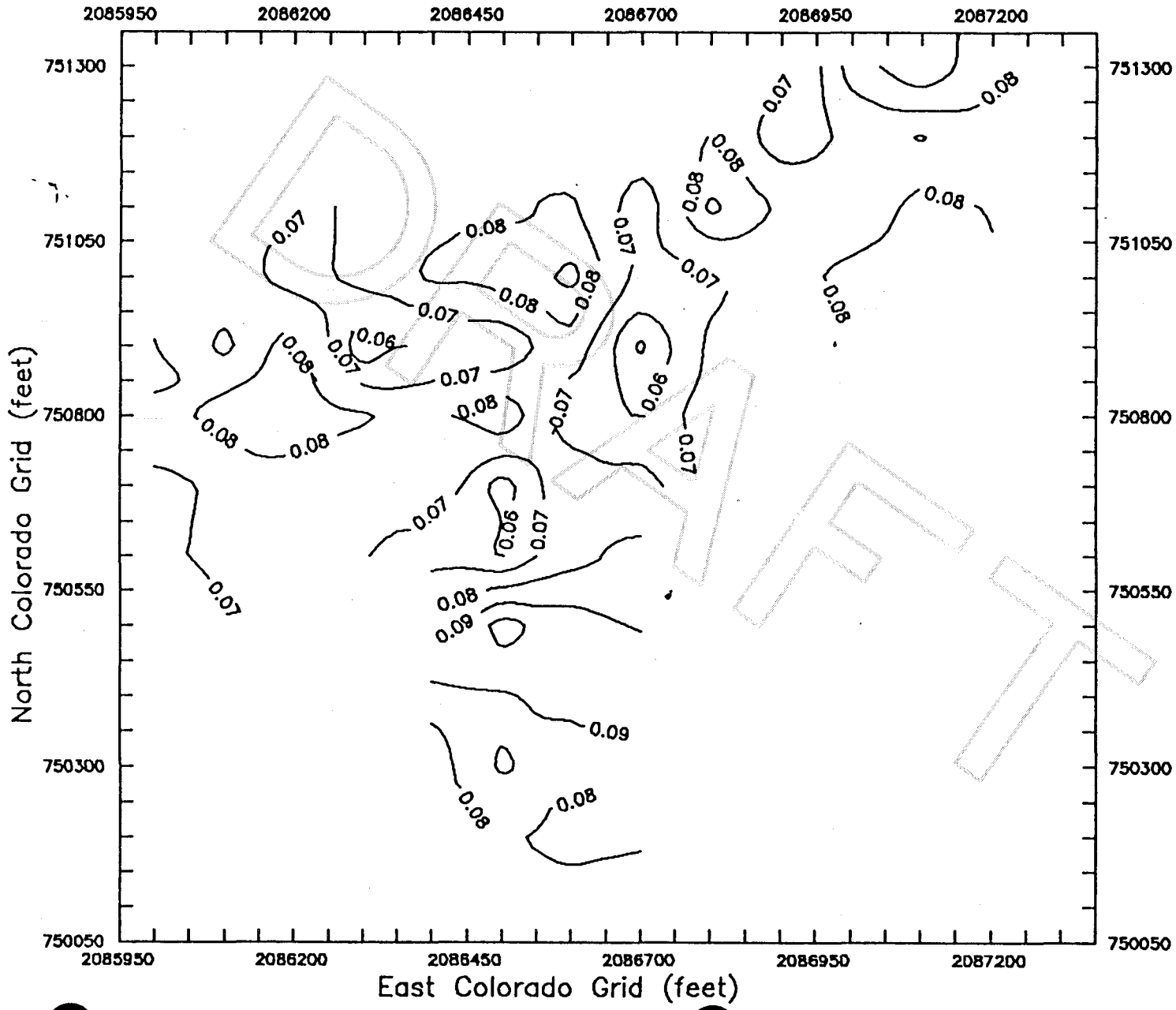


OU-6 U-238 (pCi/g)



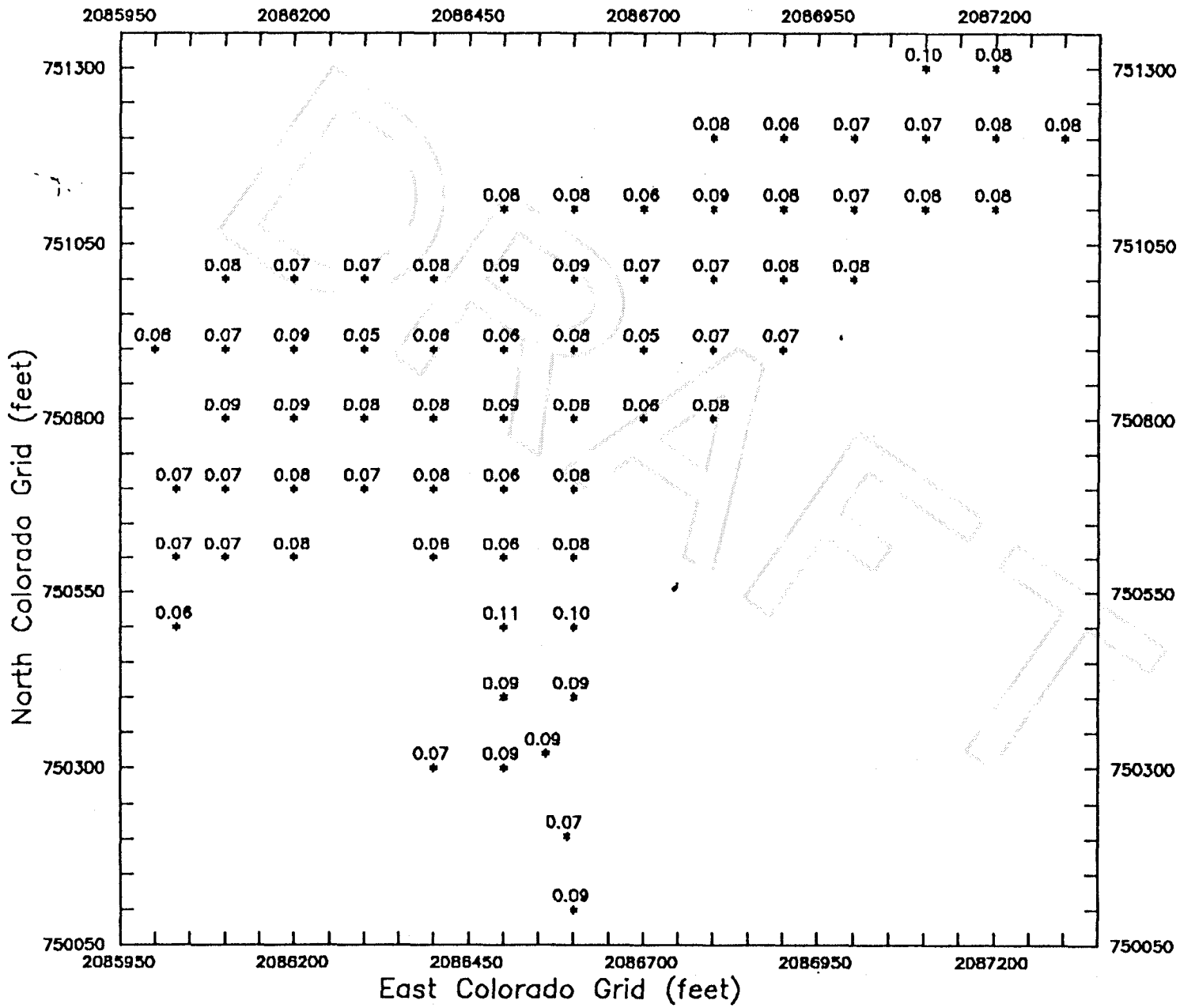
DRAFT

OU-6 U-235 (pCi/g)

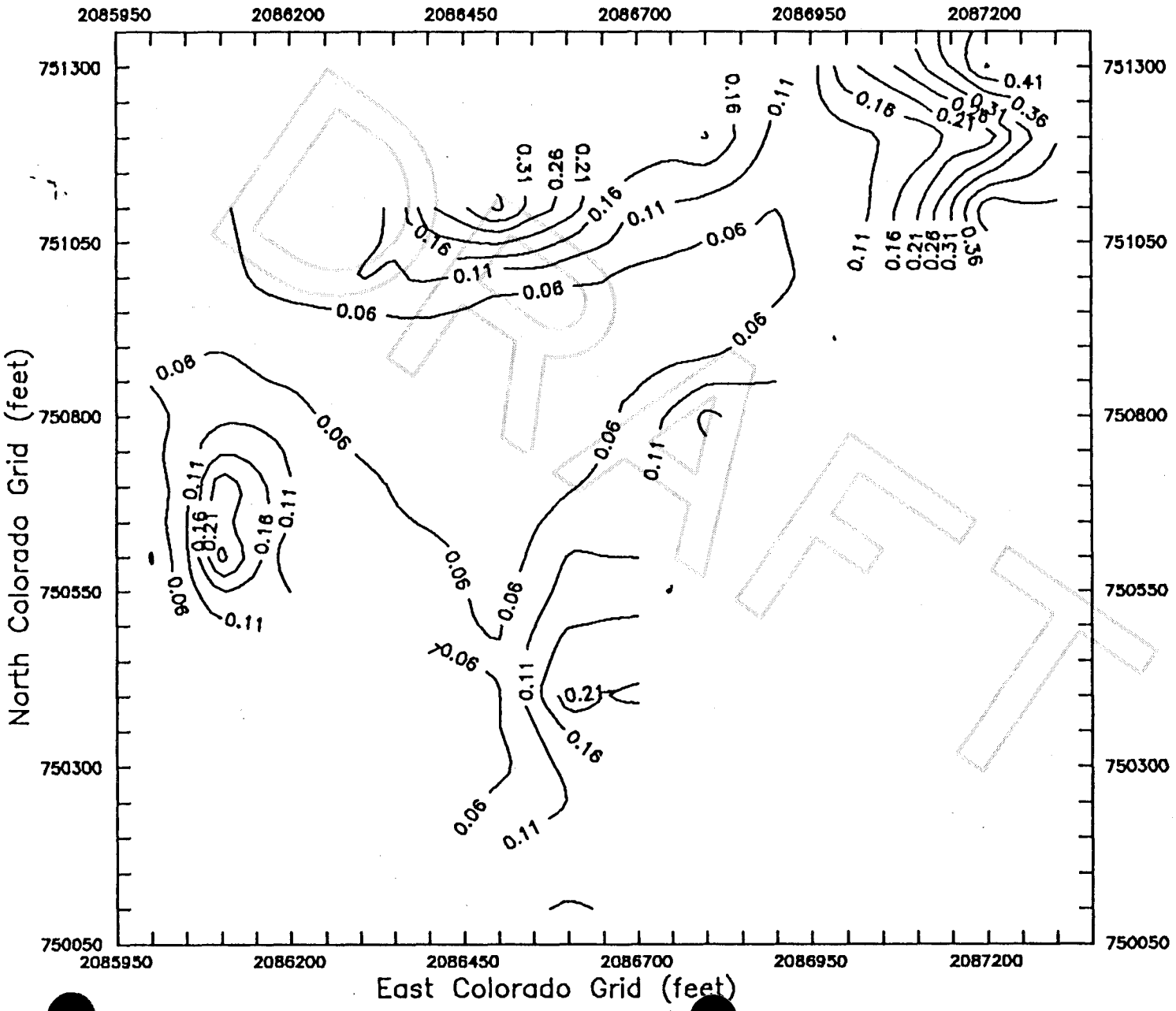


DRAFT

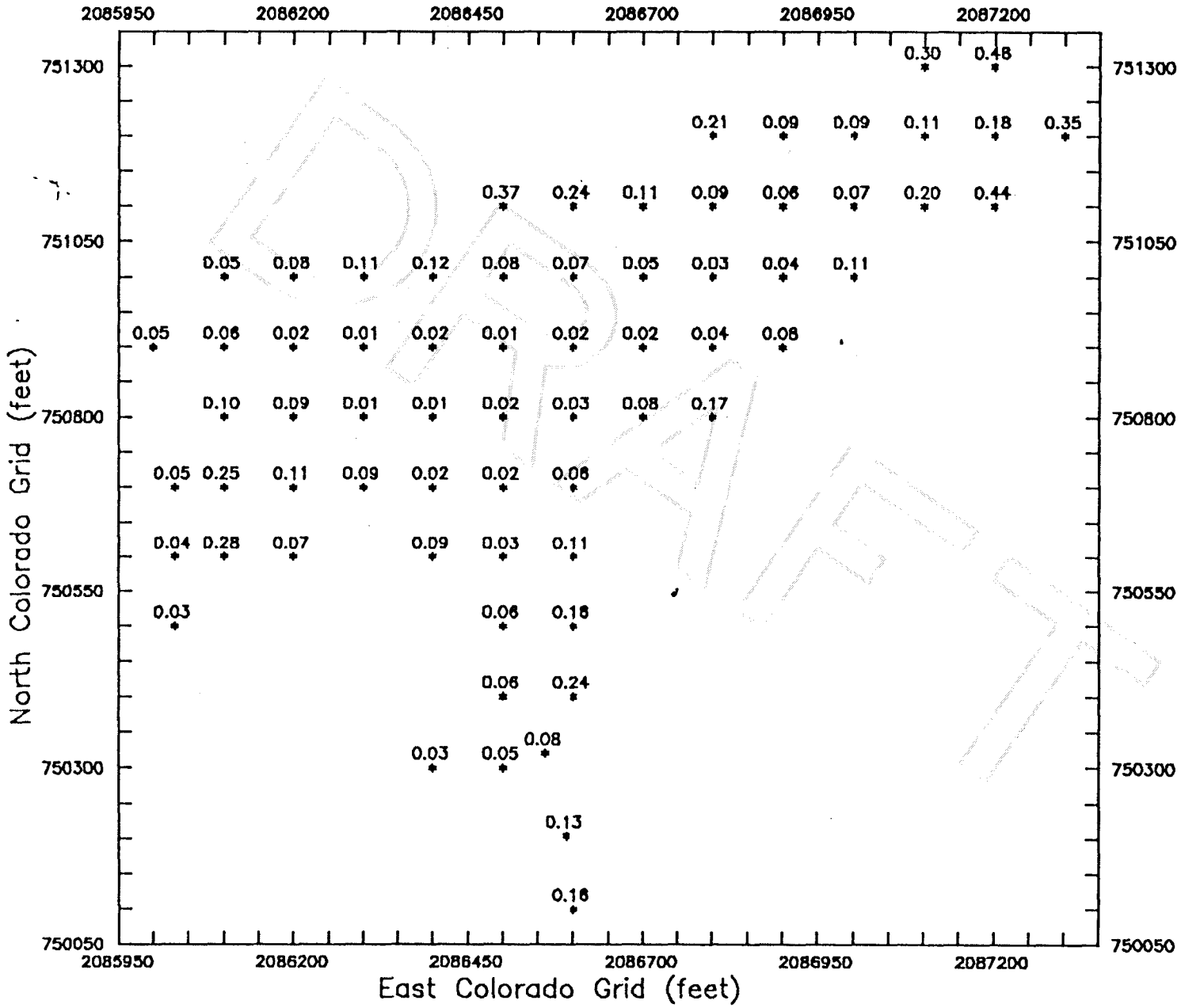
OU-6 U-235 (pCi/g)



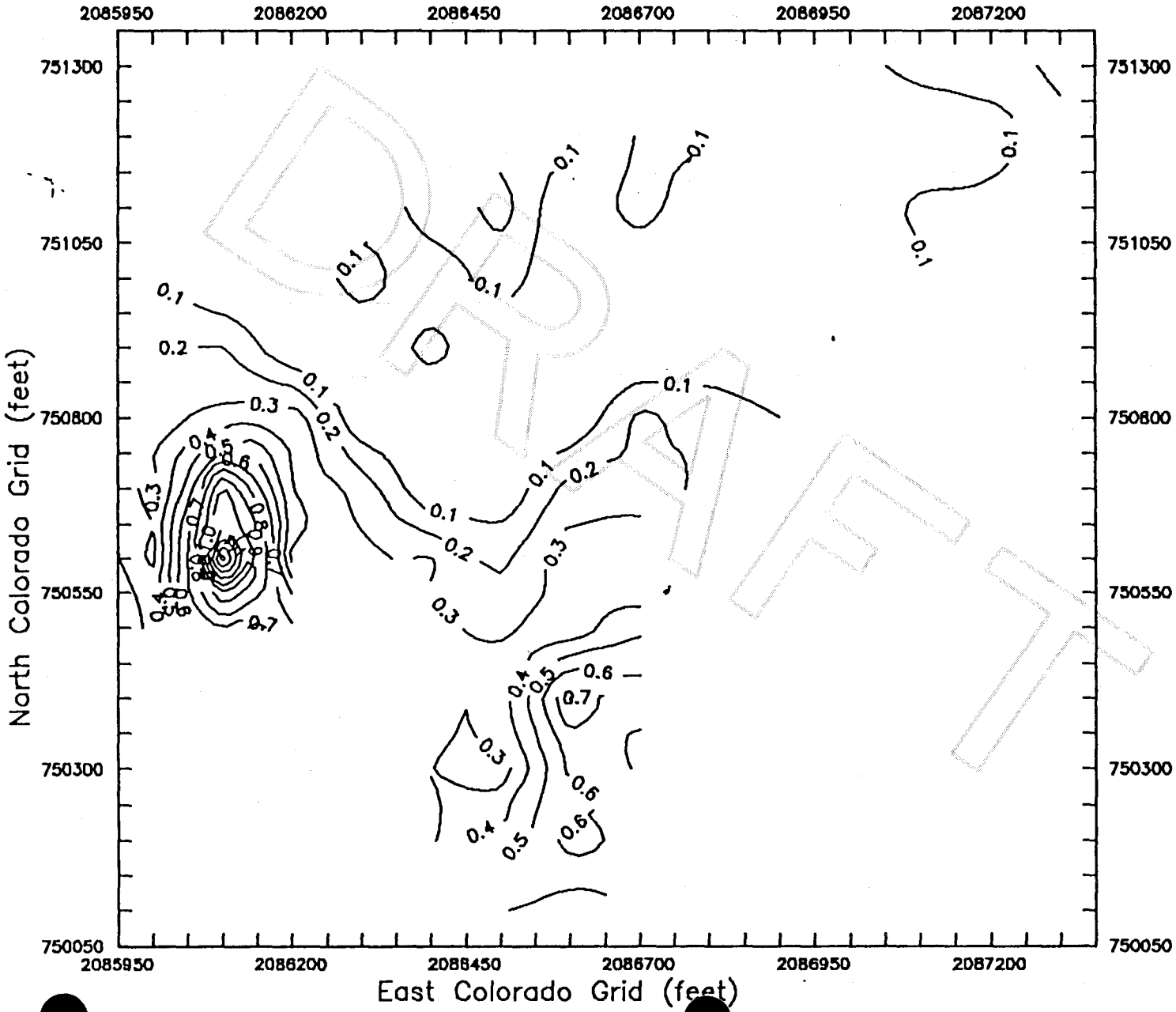
OU-6 Cs-137 (pCi/g)



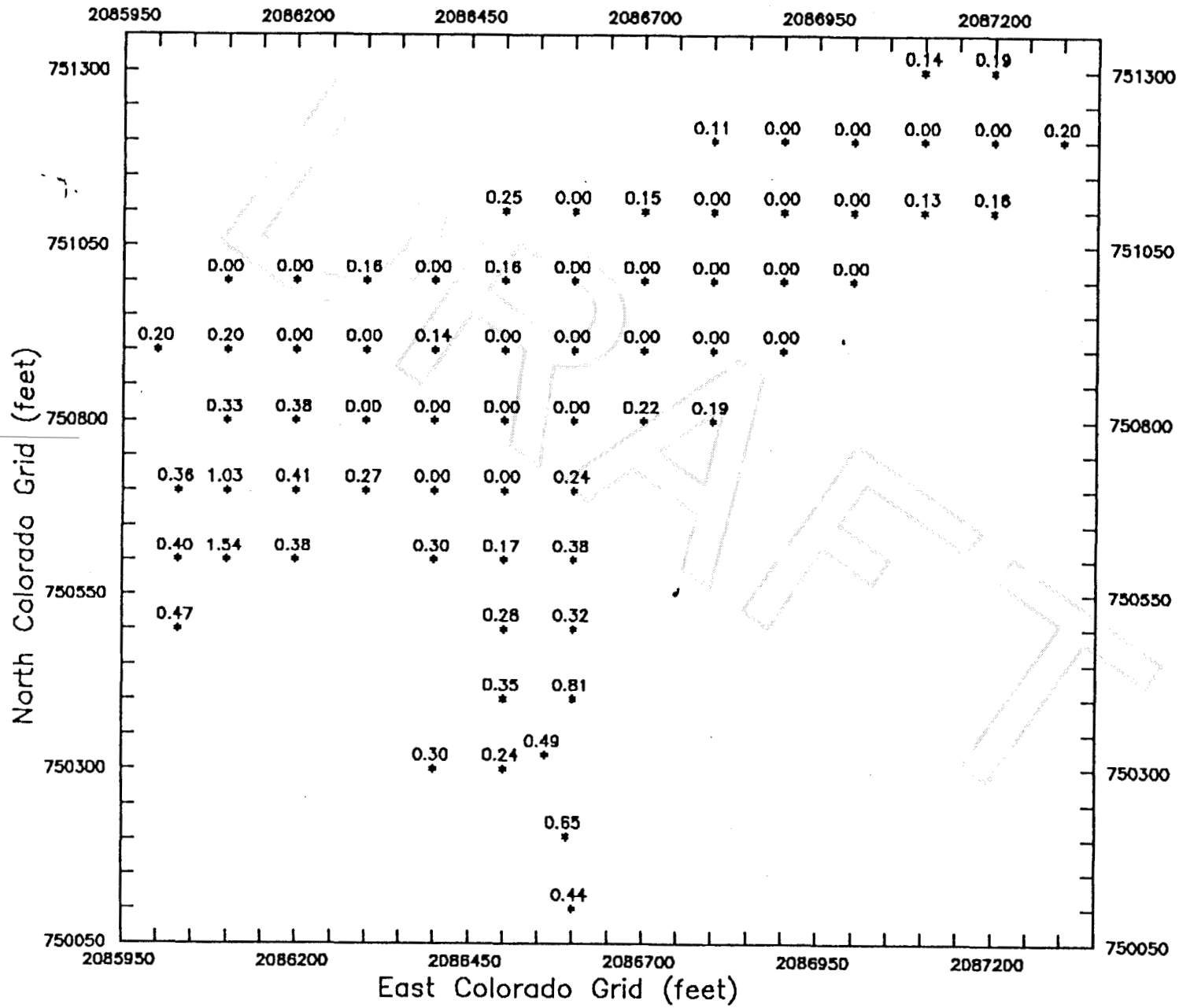
OU-6 Cs-137 (pCi/g)



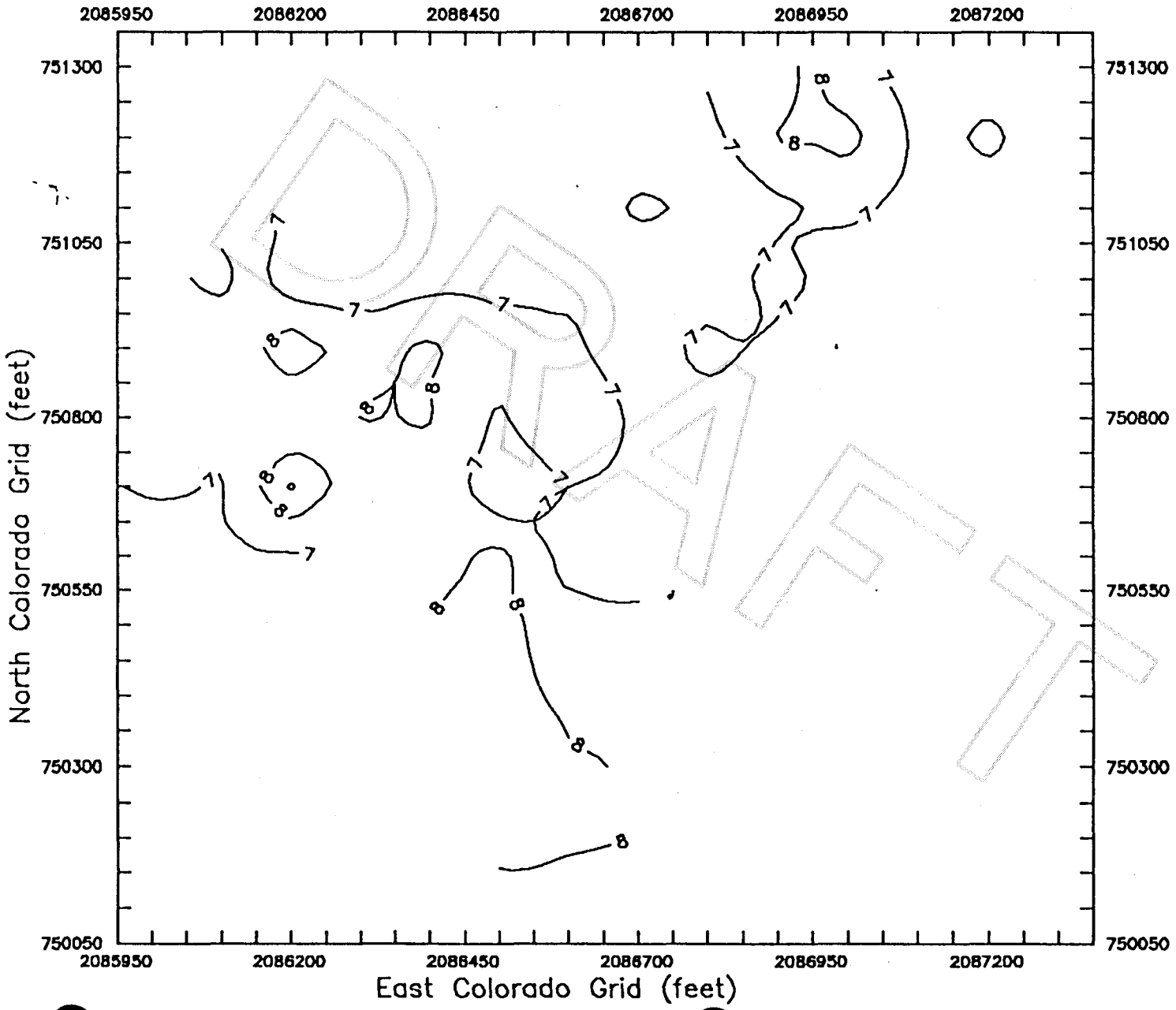
OU-6 Am-241 (pCi/g)



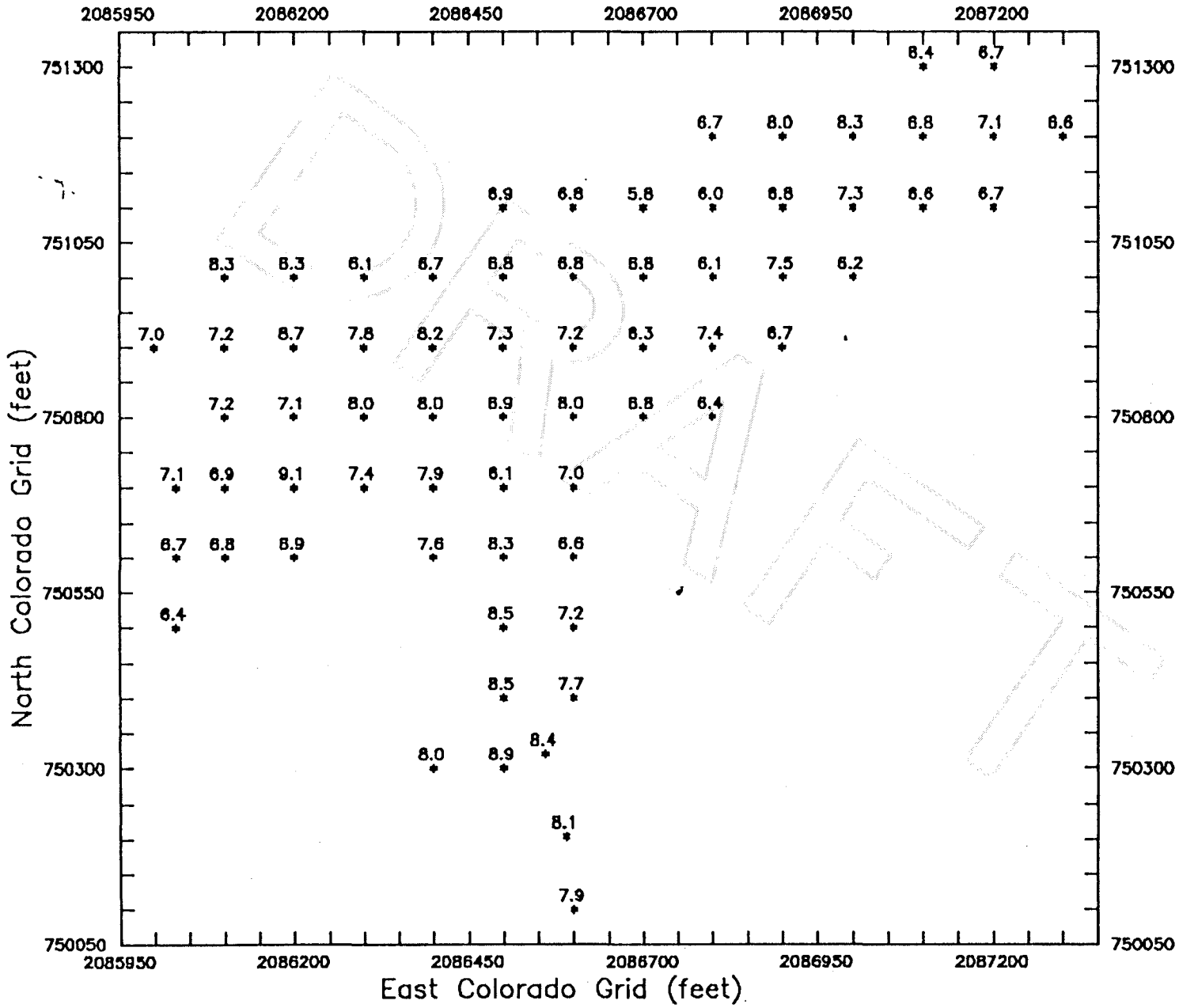
OU-6 Am-241 (pCi/g)



OU-6 Exposure (uR/h)



OU-6 Exposure (uR/h)



APPENDIX B2
OU6 PHASE I FIDLER SURVEY DATA
(RECORDED IN COUNTS PER MINUTE)

IHSS NUMBER	SITE NUMBERS	SURVEY DATE	BACKGROUND	HIGHEST	LOWEST
SLUDGE DISPERSAL AREA					
141	75992	11/2/92	1619	SS9	-203
POND A-4					
142.4	75092	11/9/92	1405	208	-190
POND B-5					
142.9	75292	11/9/92	1433	-33	-230
OLD OUTFALL AREA					
143	60092/SS600092	2/4/93	1933	-301	-501
143	60192/SS600192	2/4/93	1933	-258	-472
143	60292/SS600292	2/2/93	1703	1	-230
143	60392/SS600392	2/2/93	1703	191	-329
143	60492	2/2/93	1703	193	-238
143	60592/77492	2/2/93	1703	389	-240
143	60692	2/8/93	1621	89	-64
SOIL DUMP AREA					
156.2	63592/SS602892	1/7/93	1173	288	68
156.2	63692/SS602992	1/7/93	1173	483	25
156.2	73592/SS606792	10/28/92	1291	433	-26
156.2	73692/SS606892	10/28/92	1219	326	-103
156.2	73792/SS606992	10/29/92	1391	111	-88
156.2	73892/SS607092	12/4/92	1847	431	-429
156.2	73992/SS607192	10/28/92	1219	439	-68
156.2	74092/SS607292	12/8/92	1473	327	80
156.2	74192/SS607392	10/26/92	1353	199	-60
156.2	74292/SS607492	10/26/92	1353	252	41
156.2	74392/SS607592	10/26/92	1353	168	8
156.2	74492/SS607692	11/9/92	1240	140	-133
156.2	74592/SS607792	10/26/92	1326	6	-214
156.2	74692/SS607892	12/7/92	1668	284	-145
156.2	74792/SS607992	10/28/92	1219	304	33
156.2	74892/SS608092	12/8/92	1857	-54	-359
156.2	74992/SS608192	10/26/92	1573		
156.2	77592/SS608292	10/28/92	1219	249	84
156.2	77692/SS608392	10/28/92	1433	154	-128
156.2	77792/SS608492	10/28/92	1433	57	-117
156.2	77892/SS608592	10/27/92	1316	465	-41

APPENDIX B2
OU6 PHASE I FIDLER SURVEY DATA
(RECORDED IN COUNTS PER MINUTE)

IHSS NUMBER	SITE NUMBERS	SURVEY DATE	BACKGROUND	HIGHEST	LOWEST
156.2	77992/SS608692	10/27/92	1316	368	-66
156.2	75892	10/29/92	1391	150	-250
TRIANGLE AREA					
165	63792/SS620592	10/15/92	1422	358	-121
165	63892	10/21/92	1761	309	-SS9
165	63992/73392	10/21/92	1761	393	-4SS
165	69492/SS606192	10/6/92	1889	665	-232
165	69592/SS620192	10/6/92	1806	119	-210
165	69692	10/7/92	1392	454	-97
165	69792	10/8/92	1883	-88	-341
165	69892	10/7/92	1511	-42	-414
165	69992/SS606292	10/7/92	1353	76	-199
165	70092/SS620292	10/7/92	1299	72	-173
165	70192/72292	10/7/92	1540	201	-187
165	70292/72592	10/7/92	1717	472	-481
165	70392	10/9/92	2302	160	-893
165	70492	10/9/92	2302	5651	22
165	70592	10/9/92	2302	127	-396
165	70692/SS620392	10/9/92	2302	-210	-772
165	70792/73092/SS603192	10/10/92	2069	318	-574
165	70892/72992	10/10/92	2069	-84	-660
165	70992/72692	10/10/92	2069	64	-508
165	71092	10/13/92	2273	-4	-868
165	71192/72392/SS606392	10/13/92	2273	70	-668
165	71292/72792/SS606492	10/13/92	2273	-348	-740
165	71392	10/13/92	2273	-626	-966
165	71492	10/13/92	1336	259	-100
165	71592	10/13/92	1335	718	135
165	71692	10/13/92	1336	915	295
165	71792/73492	10/14/92	1348	409	-5
165	71892/73292/SS606692	10/14/92	1348	469	-75
165	71992	10/14/92	1348	958	100
165	72092/72892	10/14/92	1348	230	-225
165	72192/72492	10/14/92	1348	673	3
165	73192	10/13/92	1336	259	-100
165	76192	9/23/92	1585	446	-226
165	76292	11/9/92	1433	305	-154

DRAFT

APPENDIX B2
OU6 PHASE I FIDLER SURVEY DATA
(RECORDED IN COUNTS PER MINUTE)

IHSS NUMBER	SITE NUMBERS	SURVEY DATE	BACKGROUND	HIGHEST	LOWEST
TRENCH A					
166.1	66892	12/3/92	1292	796	-50
166.1	66992	12/3/92	1292	832	-113
166.1	67092	11/30/92	1148	144	-162
166.1	67192	12/2/92	1045	187	-110
166.1	67292	11/30/92	1148	56	-193
166.1	67392	12/2/92	1407	384	-37
166.1	67492	12/2/92	1407	418	-46
166.1	68292	12/7/92	1500	865	-40
TRENCH B					
166.2	67592	1/6/93	1204	273	-165
166.2	67692	1/6/93	1204	296	-112
166.2	67792	1/6/93	1204	150	-264
166.2	67892	1/6/93	1204	71	-207
166.2	67992	1/6/93	1204	328	-258
166.2	68092	1/6/93	1204	216	-238
166.2	68192	1/6/93	1311	137	-244
166.2	77392	11/20/92	13SS	356	-77
TRENCH C					
166.3	68392	12/8/92	1545	232	-233
166.3	68492	12/8/92	1545	169	-3SS
166.3	68592	12/9/92	1229	109	-326
166.3	68692	12/9/92	1229	109	-324
166.3	68792	12/9/92	1201	SS	-150
166.3	68892	12/9/92	1229	104	-201
166.3	68992	12/15/92	1310	634	58
166.3	69092	12/15/92	1310	277	-82
166.3	69192	12/15/92	1310	314	40
166.3	69292	12/15/92	1310	305	70
166.3	69392	12/15/92	1310	493	110
166.3	76992	11/16/92	1591	-290	-675
NORTH SPRAY FIELD AREA					
167.1	61192/SS600492	10/23/92	1314	19	-231
167.1	61292/SS600592	10/23/92	1129	346	-53
167.1	61392/SS600692	10/20/92	1230	501	0
167.1	61492/SS600792	10/20/92	1230	191	-110
167.1	61592/SS600892	10/22/92	1128	382	-148

APPENDIX B2
OU6 PHASE I FIDLER SURVEY DATA
(RECORDED IN COUNTS PER MINUTE)

IHSS NUMBER	SITE NUMBERS	SURVEY DATE	BACKGROUND	HIGHEST	LOWEST
167.1	61692/SS600992	10/19/92	1168	299	22
167.1	61792/SS601092	10/20/92	1230	248	-137
167.1	61892/SS601192	10/22/92	1128	461	-144
167.1	61992/SS601292	10/22/92	1323	191	-18
167.1	62092/SS601392	11/12/92	1072	323	135
167.1	62192/SS601492	10/19/92	1168	692	-48
167.1	62292/SS601592	10/19/92	1145	215	-145
167.1	62392/SS601692	10/23/92	1314	59	-280
167.1	62492/SS601792	10/19/92	1145	112	-63
167.1	62592/SS601892	10/19/92	1168	272	23
167.1	62692/SS601992	10/20/92	1296	91	-234
167.1	62792/SS602092	10/22/92	1128	436	65
167.1	62892/SS602192	9/9/92	1568	338	4
167.1	62992/SS602292	10/19/92	1168	231	20
167.1	63092/SS602392	10/19/92	1145	176	-25
167.1	63192/SS602492	10/19/92	1145	158	-31
167.1	63292/SS602592	10/22/92	1128	716	136
167.1	63392/SS602692	10/20/92	1296	408	-69
167.1	77192	9/22/92	1628	247	-84
SOUTH SPRAY FIELD AREA					
167.3	66092/SS605392	11/6/92	962	389	169
167.3	66192/SS605492	11/6/92	962	280	88
167.3	66292/SS60SS92	11/6/92	962	384	72
167.3	66392/SS605692	11/6/92	962	264	53
167.3	66492/SS605792	11/6/92	962	284	47
167.3	66592/SS605892	11/6/92	962	393	88
167.3	66692/SS605992	11/6/92	958	300	-45
167.3	66792/SS606092	11/6/92	962	340	99
167.3	76792	9/22/92	1SS8	367	-106
EAST SPRAY FIELD AREA					
216.1	78092/SS608792	10/29/92	1500	117	-104
216.1	78192/SS608892	10/30/92	1519	78	-357
216.1	78292/SS608992	10/29/92	1500	98	-287
216.1	78392/SS609092	1029/92	1500	-106	-279
216.1	78492/SS609192	10/29/92	1519	-75	-419
216.1	78592/SS609292	10/29/92	1519	-114	-409

DRAFT

APPENDIX B3
OU6 PHASE I SOIL GAS SURVEY DATA
DATA COLLECTION DATE: 10/9/92

		SOIL GAS SITE (SGS) NUMBER (2)					
ANALYTE(1)	**AMBIENT AIR**	**SGS69492**	**SGS69592**	**SGS69692**	**SGS69992**	**SGS70092**	**SGS70092D**
Acetone	<5	<5	<5	<5	<5	<5	<5
Methylene Chloride	<5	<5	<5	<5	<5	<5	<5
2-Butanone	<6	<6	<5	<6	<6	<6	<5
Chloroform	<1	<1	<1	<1	<1	<1	<1
Carbon Tetrachloride	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichloroethane	<5	<5	<5	<5	<5	<5	<5
Trichloroethylene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	<5	<5	<5	<5	<5	<5	<5
Tetrachloroethylene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate Recoveries:							
Fluorobenzene (%)	96	106	110	75	90	102	120

(1) Analysis: Modified EPA Methods 8010/8020
(2) Values following ' < ' are reporting limits, reported in micrograms per liter (µg/l) except for surrogate recoveries.

DRAFT

APPENDIX B3
OU6 PHASE I SOIL GAS SURVEY DATA
DATA COLLECTION DATE: 10/12/92

	SOIL GAS SITE (SGS) NUMBER (2)		
ANALYTE(1)	**AMBIENT AIR**	**SGS69792**	**SGS69892**
Acetone	<5	<5	<5
Methylene Chloride	<5	<5	<5
2-Butanone	<6	<6	<5
Chloroform	<1	<1	<1
Carbon Tetrachloride	<0.2	<0.2	<0.2
1,2-Dichloroethane	<5	<5	<5
Trichloroethylene	<0.5	<0.5	<0.5
Toluene	<5	<5	<5
Tetrachloroethylene	<0.5	<0.5	<0.5
Surrogate Recoveries:			
Fluorobenzene (%)	164	108	131

(1) Analysis: Modified EPA Methods 8010/8020
(2) Values following ' < ' are reporting limits, reported in micrograms per liter (µg/l) except for surrogate recoveries.

DRAFT

APPENDIX B3
OU6 PHASE I SOIL GAS SURVEY DATA
DATA COLLECTION DATE: 10/19/92

		SOIL GAS SITE (SGS) NUMBER (2)								
ANALYTE(1)	**AMBIENT AIR**	**SGS70192**	**SGS70992**	**SGS71092**	**SGS71192**	**SGS71292**	**SGS71292D**	**SGS71992**	**SGS72092**	**SGS72192**
Acetone	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methylene Chloride	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-Butanone	<6	<5	<6	<6	<6	<5	<6	<6	<6	<5
Chloroform	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon Tetrachloride	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichloroethane	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethylene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Tetrachloroethylene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate Recoveries:										
Fluorobenzene (%)	260	299	85	98	83	120	54	98	84	141

(1) Analysis: Modified EPA Methods 8010/8020
(2) Values following ' < ' are reporting limits, reported in micrograms per liter (µg/l) except for surrogate recoveries.

APPENDIX B3
OU6 PHASE I SOIL GAS SURVEY DATA
DATA COLLECTION DATE: 10/20/92

		SOIL GAS SITE (SGS) NUMBER (2)							
ANALYTE(1)	**AMBIENT AIR**	**SGS70292**	**SGS70392**	**SGS70492**	**SGS70592**	**SGS70692**	**SGS70792**	**SGS70892**	**SGS71392**
Acetone	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methylene Chloride	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-Butanone	<5	<6	<6	<5	<6	<6	<5	<6	<6
Chloroform	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon Tetrachloride	<0.2	<0.2	1.6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichloroethane	<5	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethylene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	<5	<5	<5	<5	<5	<5	<5	<5	<5
Tetrachloroethylene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate Recoveries:									
Fluorobenzene (%)	78	124	162	59	252	87	72	84	69

(1) Analysis: Modified EPA Methods 8010/8020
(2) Values following '<' are reporting limits, reported in micrograms per liter (µg/l) except for surrogate recoveries.

DRAFT

APPENDIX B3
OU6 PHASE I SOIL GAS SURVEY DATA
DATA COLLECTION DATE: 10/21/92

		SOIL GAS SITE (SGS) NUMBER (2)								
ANALYTE(1)	**AMBIENT AIR**	**SGS71492**	**SGS71592**	**SGS71692**	**SGS71792**	**SGS71892**	**SGS71892D**	**SGS63792**	**SGS63892**	**SGS63992**
Acetone	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methylene Chloride	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-Butanone	<5	<5	<6	<6	<5	<6	<6	<6	<6	<5
Chloroform	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon Tetrachloride	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichloroethane	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethylene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Tetrachloroethylene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate Recoveries:										
Fluorobenzene (%)	88	68	216	53	131	93	171	91	97	590

(1) Analysis: Modified EPA Methods 8010/8020
(2) Values following ' < ' are reporting limits, reported in micrograms per liter (µg/l) except for surrogate recoveries.

1.0 INTRODUCTION

Geophysical techniques were used to support the investigation of IHSS's 166.1, 166.2, and 166.3. The primary objective of the geophysical survey was to help delineate the location(s) of suspected burial trenches identified during areal photograph review. Additional objectives included the characterization of any identified trenches with regard to orientation and size, and provide additional subsurface information to help plan intrusive activities. Electromagnetic (EM) methods were used to accomplish the above objectives. Specifically, terrain conductivity was the EM technique used because it is a cost-effective tool in which landfill, hardfill and trench materials are usually identifiable as electrical conductivity anomalies. The following sections provide a description of the EM method, a discussion of the field program, and results of the geophysical program.

2.0 ELECTROMAGNETIC METHOD

The EM methods provide a rapid means of measuring the electrical conductivity of subsurface and soil and rock. EM data can aid the characterization of:

- depth and thickness of subsurface soil and rock units;
- lateral variations within the subsurface units;
- lateral extent of landfill and/or trench materials;
- lateral extent of paleochannels.

The EM method involves the induction of an electrical current into the earth. A small alternating current is generated by a transmitter coil that produces a primary, time-varying magnetic field into the ground. Through inductive coupling, the primary magnetic field produces small eddy currents in the subsurface, which in turn, create their own secondary magnetic field. A receiver coil measures both the primary and secondary fields. Changes in magnitude and phase of the individual currents are output as voltages and are related to the subsurface electrical conductivity. Electrical conductivity is a function of the soil or rock

type, the porosity and permeability of the rock units, and the fluids and fluid constituents filling pore spaces.

Depth of investigation is related to the separation between the transmitter and receiver coils. By using multiple coil spacings, several penetration depths can be achieved, allowing vertical variations of conductivity to be assessed. However, wider coil spacings also reduce the resolution of small shallow features because of the increased volume of material sampled. In addition to the coil spacing, the depth of investigation is dependent on the instrument mode of operation. Shallow EM instruments can be operated in two different modes which allow different penetration depths.

For this investigation, EM data were collected with a Geonics EM-31. In addition to the coil spacing, the depth of investigation is dependent on the instrument mode of operation. At a given coil spacing, the EM-31 can be operated in two modes or coil orientations. These are the horizontal dipole mode (coils are vertical coplanar) and the vertical dipole mode (coils are horizontal coplanar). The EM-31, which has a fixed coil spacing of 3.66 meters, has an effective penetration depth of approximately 8 to 9 feet in the horizontal dipole mode, and 15 to 18 feet in the vertical dipole mode.

Individual conductivity values are not necessary diagnostic in themselves, but the variations in conductivity, both laterally and vertically, are significant. As an example, trench materials can sometimes produce a conductivity low (depending on the trench fill properties). However, if metallic objects are introduced as part of the trench materials, a conductivity high will be measured. In some cases, the anomaly will appear as a dipole characterized by both high and low values in close proximity to each other. This is because the EM response can be affected by the interaction between the anomaly-producing body in the subsurface and the receiver and transmitter orientation of the instrument.

Conductivity values for each mode of operation are plotted and contoured to determine conductivity variations both laterally and vertically. Variations in the subsurface conductivity due to buried metallic materials are generally manifested by relatively large (greater than 10 or 20 mmhos/meter) anomalies. These anomalies, as well as smaller ones however, can be masked by the interfering effects of surface debris, buried utilities, overhead utilities and communications apparatus, or any large metal structures in close proximity to the survey area.

Interpretation of an EM contour map requires that the basic characteristics and causes of conductivity anomalies be kept in mind. Most types of soil and rock are electrical insulators of high resistivity. The electrical conduction that takes place in the subsurface is primarily electrolytic and occurs through the moisture-filled pores and fractures contained in the matrix. If a conductive body, such as a metal drum, is placed in the matrix, ion flow and conduction occurs preferentially through the metal, producing an anomalously high conductivity value. Conversely, if non-conductive materials such as unreinforced concrete are placed in the matrix, ion flow and conduction occur around the resistor, thus reducing the bulk conductivity. Buried trenches, which may have metallic objects, sludges, or leachate, will generally be manifested by conductivity highs. Landfill or hardfill trenches, which may have buried concrete, asphalt, wood, or dry backfill soil materials, can be manifested by conductivity lows. All of these facets are superimposed on the geologic framework of the site.

3.0 FIELD PROGRAM

Two EM survey grids were established in two areas to include the suspected trench locations within the three IHSSs. The larger, westernmost grid (denoted Grid A) included all of the suspected trench locations except the easternmost trench in IHSS 166.3. That trench was covered by a smaller grid to the east (denoted Grid B).

The vicinity of the trench areas targeted by the geophysical surveys was located by plotting bearings and distances from identifiable landmarks observed on aerial photographs and available maps. After locating these landmarks in the field, traverses were made using a Brunton compass and measuring tape to stake out baselines for the geophysical survey grids. The identified baselines were then used to establish grid perimeters and were marked with survey pins. The interiors of the grids were then marked at 10 foot intervals in an alternating pattern using survey pins. Data collection points within the grids were identified by either the presence of a survey pin or the intersection of two perpendicular lines defined by the survey pins.

Data were collected using a 10-foot station spacing for both grid areas. The EM data were collected in both the horizontal and vertical dipole modes, providing penetration to depths of 9 and 18 feet, respectively. The EM data were recorded with a data logger, which allowed

input of the line numbers and station coordinates as well as recording the two EM measurements. Approximately 1,110 stations were occupied in Grid A and approximately 260 stations were completed in Grid B.

4.0 RESULTS

All of the EM data were plotted in their correct locations and contoured using the computer software, GEOSOFT, which allows for color-enhanced contouring. Inputs to the contouring include the station coordinates and values, a selected spacing for gridding the raw data (generally 9 feet for these data), and a contour interval. Color enhancing is accomplished based on the gridded values from the raw data. Results for the horizontal and vertical mode in the Grid A area are shown in Figures B4-1 and B4-2, and similar data for the Grid B area are shown in Figures B4-3 and B4-4. These figures also depict the original location of each IHSS surveyed.

In interpreting the geophysical results, the likely causative contributors to an anomaly must be kept in mind. For Figures B4-1 through B4-4, the EM anomalies can be due to buried metallic objects, or variations in conductivity due to differing soil constituents, varying geology, or the addition of landfill or hardfill materials. Several anomalous zones on the figures could be interpreted to define areas of suspected past trench activity. The anomaly that is displayed as an east-west conductivity high in Figures B4-3 and B4-4 corresponds to a surface drainage ditch trending across the survey area.

DRAFT

APPENDIX B5
OU6 PHASE I POND SEDIMENT SAMPLE GAMMA RADIATION SCREENING RESULTS

IHSS	SAMPLE INTERVAL (cm)	NET RATE COUNT (CPM)
142.1	0-5	22
142.1	5-10	11
142.1	10-15	-12
142.1	15-20	2
142.1	20-25	17
142.1	25-30	65
142.1	30-35	20
142.1	35-40	20
142.1	40-45	-16
142.2	0-5	-14
142.2	5-10	-16
142.2	10-15	-25
142.2	15-20	0
142.2	20-25	2
142.2	25-30	-13
142.2	30-35	-17
142.2	35-40	-15
142.3	0-5	17
142.3	5-10	-31
142.3	10-15	-8
142.3	15-20	-6
142.3	20-25	-1
142.3	25-30	-8
142.3	30-35	28
142.3	35-40	25
142.4	0-5	-11
142.5	0-5	13
142.5	5-10	34
142.5	10-15	25
142.5	15-20	24
142.5	20-25	29
142.5	25-30	84
142.5	30-35	72
142.5	35-40	125
142.5	40-45	397
142.5	45-50	925
142.5	50-55	518
142.5	55-60	211
142.5	60-65	44
142.6	0-5	55
142.6	5-10	11
142.6	10-15	34
142.6	15-20	24
142.6	20-25	11
142.6	25-30	55

APPENDIX B5
OU6 PHASE I POND SEDIMENT SAMPLE GAMMA RADIATION SCREENING RESULTS

IHSS	SAMPLE INTERVAL (cm)	NET RATE COUNT (CPM)
142.6	30-35	44
142.6	35-40	46
142.6	40-45	1
142.6	45-50	22
142.6	50-55	11
142.7	0-5	-42
142.7	5-10	-34
142.7	10-15	-13
142.7	15-20	-12
142.7	20-25	16
142.7	25-30	-16
142.7	30-35	60
142.7	35-40	-23
142.7	40-45	48
142.7	45-50	-34
142.7	50-55	-34
142.7	55-60	12
142.7	60-65	-40
142.7	65-70	8
142.7	70-75	-31
142.8	0-5	37
142.8	5-10	-1
142.8	10-15	19
142.8	15-20	-12
142.8	20-25	28
142.8	25-30	68
142.8	30-35	12
142.8	35-40	33
142.8	40-45	24
142.8	45-50	5
142.8	50-55	37
142.8	55-60	17
142.8	60-65	43
142.8	65-70	59
142.8	70-75	49
142.8	75-80	51
142.8	80-85	35
142.8	85-90	21
142.9	0-5	20
142.9	5-10	23
142.9	10-15	30
142.9	15-20	9
142.12	0-5	-6
142.12	5-10	-2
142.12	10-15	1

APPENDIX B5
OU6 PHASE I POND SEDIMENT SAMPLE GAMMA RADIATION SCREENING RESULTS

IHSS	SAMPLE INTERVAL (cm)	NET RATE COUNT (CPM)
142.12	15-20	-36
142.12	20-25	-8
142.12	25-30	6

cm - centimeter
CPM - counts per minute

DRAFT

APPENDIX C
TABLE OF CONTENTS

APPENDIX C1 OU6 PHASE I SITE LOCATION SURVEY DATA AND ARC/INFO COVERAGE DATA

APPENDIX C2 OU6 PHASE I BORING LITHOLOGY AND MONITORING WELL CONSTRUCTION LOGS

- C2.1 IHSS 141 - MONITORING WELL CONSTRUCTION LOG
- C2.2 IHSS 142.4 - MONITORING WELL CONSTRUCTION LOG
- C2.3 IHSS 142.9 - MONITORING WELL CONSTRUCTION LOG
- C2.4 IHSS 143 - BORING LITHOLOGY AND MONITORING WELL CONSTRUCTION LOGS
- C2.5 IHSS 156.2 - BORING LITHOLOGY AND MONITORING WELL CONSTRUCTION LOGS
- C2.6 IHSS 165 - BORING LITHOLOGY AND MONITORING WELL CONSTRUCTION LOGS
- C2.7 IHSS 166.1 - BORING LITHOLOGY LOGS
- C2.8 IHSS 166.2 - BORING LITHOLOGY AND MONITORING WELL CONSTRUCTION LOGS
- C2.9 IHSS 166.3 - BORING LITHOLOGY AND MONITORING WELL CONSTRUCTION LOGS
- C2.10 IHSS 167.1 - BORING LITHOLOGY AND MONITORING WELL CONSTRUCTION LOGS
- C2.11 IHSS 167.2 - BORING LITHOLOGY LOGS
- C2.12 IHSS 167.3 - BORING LITHOLOGY AND MONITORING WELL CONSTRUCTION LOGS
- C2.13 IHSS 216.1 - BORING LITHOLOGY LOGS

APPENDIX C3 HISTORICAL INVESTIGATIONS BORING LITHOLOGY AND MONITORING WELL CONSTRUCTION LOGS; AND IHSS 141 VADOSE ZONE DATA

C3.1 OU2 HISTORICAL INVESTIGATIONS BORING LITHOLOGY AND MONITORING WELL CONSTRUCTION LOGS
C3.2 OU4 HISTORICAL INVESTIGATIONS BORING LITHOLOGY AND MONITORING WELL CONSTRUCTION LOGS
C3.3 OU6 HISTORICAL INVESTIGATIONS BORING LITHOLOGY AND MONITORING WELL CONSTRUCTION LOGS
C3.4 LANDFILL/OU7 HISTORICAL INVESTIGATIONS BORING LITHOLOGY AND MONITORING WELL CONSTRUCTION LOGS
C3.5 IHSS 141 VADOSE ZONE DATA
C3.6 PROTECTED AREA (PA) AND SOUTH OF PA HISTORICAL INVESTIGATIONS BORING LITHOLOGY AND MONITORING WELL CONSTRUCTION LOGS
C3.7 DAM BORING LITHOLOGY AND PIEZOMETER CONSTRUCTION LOGS

APPENDIX C4 OU6 PHASE I POND SEDIMENT CORE LITHOLOGIC DATA

APPENDIX C5 OU6 AND OTHER INVESTIGATIONS GROUNDWATER ELEVATION DATA

APPENDIX C6 OU6 AND OTHER INVESTIGATIONS GROUNDWATER HYDROGRAPHS

LIST OF ACRONYMS AND ABBREVIATIONS

BTOC	below top of casing
ft	feet
IHSS	Individual Hazardous Substance Site
LHSU	Lower Hydrostratigraphic Unit
MSL	mean sea level
NA	not available
OU	Operable Unit
PA	Protected Area
RFETS	Rocky Flats Environmental Technology Site
RFI/RI	RCRA Facility Investigation/Remedial Investigation
SED	sediment
SGS	Soil Gas Survey
SS	Surface Soil
SW	Surface Water
UHSU	Upper Hydrostratigraphic Unit

APPENDIX C
OU6 SITE CHARACTERIZATION DATA AND DATA FROM OU2, OU4, AND OU7

Appendix C contains OU6 (Operable Unit No. 6) Phase I site location survey data, surface, subsurface, and groundwater data used in the site characterization of OU6. Appendix C also includes data from OU2, OU4, and OU7, which are located adjacent to the OU6 Phase I RCRA Facility Investigation/Remedial Investigation (RFI/RI) Study Area and historic data from other investigations within OU6.

Appendix C1 contains survey data and/or ARC/INFO coverage for site locations sampled during the OU6 Phase I RFI/RI. These data are listed in tabular form by site number with the associated Colorado state plane coordinates (northing and easting).

Appendix C2 contains OU6 Phase I soil boring lithology and monitoring well construction logs. These data are organized by Individual Hazardous Substance Site (IHSS). Associated well construction logs immediately follow boring lithology logs.

Appendix C3 contains historical investigations boring lithology and monitoring well construction logs. C3.1 through C3.4 contain data assembled from previous investigations in OU2, OU4, OU6 and OU7, respectively. C3.5 contains historical vadose zone data from IHSS 141. C3.6 contains data from the Protected Area (PA) and south of the PA at Rocky Flats Environmental Technology Site (RFETS). C3.7 contains boring lithology and piezometer construction logs produced during the dam investigations on the B-Series Ponds within OU6.

Appendix C4 contains OU6 Phase I pond sediment core lithologic data. The pond sediment core samples were collected from the B-Series Ponds.

Appendix C5 contains groundwater elevation data in tabular form. C5 includes historical data from OU6 and other OU investigations.

Appendix C6 contains groundwater hydrographs for monitoring wells installed within OU6 and nearby surrounding OUs. These hydrographs include the Upper Hydrostratigraphic Unit (UHSU) and Lower Hydrostratigraphic Unit (LHSU) designations for the screened interval of each well.

APPENDIX C1
OU6 PHASE I SITE LOCATION SURVEY DATA AND ARC/INFO COVERAGE DATA

IHSS	EASTING	NORTHING	SW POND SITE	SW SITE (BASE)	SW SITE (STORM)	DRY SED SITE	POND SED SITE	STREAM SED SITE	SGS SITE	SS SITE	BORING	WELL	GROUND ELEVATION	SOIL PROFILE PIT SITE
141	2086363	750458								SS620792				
141	2086388	750457								SS620892				
141	2086413	750458								SS620992				
141	2086434	750458								SS621092				
141	2086390	750302								SS609792				
141	2086414	750302								SS610492				
141	2086440	750303								SS611192				
141	2086390	750276								SS609892				
141	2086414	750277								SS610592				
141	2086440	750278								SS611292				
141	2086391	750251								SS609992				
141	2086415	750252								SS610692				
141	2086440	750252								SS611392				
141	2086506	750429								SS612092				
141	2086524	750430								SS612892				
141	2086550	750430								SS613692				
141	2086575	750430								SS613792				
141	2086600	750430								SS614592				
141	2086507	750404								SS612192				
141	2086525	750404								SS612992				
141	2086574	750405								SS613892				
141	2086600	750405								SS614692				
141	2086527	750379								SS613092				
141	2086575	750380								SS613992				
141	2086600	750379								SS614792				
141	2086527	750353								SS613192				
141	2086574	750355								SS614092				
141	2086600	750355								SS614892				
141	2086527	750328								SS613292				
141	2086575	750329								SS614192				
141	2086600	750330								SS614992				
141	2086527	750303								SS613392				
141	2086574	750304								SS614292				
141	2086600	750304								SS615092				
141	2086528	750278								SS613492				
141	2086574	750279								SS614392				
141	2086600	750279								SS615192				

APPENDIX C1
OU6 PHASE I SITE LOCATION SURVEY DATA AND ARC/INFO COVERAGE DATA

IHSS	EASTING	NORTHING	SW POND SITE	SW SITE (BASE)	SW SITE (STORM)	DRY SED SITE	POND SED SITE	STREAM SED SITE	SGS SITE	SS SITE	BORING	WELL	GROUND ELEVATION	SOIL PROFILE PIT SITE
141	2086528	750253								SS613592				
141	2086575	750254								SS614492				
141	2086600	750253								SS615292				
141*	2086628	750290										75992	5897.10	
142	2086091	751876		SW67393	SW69393			SED68492						
142	2085005	751722		SW67193	SW69293			SED68592						
142	2088575	752632		SW68093				SED68692						
142	2089964	753270		SW67893				SED68792						
142	2090269	753441						SED68892						
142	2090219	753616						SED68992						
142	2091343	754080		SW68293				SED69292						
142	2093618	753646		SW67993				SED69392						
142	2081072	750875		SW67093	SW68593			SED69492						
142	2083514	751533		SW67493	SW68793			SED69692						
142	2088380	751055		SW67693	SW68693			SED69792						
142	2088786	750848						SED69992						
142	2086438	749759			SW68993			SED70092						
142	2086301	751610		SW68193	SW69093			SED68192						
142	2086289	750227		SW67593	SW68893			SED69892						
142.1	2086553	752020	SW60092				SED60092							
142.1	2086270	751966	SW60192				SED60192							
142.1	2086426	751947					SED60292							
142.1	2086505	752010	SW60392				SED60392							
142.1	2086292	751931	SW60492				SED60492							
142.1	2086164	751861				SED65092								
142.1	2086258	751888				SED65192								
142.1	2086587	751980	SW60292											
142.12	2093510	753694					SED64592							
142.12	2093554	753636	SW64692				SED64692							
142.12	2093513	753756					SED64792							
142.12	2093563	753684	SW64892				SED64892							
142.12	2093452	753746	SW64992				SED64992							
142.12	2093580	753726	SW64592											
142.12	2093603	753665	SW64792											
142.2	2086993	752094	SW60592				SED60592							
142.2	2087179	752087	SW60692				SED60692							
142.2	2087253	752165					SED60792							

APPENDIX C1
OU6 PHASE I SITE LOCATION SURVEY DATA AND ARC/INFO COVERAGE DATA

IHSS	EASTING	NORTHING	SW POND SITE	SW SITE (BASE)	SW SITE (STORM)	DRY SED SITE	POND SED SITE	STREAM SED SITE	SGS SITE	SS SITE	BORING	WELL	GROUND ELEVATION	SOIL PROFILE PIT SITE
142.2	2087310	752174	SW60892				SED60892							
142.2	2086964	752116					SED60992							
142.2	2086751	751994				SED65292								
142.2	2086909	752121				SED65392								
142.2	2087387	752118	SW60792											
142.2	2086686	751961	SW60992											
142.3	2088256	752395	SW61092				SED61092							
142.3	2088168	752356	SW61192				SED61192							
142.3	2087986	752260					SED61292							
142.3	2088323	752536	SW61392				SED61392							
142.3	2087818	752311					SED61492							
142.3	2087711	752246				SED65492								
142.3	2087782	752246				SED65592								
142.3	2088431	752397	SW61292											
142.3	2087700	752172	SW61492											
142.4	2089497	752865	SW61592				SED61592							
142.4	2089723	752971	SW61692				SED61692							
142.4	2089448	752924					SED61792							
142.4	2089674	753022	SW61892				SED61892							
142.4	2089294	752953	SW61992				SED61992							
142.4	2088529	752609				SED65692								
142.4	2088819	752664				SED65792								
142.4	2089678	753084	SW61792											
142.4*	2089870	753228										75092	5723.40	
142.5	2087052	750536	SW62092				SED62092							
142.5	2087119	750520	SW62192				SED62192							
142.5	2087102	750523					SED62292							
142.5	2087083	750556	SW62392				SED62392							
142.5	2086983	750455	SW62492				SED62492							
142.5	2086774	750318				SED65892								
142.5	2086652	750321				SED65992								
142.5	2087106	750556	SW62292											
142.6	2087378	750642	SW62592				SED62592							
142.6	2087281	750604	SW62692				SED62692							
142.6	2087495	750623					SED62792							
142.6	2087456	750609	SW62892				SED62892							
142.6	2087217	750618	SW62992				SED62992							

APPENDIX C1
OU6 PHASE I SITE LOCATION SURVEY DATA AND ARC/INFO COVERAGE DATA

IHSS	EASTING	NORTHING	SW POND SITE	SW SITE (BASE)	SW SITE (STORM)	DRY SED SITE	POND SED SITE	STREAM SED SITE	SGS SITE	SS SITE	BORING	WELL	GROUND ELEVATION	SOIL PROFILE PIT SITE
142.6	2087182	750653				SED66092								
142.6	2087197	750681				SED66192								
142.6	2087499	750699	SW62792											
142.7	2087848	750765	SW63092				SED63092							
142.7	2087815	750837	SW63192				SED63192							
142.7	2087796	750757	SW63292				SED63292							
142.7	2087793	750792	SW63392				SED63392							
142.7	2087698	750786	SW63492				SED63492							
142.7	2087623	750744				SED66292								
142.7	2087651	750778				SED66392								
142.8	2088169	750869					SED63592							
142.8	2088194	750929	SW63692				SED63692							
142.8	2088256	750872					SED63792							
142.8	2088233	750898	SW63892				SED63892							
142.8	2088119	750912	SW63992				SED63992							
142.8	2087932	750802				SED66492								
142.8	2088030	750871				SED66592								
142.8	2088148	750906	SW63592											
142.8	2088251	750960	SW63792											
142.9	2089080	751734	SW64092				SED64092							
142.9	2089540	751924	SW64192				SED64192							
142.9	2089466	752081	SW64292				SED64292							
142.9	2089521	751994	SW64392				SED64392							
142.9	2088356	750990				SED66692								
142.9	2088612	751309				SED66792								
142.9*	2089809	752305										75292	5754.90	
142.9	2088990	751706	SW64492				SED64492							
143*	2083494	751231								SS600092	60092		5941.90	
143*	2083520	751228								SS600192	60192		5942.20	
143*	2083496	751241								SS600292	60292		5942.10	
143*	2083508	751237								SS600392	60392		5941.90	
143*	2083496	751246									60492		5942.00	
143*	2083307	750924									60692		5941.40	
143*	2083508	751246										77492	5942.00	
156.2*	2086336	750971								SS602892	63592		5952.80	
156.2*	2086252	751032								SS602992	63692		5937.00	
156.2*	2086447	751004								SS606792	73592		5954.60	

APPENDIX C1
OU6 PHASE I SITE LOCATION SURVEY DATA AND ARC/INFO COVERAGE DATA

IHSS	EASTING	NORTHING	SW POND SITE	SW SITE (BASE)	SW SITE (STORM)	DRY SED SITE	POND SED SITE	STREAM SED SITE	SGS SITE	SS SITE	BORING	WELL	GROUND ELEVATION	SOIL PROFILE PIT SITE
156.2*	2086514	750889								SS606892	73692		5953.50	
156.2*	2086591	750761								SS606992	73792		5953.30	
156.2*	2086588	751059								SS607092	73892		5952.80	
156.2*	2086658	750935								SS607192	73992		5955.50	
156.2*	2086734	750803								SS607292	74092		5954.40	
156.2*	2086671	751026								SS607392	74192		5953.20	
156.2*	2086716	751116								SS607492	74292		5954.10	
156.2*	2086798	750991								SS607592	74392		5953.10	
156.2*	2086872	750860								SS607692	74492		5949.40	
156.2*	2086832	751088								SS607792	74592		5954.50	
156.2*	2086910	750960								SS607892	74692		5951.10	
156.2*	2086861	751175								SS607992	74792		5952.00	
156.2*	2086925	751062								SS608092	74892		5951.30	
156.2*	2086952	751152								SS608192	74992		5951.80	
156.2*	2087016	751049								SS608292	77592		5949.60	
156.2*	2087055	751148								SS608392	77692		5952.10	
156.2*	2087076	751255								SS608492	77792		5947.50	
156.2*	2087132	751155								SS608592	77892		5950.30	
156.2*	2087177	751233								SS608692	77992		5946.00	
156.2*	2086558	750915										75892	5956.20	
165*	2085420	750421							70192		72292		5963.50	
165*	2085651	750432							71192	SS606392	72392		5959.40	
165*	2085770	750475							72192		72492		5958.20	
165*	2085417	750523							70292	SS603092	72592		5963.30	
165*	2085541	750523							70992		72692		5961.50	
165*	2085640	750520							71292	SS606492	72792		5959.90	
165*	2085772	750540							72092		72892		5959.30	
165*	2085530	750625							70892	SS603292	72992		5961.50	
165*	2085508	750720							70792	SS603192	73092		5960.10	
165*	2085764	750733							71892	SS606692	73292		5957.40	
165*	2085856	750738							63992		73392		5954.90	
165*	2085758	750840							71792		73492		5954.40	
165*	2086169	750699							69492	SS606192				
165*	2085987	750608							69992	SS606292				
165*	2085645	750838							71592	SS606592				
165*	2085531	750418							71092	SS620092				
165*	2086084	750685							69592	SS620192				

APPENDIX C1
OU6 PHASE I SITE LOCATION SURVEY DATA AND ARC/INFO COVERAGE DATA

IHSS	EASTING	NORTHING	SW POND SITE	SW SITE (BASE)	SW SITE (STORM)	DRY SED SITE	POND SED SITE	STREAM SED SITE	SGS SITE	SS SITE	BORING	WELL	GROUND ELEVATION	SOIL PROFILE PIT SITE
165*	2085987	750538							70092	SS620292				
165*	2085416	750943							70692	SS620392				
165*	2085766	750627							71992	SS620492				
165*	2085864	750530							63792	SS620592				
165*	2085415	750839							70592					
165*	2085417	750620							70392					
165*	2085419	750721							70492					
165*	2085642	750621							71392					
165*	2085642	750934							71692					
165*	2085681	750769							71492			76292	5957.00	
165*	2085858	750631							63892					
165*	2085989	750684							69892					
165*	2085990	750766							69792					
165*	2086089	750613							69692					
165*	2086122	750660										76192	5960.00	
165*	2086098	750658												TR60092
166.1*	2083922	752425									66892		5971.20	
166.1*	2083945	752429									66992		5971.50	
166.1*	2083971	752434									67092		5968.90	
166.1*	2083998	752439									67192		5967.70	
166.1*	2084020	752443									67292		5967.60	
166.1*	2084046	752448									67392		5968.00	
166.1*	2084068	752451									67492		5968.10	
166.1*	2083903	752403									68292		5971.00	
166.2*	2083853	752201									67592		5972.30	
166.2*	2083876	752207									67692		5971.30	
166.2*	2083904	752212									67792		5970.40	
166.2*	2083928	752216									67892		5970.40	
166.2*	2083953	752220									67992		5970.40	
166.2*	2083979	752225									68092		5969.80	
166.2*	2084001	752228									68192		5971.40	
166.2*	2084299	752243										77392	5962.50	
166.3*	2083872	752302									68392		5972.80	
166.3*	2083898	752308									68492		5971.50	
166.3*	2083924	752315									68592		5970.60	
166.3*	2083946	752319									68692		5970.40	
166.3*	2083973	752324									68792		5970.80	

APPENDIX C1
OU6 PHASE I SITE LOCATION SURVEY DATA AND ARC/INFO COVERAGE DATA

IHSS	EASTING	NORTHING	SW POND SITE	SW SITE (BASE)	SW SITE (STORM)	DRY SED SITE	POND SED SITE	STREAM SED SITE	SGS SITE	SS SITE	BORING	WELL	GROUND ELEVATION	SOIL PROFILE PIT SITE
166.3*	2083999	752327									68892		5970.40	
166.3*	2084328	752532									68992		5964.90	
166.3*	2084352	752533									69092		5964.40	
166.3*	2084380	752536									69192		5963.60	
166.3*	2084402	752537									69292		5962.80	
166.3*	2084427	752540									69392		5962.40	
166.3*	2084500	752561										76992	5955.00	
167.1*	2083890	753838								SS600492	61192		5965.90	
167.1*	2083779	753780								SS600592	61292		5964.40	
167.1*	2083892	753784								SS600692	61392		5961.80	
167.1*	2083996	753789								SS600792	61492		5958.90	
167.1*	2083891	753681								SS600992	61692		5966.50	
167.1*	2083996	753678								SS601092	61792		5961.10	
167.1*	2084116	753666								SS601192	61892		5949.90	
167.1*	2084192	753653								SS601292	61992		5944.30	
167.1*	2084280	753636								SS601392	62092		5926.70	
167.1*	2083782	753577								SS601492	62192		5968.00	
167.1*	2083593	753691								SS601592	62292		5970.20	
167.1*	2083671	753690								SS601692	62392		5968.80	
167.1*	2083781	753686								SS601792	62492		5967.80	
167.1*	2083892	753574								SS601892	62592		5967.10	
167.1*	2083997	753568								SS601992	62692		5963.90	
167.1	2084103	753564								SS602092	62792		5953.20	
167.1*	2084201	753565								SS602192	62892		5940.40	
167.1*	2083890	753519								SS602292	62992		5967.00	
167.1*	2083673	753626								SS602392	63092		5969.70	
167.1*	2083776	753626								SS602492	63192		5968.30	
167.1*	2084098	753519								SS602592	63292		5951.20	
167.1*	2083998	753464								SS602692	63392		5960.70	
167.1	2084103	753777								SS600892				
167.1*	2084381	753646										77192	5913.90	
167.2*	2084079	752800								SS604092	64792		5930.70	
167.2*	2084181	752795								SS604192	64892		5930.40	
167.2*	2084281	752803								SS604292	64992		5932.30	
167.2*	2084133	752780								SS604392	65092		5934.00	
167.2*	2084231	752776								SS604492	65192		5935.80	
167.2*	2084082	752741								SS604592	65292		5935.90	

APPENDIX C1
OU6 PHASE I SITE LOCATION SURVEY DATA AND ARC/INFO COVERAGE DATA

IHSS	EASTING	NORTHING	SW POND SITE	SW SITE (BASE)	SW SITE (STORM)	DRY SED SITE	POND SED SITE	STREAM SED SITE	SGS SITE	SS SITE	BORING	WELL	GROUND ELEVATION	SOIL PROFILE PIT SITE
167.2*	2084181	752747								SS604692	65392		5938.60	
167.2*	2084281	752754								SS604792	65492		5937.70	
167.2*	2084131	752728								SS604892	65592		5938.60	
167.2*	2084234	752727								SS604992	65692		5942.20	
167.2*	2084082	752695								SS605092	65792		5937.80	
167.2*	2084182	752701								SS605192	65892		5941.90	
167.2*	2084282	752705								SS605292	65992		5944.80	
167.3*	2084470	752482								SS605392	66092		5960.20	
167.3*	2084618	752455								SS605492	66192		5958.90	
167.3*	2084538	752409								SS605592	66292		5961.20	
167.3*	2084671	752434								SS605692	66392		5958.50	
167.3*	2084467	752364								SS605792	66492		5963.20	
167.3*	2084603	752366								SS605892	66592		5961.60	
167.3*	2084536	752323								SS605992	66692		5962.90	
167.3*	2084674	752333								SS606092	66792		5961.20	
167.3*	2084618	752546										76792	5943.50	
167.3*	2084570	752377												TR60192
216.1*	2087565	751384								SS608792	78092		5924.80	
216.1*	2087768	751238								SS608892	78192		5919.90	
216.1*	2087756	751444								SS608992	78292		5917.60	
216.1*	2087573	751187								SS609092	78392		5923.20	
216.1*	2087970	751472								SS609192	78492		5912.30	
216.1*	2087963	751287								SS609292	78592		5911.30	
216.1*	2087681	751432												TR60292

Notes:

IHSS - Individual Hazardous Substance Site
SW - Surface Water
SED - Sediment
SGS - Soil Gas Survey
SS - Surface Soil

* Surface soil, borings, wells, and soil profile locations have state plane survey coordinates.
All other site locations were approximately located using ARC/Info.

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 15 5	GROUND ELEVATION (FT) 5897 10	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	750290	AREA IHSS 141	CASING DIAMETER (IN) 2 0	GEOLOGIST J P GIROD	75992
EAST	2086628	LOCATOR NUMBER N10	BOREHOLE DIAMETER (IN) 10 0	DATE DRILLED 01/11/93	

REMARKS SEVERE COLD COULD HAVE PREVENTED GROUND WATER FLOW

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH60566C				5897	0			SC	0 0-0 2 ft Clayey Sand as described below
										0 2-0 4 ft VOA sample obtained from this interval
										0 4-2 1 ft No recovery for this interval
				0 40 /2 10	5896	1			SC	2 1-3 1 ft Clayey Sand with some gravel and trace silt, brown-dark brown (10YR4/3), grayish brown (10YR5/2), gravel maximum size 0 1', average size 0 02', angular, consisting of quartzite, sand is fine- to medium-grained (with trace amount of coarse sand), poorly graded, angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate to high plasticity, abundant grass and grass roots at 0 0-0 2 ft (top soil), CaCO3 in voids, local iron oxide staining, slightly moist 22 3% gravel, 33 9% sand, 4 4% silt, 39 4% clay
					5895	2				
				1 00 /2 00	5894	3				
										3 1-4 1 ft No recovery for this interval
					5893	4				
									SC	4 1-5 8 ft Clayey Sand as described above
				2 10 /2 10	5892	5				
	BH60567C									5 8-6 0 ft VOA sample obtained from this interval
	BH60572C				5891	6				6 0-6 2 ft VOA sample obtained from this interval
									SC	6 2-6 7 ft Clayey Sand as described above
										6 7-8 2 ft No recovery for this interval
				0 50 /2 00	5890	7				
					5889	8				
									SC	8 2-8 9 ft Clayey Sand as described above
										8 9-9 1 ft VOA sample obtained from this interval
	BH60568C			0 90 /1 80	5888	9				9 1-10 0 ft No recovery for this interval Top of bedrock at 10 0 ft Determined by rig geologist and driller, large cobble caught by auger pushed through section to 12 0 ft, 0 2' gravel from broken up cobble at 12 0 ft
						10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 15 5	GROUND ELEVATION (FT)	5897 10	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	750290	AREA IHSS 141	CASING DIAMETER (IN)	2 0	GEOLOGIST	J.P. GIROD	75992
EAST	2086628	LOCATOR NUMBER N10	BOREHOLE DIAMETER (IN)	10 0	DATE DRILLED	01/11/93	

REMARKS SEVERE COLD COULD HAVE PREVENTED GROUND WATER FLOW

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5887	10				10 0-12 0 ft No recovery for this interval
				0 00 /2 00	5886	11				
					5885	12			SANDY CLAYSTONE	12 0-14 0 ft Sandy Claystone with some silt, grayish brown (2 5Y5/2), very dark grayish brown (2 5Y3/2), sand is fine-grained, well sorted, sub-angular to sub-rounded, consisting of quartz, less than 5% porosity, moderately to slightly friable, local iron oxide staining, slightly moist 22 5% sand, 11 6% silt, 65 9% clay
				2 20 /2 20	5884	13				
	BH60569WC				5883	14				14 0-14 2 ft VOA sample obtained from this interval
				1 30 /1 30	5882	15			SANDY CLAYSTONE	14 2-15 5 ft Sandy Claystone as described above
					5881	16				Total depth at 15 5 ft
					5880	17				
					5879	18				
					5878	19				
						20				

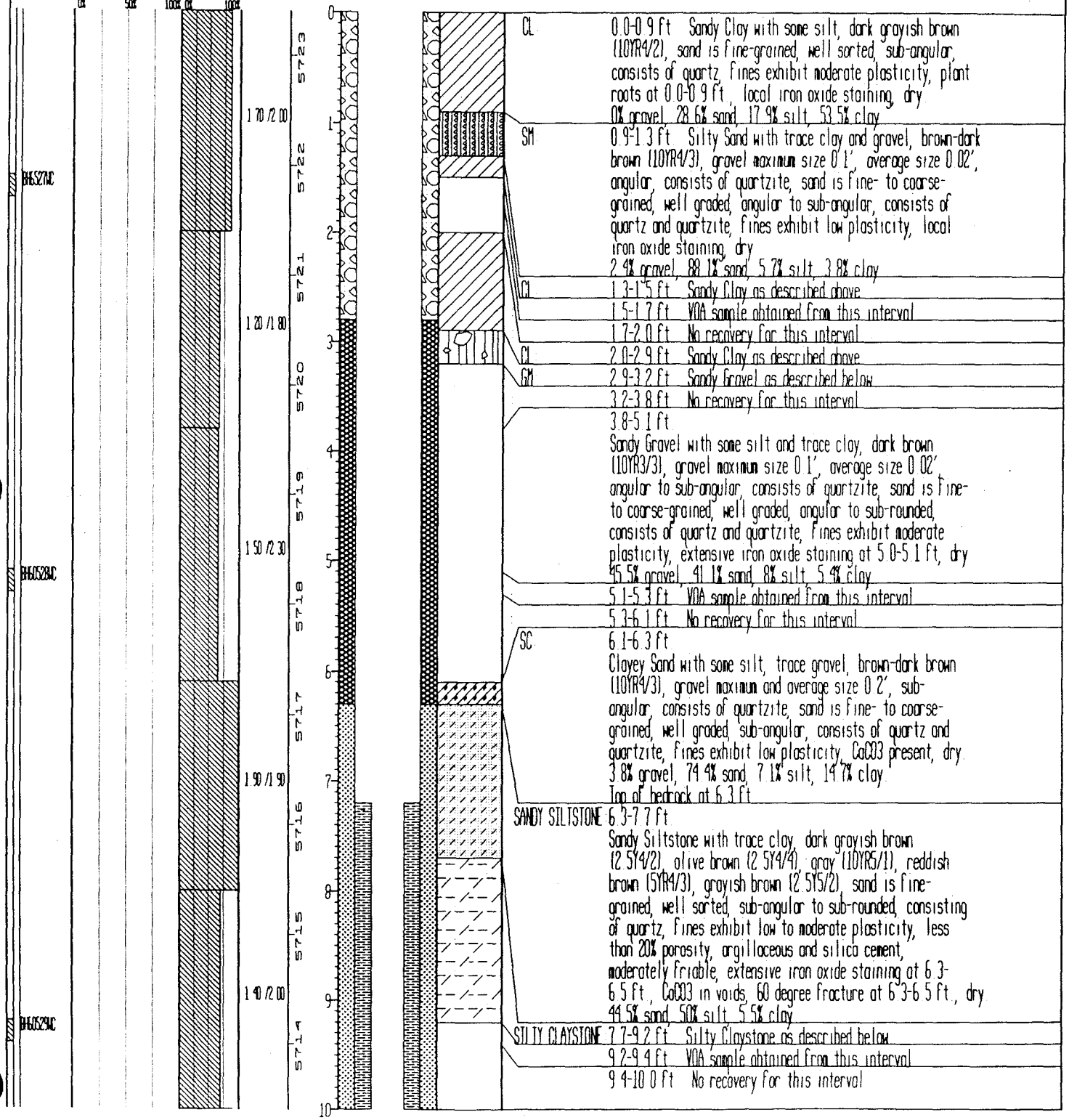
NOTICE

All drawings located at the end of the document.

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 16.7	GROUND ELEVATION (FT)	5723.40	PROJECT NUMBER	006 RFI/RI	LOG OF BORING NUMBER
NORTH	753228	AREA IHSS 142.4	CASING DIAMETER (IN)	2.0	GEOLOGIST	J.P. GIROD	75092
EAST	2089870	LOCATOR NUMBER 013	BOREHOLE DIAMETER (IN)	10.0	DATE DRILLED	01/06/93	

REMARKS: BOTTOM OF WELL CASING WAS SET AT TOTAL DEPTH

CHEMICAL SAMPLE DEPTH | GRADATIONAL SAMPLE DEPTH | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION



CL 0.0-0.9 ft Sandy Clay with some silt, dark grayish brown (10YR4/2), sand is fine-grained, well sorted, sub-angular, consists of quartz, fines exhibit moderate plasticity, plant roots at 0.0-0.9 ft., local iron oxide staining, dry
0% gravel, 28.6% sand, 17.9% silt, 53.5% clay

SM 0.9-1.3 ft Silty Sand with trace clay and gravel, brown-dark brown (10YR4/3), gravel maximum size 0.1', average size 0.02', angular, consists of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-angular, consists of quartz and quartzite, fines exhibit low plasticity, local iron oxide staining, dry
2.4% gravel, 88.1% sand, 5.7% silt, 3.8% clay

CL 1.3-1.5 ft Sandy Clay as described above

1.5-1.7 ft VOA sample obtained from this interval

1.7-2.0 ft No recovery for this interval

CL 2.0-2.9 ft Sandy Clay as described above

GM 2.9-3.2 ft Sandy Gravel as described below

3.2-3.8 ft No recovery for this interval

3.8-5.1 ft
Sandy Gravel with some silt and trace clay, dark brown (10YR3/3), gravel maximum size 0.1', average size 0.02', angular to sub-angular, consists of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consists of quartz and quartzite, fines exhibit moderate plasticity, extensive iron oxide staining at 5.0-5.1 ft, dry
45.5% gravel, 41.1% sand, 8% silt, 5.4% clay

5.1-5.3 ft VOA sample obtained from this interval

5.3-6.1 ft No recovery for this interval

SC 6.1-6.3 ft
Clayey Sand with some silt, trace gravel, brown-dark brown (10YR4/3), gravel maximum and average size 0.2', sub-angular, consists of quartzite, sand is fine- to coarse-grained, well graded, sub-angular, consists of quartz and quartzite, fines exhibit low plasticity, CaCO3 present, dry
3.8% gravel, 74.4% sand, 7.1% silt, 14.7% clay
Top of bedrock at 6.3 ft

SANDY SILTSTONE 6.3-7.7 ft
Sandy Siltstone with trace clay, dark grayish brown (2.5Y4/2), olive brown (2.5Y4/4), gray (10YR5/1), reddish brown (5YR4/3), grayish brown (2.5Y5/2), sand is fine-grained, well sorted, sub-angular to sub-rounded, consisting of quartz, fines exhibit low to moderate plasticity, less than 20% porosity, argillaceous and silica cement, moderately friable, extensive iron oxide staining at 6.3-6.5 ft., CaCO3 in voids, 60 degree fracture at 6.3-6.5 ft., dry
44.5% sand, 50% silt, 5.5% clay

SILTY CLAYSTONE 7.7-9.2 ft Silty Claystone as described below

9.2-9.4 ft VOA sample obtained from this interval

9.4-10.0 ft No recovery for this interval

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 16 7	GROUND ELEVATION (FT)	5723 40	PROJECT NUMBER	006 RFI/RI	LOG OF BORING NUMBER
NORTH	753228	AREA THSS 142 4	CASING DIAMETER (IN)	2 0	GEOLOGIST	J P GIROD	75092
EAST	2089870	LOCATOR NUMBER 013	BOREHOLE DIAMETER (IN)	10 0	DATE DRILLED	01/06/93	

REMARKS BOTTOM OF WELL CASING WAS SET AT TOTAL DEPTH

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				1 80 /2 00	5713	10			SILTY CLAYSTONE	10 0-11 8 ft Silty Claystone with some sand, dark grayish brown (2 5Y4/2) olive brown (2 5Y4/4), gray (10YR5/1), reddish brown (5YR4/3), grayish brown (2 5Y5/2), sand is fine-grained, well sorted, sub-angular to sub-rounded, consisting of quartz, fines exhibit moderate plasticity, less than 5% porosity, slightly friable, local iron oxide staining, horizontal bedding, iron oxide and manganese oxide along bedding planes, carbonaceous material present, dry, section becomes more siltier with depth 22 7% sand, 23 2% silt, 54 1% clay
					5712	11				
					5711	12				11 8-12 0 ft No recovery for this interval
				1 20 /1 80					SILTY CLAYSTONE	12 0-13 0 ft Silty Claystone as described above
	BH6030AC				5710	13				13 0-13 2 ft VOA sample obtained from this interval
										13 2-13 8 ft No recovery for this interval
					5709	14				13 8-16 7 ft No recovery for this interval Boring sampled to 13 8 ft but was reamed to 16 7 ft
				0 00 /2 90	5708	15				
					5707	16				
					5706	17				Total depth at 16 7 ft
					5705	18				
					5704	19				
						20				

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 13.6	GROUND ELEVATION (FT)	5754.90	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	752305	AREA: IHSS 142.9	CASING DIAMETER (IN)	2.0	GEOLOGIST	BRIAN J. RUBY	75292
EAST	2089809	LOCATOR NUMBER: K16	BOREHOLE DIAMETER (IN)	10.0	DATE DRILLED	11/20/92	

REMARKS: WELL SET 12/03/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%			0			CL:	0.0-1.0 ft. Sandy Clay as described below.
	BH6012QC			1.40/2.00	5754	1				1.0-1.2 ft. VOA sample obtained from this interval.
									CL:	1.2-1.4 ft. Sandy Clay as described below.
										1.4-2.0 ft. No recovery for this interval.
					5753	2			CL:	2.0-3.4 ft. Sandy Clay with some silt and trace clay, brown to very dark grayish brown (10YR4/3-3/2), gravel is rare, angular to sub-angular quartz and quartzite clasts to 0.17 ft., sand is poorly graded, fine-grained, angular to sub-rounded, fines show medium plasticity, damp. 7% gravel, 29% sand, 15% silt, 44% clay
				1.40/2.00	5752	3				
										3.4-4.0 ft. No recovery for this interval.
					5751	4			GC:	4.0-5.1 ft. Clayey Sand as described below.
				2.00/2.00	5750	5				
	BH6012RQC									5.1-5.3 ft. VOA sample obtained from this interval.
									GC:	5.3-7.6 ft. Clayey Sand with abundant gravel, dark brown (10YR3/3), gravel is well graded, sub-angular to sub-rounded, sand is well graded, fine- to coarse-grained, with angular to sub-angular quartzite and quartz making up coarse fraction, finer material is sub-angular to sub-rounded, clear quartz clasts with 5% dark mafics, fines show medium plasticity, water at 6.4 ft., saturated. 45% gravel, 37% sand, 4% silt, 14% clay. Top of bedrock at 7.6 ft.
					5749	6	11/20/92			
				2.00/2.00	5748	7				
	BH6012SQC								CLAYSTONE	7.6-7.8 ft. Claystone as described below.
										7.8-8.0 ft. VOA sample obtained from this interval.
					5747	8			CLAYSTONE	8.0-13.6 ft. Claystone, grayish brown (10YR5/2), very dense, moist to damp clay, with iron oxide and manganese oxide on fractures, trace fine sand and silt, dark gray layer (10YR4/1) at 12.3-13.1 ft., shows relatively heavy concentration of carbonized leaves and twigs, also trace caliche development beginning on fractures in this zone, local pods of heavily oxidized clay in fresh rock, medium plasticity. 2% sand, 2% silt, 96% clay
				2.00/2.00	5746	9				
					5745	10				

STATE PLANE COORDINATE	TOTAL DEPTH (FT): 13.6	GROUND ELEVATION (FT)	5754.90	PROJECT NUMBER:	OU6 RFI/RI
NORTH 752305	AREA: IHSS 142.9	CASING DIAMETER (IN)	2.0	GEOLOGIST:	BRIAN J. RUBY
EAST 2089809	LOCATOR NUMBER: K16	BOREHOLE DIAMETER (IN)	10.0	DATE DRILLED:	11/20/92
REMARKS: WELL SET 12/03/92					

LOG OF BORING NUMBER 75292

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50%)	PERCENT RECOVERY (100% 0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				2.20 /2.20	5744	11				
					5743	12				
				1.20 /1.40	5742	13				
					5741	14				Total depth at 13.6 ft.
					5740	15				
					5739	16				
					5738	17				
					5737	18				
					5736	19				
					5735	20				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 10 2	GROUND ELEVATION (FT)	5941 90	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	751231	AREA IHSS 143	CASING DIAMETER (IN)		GEOLOGIST	MICHAEL MAY	60092
EAST	2083494	LOCATOR NUMBER K11	BOREHOLE DIAMETER (IN)	6 5	DATE DRILLED	02/04/93	
REMARKS	SURFACE SEALED 02/09/93						

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
						0			CL	0 0-1 2 ft Sandy Clay as described below
				1.50 /1.90	5941	1				
	BH60768C									1 2-1 5 ft VOA sample obtained from this interval
										1 5-1 9 ft No recovery for this interval
					5940	2			CL	1 9-5 3 ft Sandy Clay with some gravel and silt, light olive brown (2 5Y5/4), olive brown (2 5Y4/4), dark brown (10YR3/3), reddish yellow (7 5Y6/8), gravel maximum size 0 2', average size 0 15', angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate plasticity, CaCO3 in voids, mottled texture appears to be reworked fill material, extensive iron oxide staining at 5.0-5 3 ft., iron oxide staining throughout section, asphalt at 3 5-4 0 ft., moist to very moist at 0 0-4 0 ft., moist at 4 0-6 6 ft 20% gravel, 21 6% sand, 8 8% silt 49 6% clay
				2 10 /2 10	5939	3				
	BH60772C									
					5938	4				
				1 60 /2 10	5937	5				
	BH60769C									5 3-5 6 ft VOA sample obtained from this interval
										5 6-6 1 ft No recovery for this interval
					5936	6			CL	6 1-6 6 ft Sandy Clay as described above Top of Rocky Flats alluvium at 6 5 ft 0 2' thick layer of fine to coarse sand, black (10YR2/1)
				1 50 /1 90	5935	7			GC	6 6-7 6 ft Clayey Gravel with some sand and silt, white (10YR8/1), reddish yellow (7 5YR6/8), brown (10YR5/3), gravel maximum size 0 2', average size 0 15', angular to sub-angular, consisting of quartzite, sand is medium- to fine-grained (with trace coarse sand), poorly graded, angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate plasticity, iron oxide staining, gravel coated with CaCO3, mottled texture, appears to be native Rocky Flats alluvium, moist 40% gravel, 13 9% sand, 9 2% silt, 36 9% clay
					5934	8				
	BH60765C									
	BH60773C			1 20 /2 20	5933	9				7 6-8 0 ft No recovery for this interval
									GC	8 0-8 0 ft Clayey Gravel as described above
										8 9-9 2 ft VOA sample obtained from this interval
					5932	10				9 2-10 2 ft No recovery for this interval

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 10.2	GROUND ELEVATION (FT) 5941.90	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	751231	AREA IHSS 143	CASING DIAMETER (IN)	GEOLOGIST MICHAEL MAY	60092
EAST	2083494	LOCATOR NUMBER K11	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 02/04/93	

REMARKS SURFACE SEALED 02/09/93

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH

SAMPLE NUMBER

SAMPLE GRADN SIZE: 0% 50% 100%

PERCENT RECOVERY: 0% 100%

RECOVERY/INTERVAL

DATUM(FT)	DEPTH(FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	10				Total depth at 10.2 ft
5931	11				
5930	12				
5929	13				
5928	14				
5927	15				
5926	16				
5925	17				
5924	18				
5923	19				
5922	20				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 11.9	GROUND ELEVATION (FT)	5942.20	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	751228	AREA IHSS 143	CASING DIAMETER (IN)		GEOLOGIST	MICHAEL MAY	60192
EAST	2083520	LOCATOR NUMBER K11	BOREHOLE DIAMETER (IN)	6.5	DATE DRILLED	02/04/93	

REMARKS: SURFACE SEALED 02/09/93

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH60778AC			0.70/2.00	5942	0			SC	0.0-0.4 ft Clayey Sand as described below
										0.4-0.7 ft VOA sample obtained from this interval
					5941	1				0.7-2.0 ft No recovery for this interval
					5940	2			SC	2.0-5.2 ft Fill (?), Clayey Sand with some gravel and silt, brown (10YR5/3), brown-dark brown (10YR4/3), dark reddish brown (2.5YR2.5/4), gravel maximum and average size 0.1', angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz, fines exhibit moderate plasticity, iron oxide staining, CaCO3 in voids at 3.4-4.0 ft., mottled texture, appears to be fill material, moist to very moist. 15% gravel, 44.5% sand, 8.1% silt, 32.4% clay
				2.00/2.00	5939	3				
					5938	4				
				1.50/2.00	5937	5				
	BH60779AC									5.2-5.5 ft VOA sample obtained from this interval
										5.5-6.0 ft No recovery for this interval
					5936	6			SC	6.0-6.6 ft Clayey Sand as described above ~~Top of bedrock~~ at 6.6 ft Top of Qrf!
				0.60/1.80						6.6-7.8 ft No recovery for this interval
					5935	7			SC	7.8-8.2 ft Clayey Sand with some gravel, trace silt, rig geologist determined bottom fill contained fine to coarse silty sand 0.2' thick, black (10YR2/1), brown-dark brown (10YR3/3), yellowish brown (10YR5/8), light brownish gray (10YR6/2), dusky red (2.5Y3/2), gravel maximum and average size 0.1', angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate plasticity, iron oxide staining, appears to be reworked bedrock at 10.2-10.5 ft., moist to very moist 10% gravel, 43.2% sand, 4.7% silt, 42.1% clay
	BH60784AC				5934	8				
	BH60780AC									8.2-8.5 ft VOA sample obtained from this interval
										8.5-8.8 ft VOA sample obtained from this interval
	BH60777AC			1.00/2.40	5933	9				8.8-10.2 ft No recovery for this interval
						10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 11 9	GROUND ELEVATION (FT)	5942 20	PROJECT NUMBER	006 RFI/RI	LOG OF BORING NUMBER
NORTH	751228	AREA IHSS 143	CASING DIAMETER (IN)		GEOLOGIST	MICHAEL MAY	60192
EAST	2083520	LOCATOR NUMBER K11	BOREHOLE DIAMETER (IN)	6 5	DATE DRILLED	02/04/93	

REMARKS SURFACE SEALED 02/09/93

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				1 50 /1 70	5932	10			SC	10 2-11 7 ft Clayey Sand as described above
					5931	11				
										11 7-11 9 ft No recovery for this interval
					5930	12				Total depth at 11 9 ft
					5929	13				
					5928	14				
					5927	15				
					5926	16				
					5925	17				
					5924	18				
					5923	19				
						20				

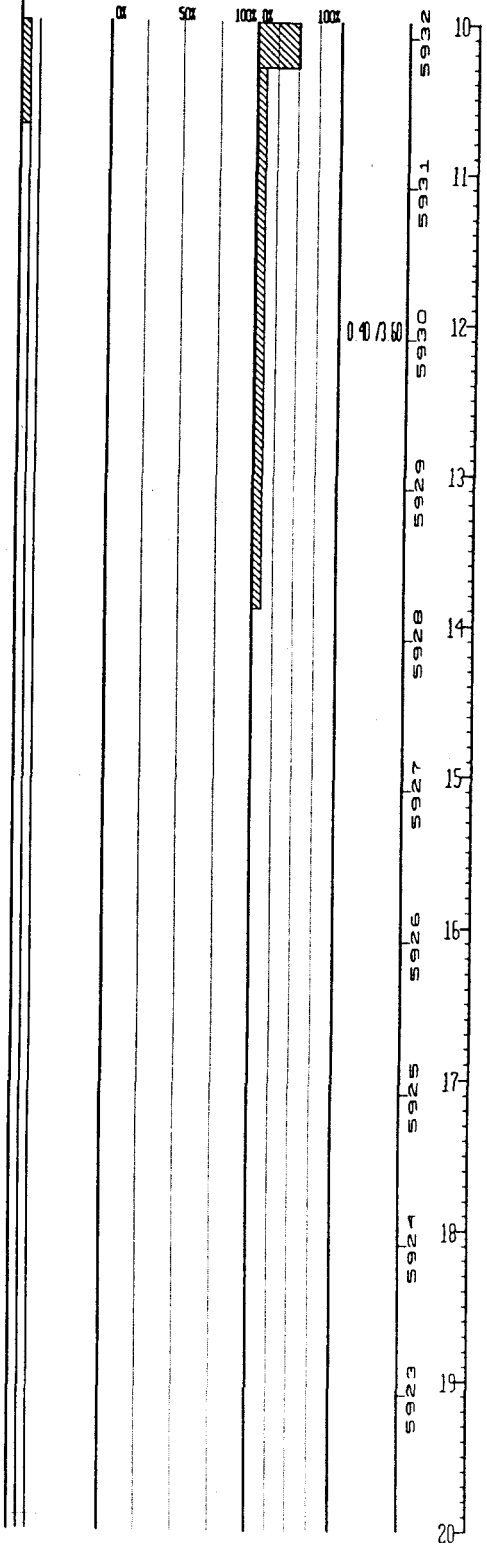
STATE PLANE COORDINATE	TOTAL DEPTH (FT) 13.9	GROUND ELEVATION (FT) 5942.10	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH 751241	AREA IHSS 143	CASING DIAMETER (IN)	GEOLOGIST	MICHAEL MAY	60292
EAST 2083496	LOCATOR NUMBER K11	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED	02/03/93	
REMARKS SURFACE SEALED 02/09/93					

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50%)	PERCENT RECOVERY (100% 0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				1.60/1.60	5942	0			SC	0.0-2.0 ft. Clayey Sand with some gravel, trace silt, brown-dark brown (10YR4/3), dark brown (10YR3/3), gravel maximum and average size 0.2", angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular, consisting of quartz and quartzite, fines exhibit moderate plasticity, iron oxide staining, gravel coated with CaCO3, mottled texture, appears to be fill material, moist to very moist. 20% gravel, 45.4% sand, 5.2% silt, 29.4% clay
					5941	1				
					5940	2			CL	2.0-2.6 ft. Sandy Clay with some silt, brown-dark brown (10YR4/3), dark yellowish brown (10YR4/4), dark brown (10YR3/3), yellowish brown (10YR5/8), sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz, fines moderate to high plasticity, iron oxide staining, mottled texture, moist to very moist. 0% gravel, 35% sand, 6.5% silt, 58.5% clay
				1.60/2.10	5939	3				
	BH6076GC								SC	2.6-2.9 ft. Clayey Sand as described above.
					5938	4				2.9-3.2 ft. VOA sample obtained from this interval.
										3.2-4.0 ft. No recovery for this interval.
				0.40/2.00	5937	5			SC	4.0-4.4 ft. Clayey Sand as described above. Dusky red (2.5YR3/2), dark brown (10YR3/3), yellowish brown (10YR5/4), iron oxide staining, CaCO3 at 6.2-6.4 ft., mottled texture, appears to be fill material, moist to very moist. 20% gravel, 45.4% sand, 5.2% silt, 29.4% clay
					5936	6				4.4-6.0 ft. No recovery for this interval
	BH6077GC								SC	6.0-6.4 ft. Clayey Sand as described above.
	BH6078GC									6.4-6.7 ft. VOA sample obtained from this interval.
				1.00/2.00	5935	7				6.7-7.0 ft. VOA sample obtained from this interval.
										7.0-8.0 ft. No recovery for this interval.
					5934	8			SC	8.0-9.2 ft. Clayey Sand as described above. Top of alluvium, determined by rig geologist. 0.2' thick layer of fine- to coarse-grained sand, black (10YR2/1), brown-dark brown (10YR4/3), yellow (10YR7/6). Cuttings placed in core box, entire core from 6.5-9.2 ft. used for composite sample, moist to very moist. 20% gravel, 45.4% sand, 5.2% silt, 29.4% clay
	BH6079GC BH6077GC			1.20/2.30	5933	9				9.2-10.3 ft. No recovery for this interval
						10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 13.9	GROUND ELEVATION (FT)	5942.10	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	751241	AREA THSS 143	CASING DIAMETER (IN)		GEOLOGIST	MICHAEL MAY	60292
EAST	2083496	LOCATOR NUMBER K11	BOREHOLE DIAMETER (IN)	6.5	DATE DRILLED	02/03/93	

REMARKS: SURFACE SEALED 02/09/93

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50%)
PERCENT RECOVERY (100% 0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION

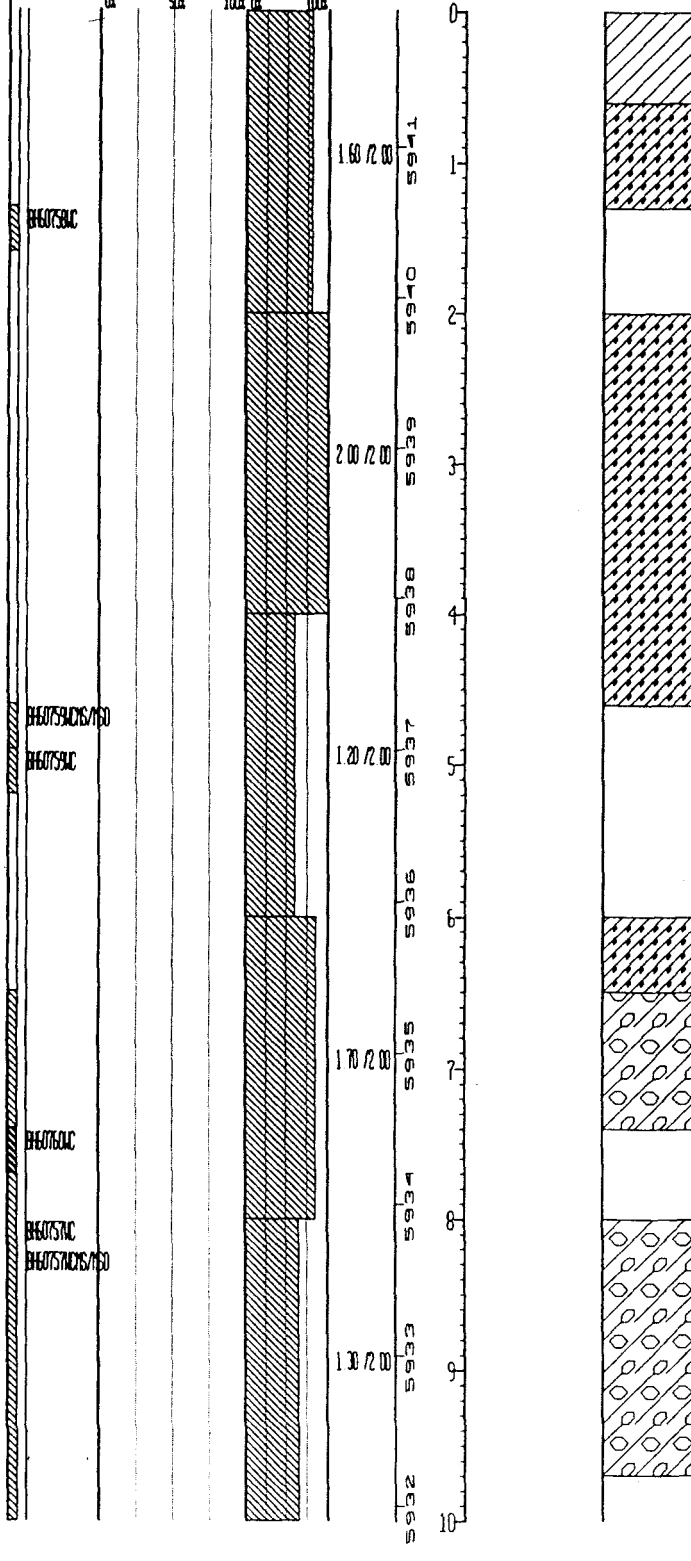


UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
SC	10.3-10.7 ft Clayey Sand as described above.
	10.7-13.9 ft No recovery for this interval.
	Total depth at 13.9 ft.

STATE PLANE COORDINATE:		TOTAL DEPTH (FT) 10.0		GROUND ELEVATION (FT):	5941.90	PROJECT NUMBER:	OU6 RFI/RI
NORTH:	751237	AREA: IHSS 143		CASING DIAMETER (IN):		GEOLOGIST:	MICHAEL MAY
EAST:	2083508	LOCATOR NUMBER:	K11	BOREHOLE DIAMETER (IN):	6.5	DATE DRILLED:	02/03/93
REMARKS:	SURFACE SEALED 02/09/93						

LOG OF BORING NUMBER: 60392

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION



Unified Soils Classification or Rock Type	Description
CL	0.0-0.6 ft. Sandy Clay with some silt, trace gravel, brown-dark brown (10YR4/3), gravel maximum and average size 0.15', angular, consisting of quartzite, sand is coarse-grained with trace amounts of fine- to medium-grained sand, poorly graded, angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate to high plasticity, moist to very moist. 5% gravel, 17.2% sand, 7.8% silt, 70% clay
SC	0.6-1.3 ft. Clayey Sand as described below
	1.3-1.6 ft. VOA sample obtained from this interval
	1.6-2.0 ft. No recovery for this interval
SC	2.0-4.6 ft. Clayey Sand with some gravel and silt, brown-dark brown (10YR4/3), yellowish brown (10YR5/4), pink (7.5YR7/4), black (10YR2/1), gravel maximum size 0.1', average size 0.02', angular to sub-angular, consisting of quartzite and quartz, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate plasticity, silty sand layer (pink) at 1.5-1.8 ft., asphalt at 3.3-3.6 ft., mottled texture, iron oxide staining, CaCO3 present, appears to be fill material, moist to very moist at 2.0-4.0 ft., moist at 4.0-6.5 ft. 10% gravel, 42.7% sand, 9.5% silt, 37.8% clay
	4.6-4.9 ft. VOA sample obtained from this interval
	4.9-5.2 ft. VOA sample obtained from this interval
	5.2-6.0 ft. No recovery for this interval
SC	6.0-6.5 ft. Clayey Sand as described above. Top of Rocky Flats alluvium at 6.5 ft.
GC	6.5-7.4 ft. Top Qrf @ 6.5' Sandy Gravel with some clay and trace silt, brown-dark brown (10YR4/3), gravel maximum size 0.15', average size 0.05', angular to sub-angular, consisting of quartzite and quartz, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate plasticity, CaCO3 in voids, iron oxide staining, black (10YR2/1) sand at 6.5 ft., mottled texture, moist. 50% gravel, 24% sand, 5.2% silt, 20.8% clay
	7.4-7.7 ft. VOA sample obtained from this interval
	7.7-8.0 ft. No recovery for this interval
GC	8.0-9.3 ft. Sandy Gravel as described above
	9.3-10.0 ft. No recovery for this interval
	Total depth at 10.0 ft

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 11.8	GROUND ELEVATION (FT) 5942.00	PROJECT NUMBER OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	751246	AREA IHSS 143	CASING DIAMETER (IN)	GEOLOGIST MICHAEL MAY	60492
EAST	2083496	LOCATOR NUMBER K11	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 02/02/93	
REMARKS SURFACE SEALED 02/09/93					

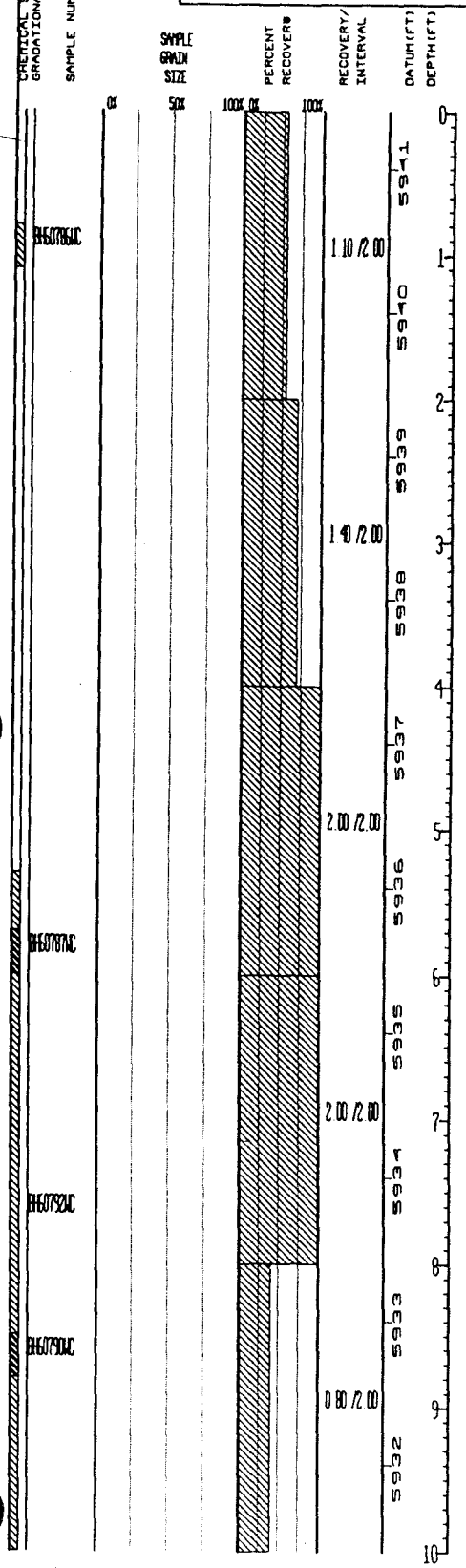
CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50%	100% 0% 100%		5942	0			SC	0.0-1.1 ft Clayey Sand with abundant gravel and some silt, dark brown (10YR3/3), gravel maximum size 0.05', average size 0.02', sub-angular to sub-rounded, consisting of quartzite, sand is fine- to coarse-grained, well graded, sub-angular to sub-rounded, consisting of quartz, fines exhibit moderate plasticity, iron oxide staining, mottled texture, appears to be fill material, moist to very moist 25% gravel, 25.8% sand, 9.8% silt, 39.4% clay
	BH60736C			1.10/2.00	5941	1				1.1-1.4 ft VOA sample obtained from this interval
					5940	2				1.4-2.0 ft No recovery for this interval
									SC	2.0-2.3 ft Clayey Sand as described above
				1.90/2.00	5939	3			CL	2.3-2.7 ft Sandy Clay with some silt, brown-dark brown (10YR4/3), dark yellowish brown (10YR4/6), sand is fine- to medium-grained, poorly graded, sub-angular to sub-rounded, consisting of quartz, fines exhibit moderate plasticity, iron oxide staining, moist to very moist 0% gravel, 35% sand, 13% silt, 52% clay
					5938	4			SC	2.7-3.4 ft Clayey Sand as described above
										3.4-4.0 ft No recovery for this interval
				2.00/2.00	5937	5			SC	4.0-5.7 ft Clayey Sand as described above Brown-dark brown (10YR4/3), dark yellow brown (10YR4/6), extensive iron oxide staining, $CaCO_3$ in voids, moist to very moist
	BH60737C				5936	6				5.7-6.0 ft VOA sample obtained from this interval
									CL	6.0-6.7 ft Sandy Clay as described above Brown-dark brown (10YR4/3), dark yellowish brown (10YR4/6), moist to very moist Top of Rocky Flats alluvium at 6.7 ft
	BH60753C			1.50/2.30	5935	7			GW	6.7-7.0 ft Sandy Gravel with trace silt and clay, brown-dark brown (10YR4/3), gravel maximum and average size 0.05', sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate plasticity, iron oxide staining, moist to very moist 51.1% gravel, 43.8% sand, 1% silt, 4.1% clay
					5934	8			GC	7.0-7.2 ft Sandy Gravel as described below
										7.2-7.5 ft VOA sample obtained from this interval
										7.5-8.3 ft No recovery for this interval
	BH60752C			1.50/2.00	5933	9			GC	8.3-9.8 ft Sandy Gravel as described below
						10				9.8-10.3 ft No recovery for this interval

STATE PLANE COORDINATE	TOTAL DEPTH (FT): 11.8	GROUND ELEVATION (FT): 5942.00	PROJECT NUMBER: 006 RFI/RI	LOG OF BORING NUMBER:	
NORTH: 751246	AREA: THSS 143	CASING DIAMETER (IN):	GEOLOGIST: MICHAEL MAY		
EAST: 2083496	LOCATOR NUMBER: K11	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED: 02/02/93	6492	
REMARKS: SURFACE SEALED 02/09/93					

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6075AC	0% 50%	100% 0% 100%	0.70/1.50	5932 5931 5930 5929 5928 5927 5926 5925 5924 5923	10 11 12 13 14 15 16 17 18 19 20			GC	10.3-10.7 ft. Sandy Gravel with some clay and silt, white (10YR8/1), light gray (10YR7/2), dark yellowish brown (10YR3/4), gravel maximum size 0.2', average size 0.05', angular to sub-angular, consisting of quartz and quartzite, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate plasticity, CaCO3 coating on gravel and sand grains, iron oxide staining, caliche, most of core taken for composite sample, moist. 47% gravel, 32.3% sand, 7.2% silt, 13.5% clay. 10.7-11.0 ft. VOA sample obtained from this interval. 11.0-11.8 ft. No recovery for this interval. Total depth at 11.8 ft.

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 10.0	GROUND ELEVATION (FT):	5941.40	PROJECT NUMBER:	OU6 RFI/RI	LOG OF BORING NUMBER:
NORTH:	750924	AREA: IHSS 143	CASING DIAMETER (IN):		GEOLOGIST:	MICHAEL MAY	60692
EAST:	2083307	LOCATOR NUMBER: K10	BOREHOLE DIAMETER (IN):	6.5	DATE DRILLED:	02/09/93	

REMARKS: SURFACE SEALED 02/10/93



SC: 0.0-0.8 ft
Clayey Sand with some gravel and silt, very dark brown (10YR2/2), black (10YR2/1), gravel maximum size 0.1', average size 0.02', angular to sub-angular, consisting of quartzite, sand is medium- to coarse-grained (with trace fine sand), poorly graded, angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate to high plasticity, plant roots and plant stems at 0.0-2.4', (extensive roots at 0.0-0.4'), $CaCO_3$ in voids, moist to very moist.
23.5% gravel, 29.6% sand, 9.4% silt, 37.5% clay

0.8-1.1 ft VOA sample obtained from this interval.

1.1-2.0 ft No recovery for this interval.

SC: 2.0-2.4 ft Clayey Sand as described above.

SC: 2.4-3.4 ft
Clayey Sand with some gravel and silt, dark grayish brown (10YR4/2), very dark grayish brown (10YR3/2), gravel maximum size 0.1', average size 0.02', sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate plasticity, mottled texture, local iron oxide staining, appears to be fill material, caliche present, moist to very moist.
22% gravel, 32% sand, 9.2% silt, 36.8% clay

3.4-4.0 ft No recovery for this interval.

SC: 4.0-5.3 ft Clayey Sand as described above.
Top of bedrock at 5.3 ft

SILTY CLAYSTONE: 5.3-5.7 ft Silty Claystone as described above.

5.7-6.0 ft VOA sample obtained from this interval.

SILTY CLAYSTONE: 6.0-8.5 ft
Silty Claystone with some sand, gray (10YR5/1), olive brown (2.5Y4/4), very dark grayish brown (2.5Y3/2), brownish yellow (10YR6/8), fine-grained sand, well sorted, sub-angular, consisting of quartz, fines exhibit moderate plasticity, less than 10% porosity, slightly friable, local iron oxide staining with iron oxide staining along 30 degree fractures at 6.7 ft and 7.0 ft., $CaCO_3$ in voids, carbonaceous material present, moist to very moist
16.2% sand, 17.2% silt, 66.6% clay

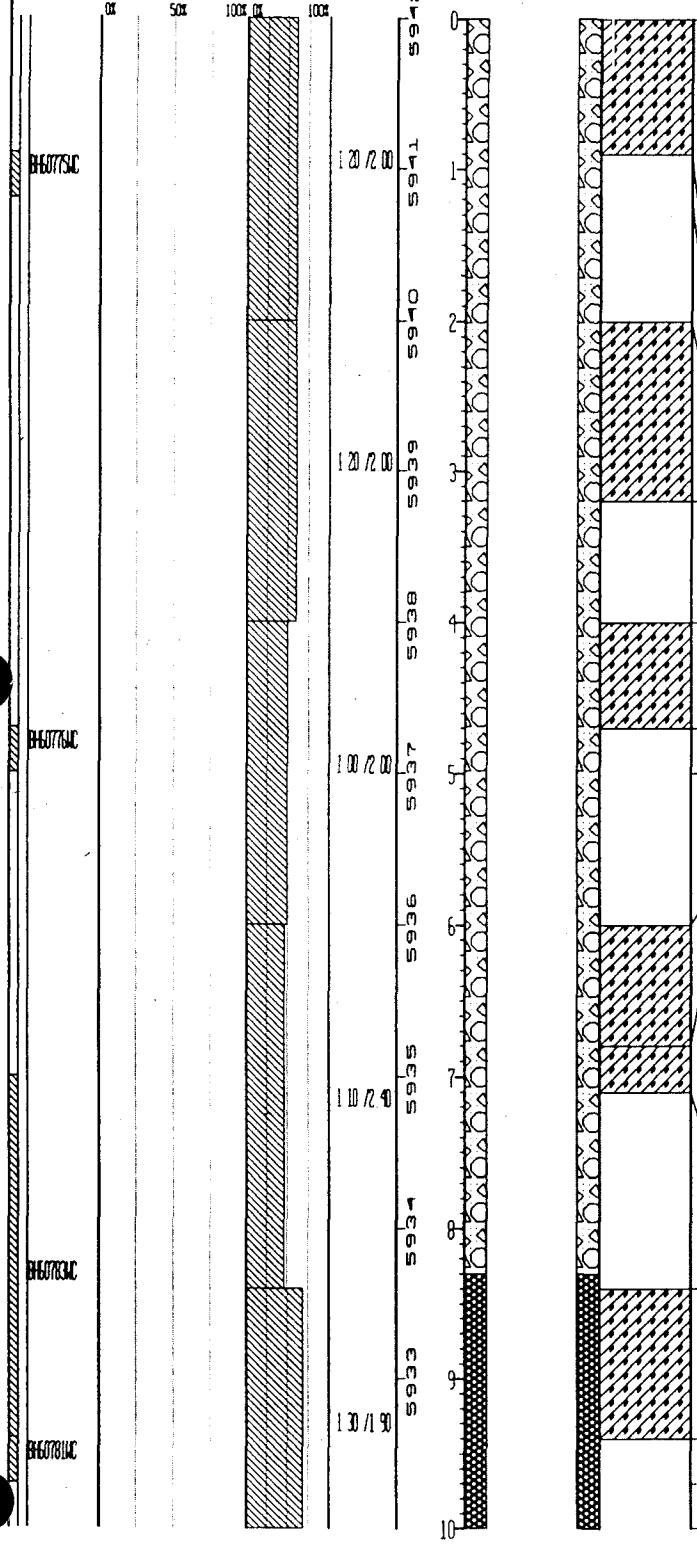
8.5-8.8 ft VOA sample obtained from this interval

8.8-10.0 ft No recovery for this interval

Total depth at 10.0 ft

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 24.1	GROUND ELEVATION (FT)	5942.00	PROJECT NUMBER	006 RFI/RI	LOG OF BORING NUMBER
NORTH	751246	AREA IHSS 143	CASING DIAMETER (IN)	2.0	GEOLOGIST	MICHAEL MAY	77492
EAST	2083508	LOCATOR NUMBER K11	BOREHOLE DIAMETER (IN)	10.0	DATE DRILLED	02/08/93	
REMARKS							

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
SC	0.0-0.9 ft Clayey Sand with abundant gravel, trace silt, dark brown (10YR3/3), black (10YR2/1), dark yellowish brown (10YR4/6), gravel maximum size 0.15', average size 0.1', angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz ant quartzite, fines exhibit moderate plasticity, CaCO3 in voids, asphalt at 4.0-4.4 ft., 6.6 ft., extensive iron oxide staining, moist to very moist, appears to be fill material determined by rig geologist 25.1% gravel, 33.6% sand, 4.1% silt, 37.3% clay
	0.9-1.2 ft VOA sample obtained from this interval
	1.2-2.0 ft No recovery for this interval
SC	2.0-3.2 ft Clayey Sand as described above
	3.2-4.0 ft No recovery for this interval
SC	4.0-4.7 ft Clayey Sand as described above
	4.7-5.0 ft VOA sample obtained from this interval
	5.0-6.0 ft No recovery for this interval
SC	6.0-6.8 ft Clayey Sand as described above
SC	6.8-7.1 ft Gravelly Sand with trace clay and silt, brown (10YR5/3), gravel maximum and average size 0.05', sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, sub-angular, consisting of quartz and quartzite fines exhibit low plasticity, localized iron oxide staining CaCO3 present, moist to very moist 42.5% gravel, 48.3% sand, 3.7% silt, 5.5% clay
	7.1-8.4 ft No recovery for this interval
SC	8.4-9.4 ft Clayey Sand as described below
	9.4-9.7 ft VOA sample obtained from this interval
	9.7-10.3 ft No recovery for this interval

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 24.1	GROUND ELEVATION (FT)	5942.00	PROJECT NUMBER	006 RFI/RI	LOG OF BORING NUMBER
NORTH	751246	AREA IHSS 143	CASING DIAMETER (IN)	2.0	GEOLOGIST	MICHAEL MAY	77492
EAST	2083508	LOCATOR NUMBER K11	BOREHOLE DIAMETER (IN)	10.0	DATE DRILLED	02/08/93	
REMARKS							

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION

Sample Number	Recovery/Interval	Depth (ft)	Unified Soils Classification or Rock Type	Description
		10	SC	10.3-11.5 ft Clayey Sand as described below
	1.20/1.40	11		
				11.5-11.7 ft No recovery for this interval
		12	SC	11.7-12.9 ft Clayey Sand with some gravel, trace silt, white (10YR8/1), yellowish brown (10YR5/6), dark yellowish brown (10YR4/4), gravel maximum size 0.2', average size 0.05', sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, sub-angular to sub-rounded, consisting of quartz, fines exhibit moderate plasticity, CaCO3 in voids, iron oxide staining on grains, gravel coated with CaCO3, sluff at 18.1-18.6 ft, 20.8-21.2 ft, iron oxide staining dark reddish brown (5YR3/3), caliche present at 11.7-13.9 ft moist to very moist at 8.4-10.3 ft, moist at 10.3-17.4 ft, saturated at 17.4-21.8 ft, caliche present at 15.9-18.1 ft 24.5% gravel, 35.4% sand, 4% silt, 36.1% clay
	1.20/2.20	13		
		14		12.9-13.9 ft No recovery for this interval
			SC	13.9-15.1 ft Clayey Sand as described above
	1.20/2.00	15		
				15.1-15.9 ft No recovery for this interval
		16	SC	15.9-16.8 ft Clayey Sand as described above
BH60782WC	1.20/2.20	17		16.8-17.1 ft VOA sample obtained from this interval
				17.1-18.1 ft No recovery for this interval
		18	SC	18.1-19.5 ft Clayey Sand as described above
	1.40/1.90	19		
				19.5-20.0 ft No recovery for this interval
		20		

Well or piezometer construction: 02/08/93

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 24.1	GROUND ELEVATION (FT) 5942.00	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	751246	AREA THSS 143	CASING DIAMETER (IN) 2.0	GEOLOGIST MICHAEL MAY	77492
EAST	2083508	LOCATOR NUMBER K11	BOREHOLE DIAMETER (IN) 10.0	DATE DRILLED 02/08/93	

REMARKS

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				1.80 /1.90	5922	20			SC	20.0-21.8 ft Clayey Sand as described above
					5921	21				
					5920	22				21.8-22.5 ft No recovery for this interval Top of bedrock at 22.5 ft
				0.70 /1.30	5919	23			SANDY CLAYSTONE	22.5-23.2 ft Sandy Claystone with some silt, trace gravel, very dark gray (5YR3/2), brownish yellow (10YR6/8), gray (10YR5/1), gravel maximum size 0.15", average size 0.1", sub-angular, consists of quartzite, sand is fine-grained, well sorted, sub-angular, consists of quartz, gravel appears to be in place, extensive iron oxide staining at 23.6-24.1 ft, CaCO3 in voids, localized iron oxide staining along 30 degree fracture at 23.5 ft., recovery for run 13.2"2 ft possibly due to expansive properties of claystone, very moist 2.3% gravel, 19.2% sand, 15.7% silt, 62.8% clay
	BH60788AC			2.20 /0.90	5918	24				23.2-23.5 ft VOA sample obtained from this interval
					5917	25			SANDY CLAYSTONE	23.5-24.1 ft Sandy Claystone as described above
										Total depth at 24.1 ft
					5916	26				
					5915	27				
					5914	28				
					5913	29				
						30				

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 20 1	GROUND ELEVATION (FT) 5952 80	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER	
NORTH 750971	AREA THSS 156 2	CASING DIAMETER (IN)	GEOLOGIST MICHAEL MAY	63592	
EAST 2086336	LOCATOR NUMBER I13	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 01/07/93		
REMARKS SURFACE SEALED 01/08/93					

DRAFT

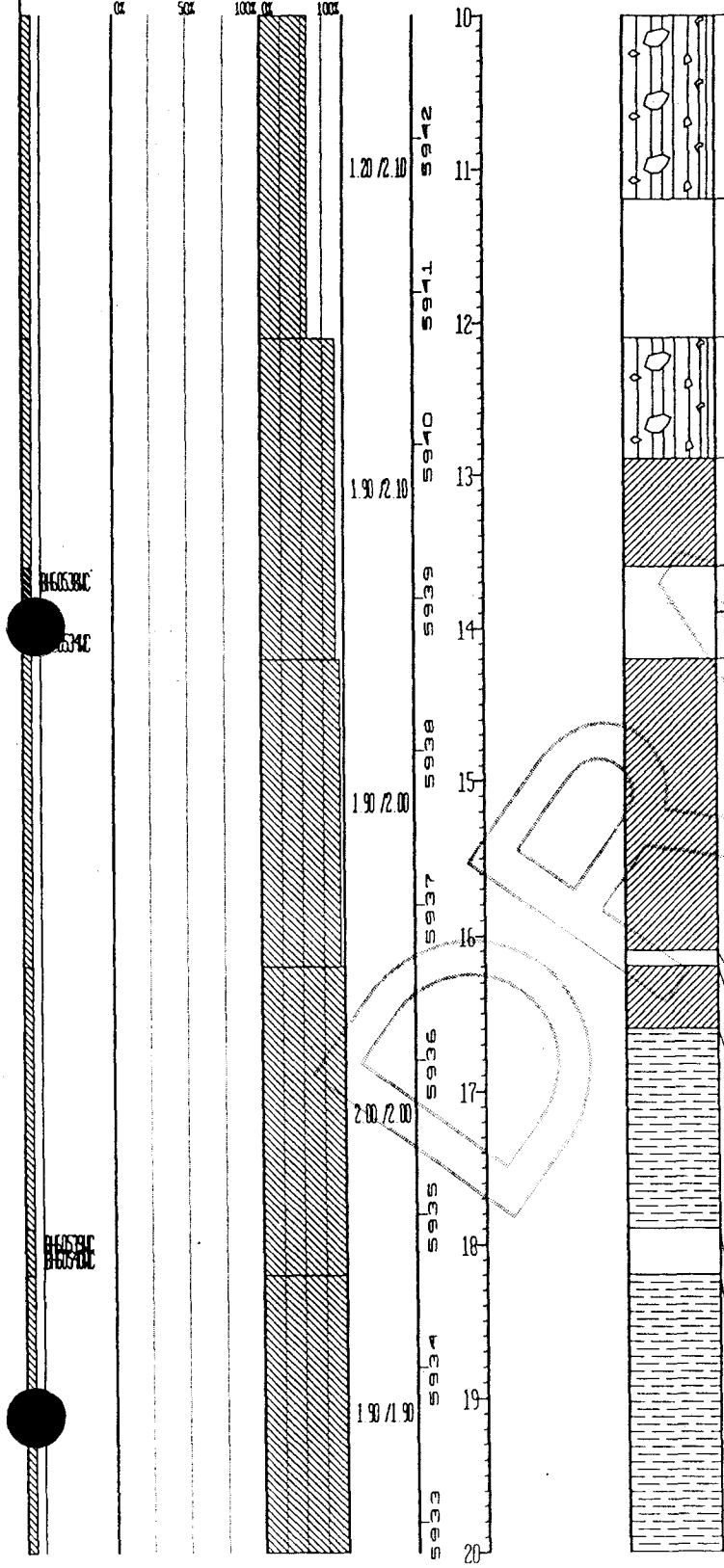
CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
						0			GM	0.0-0.5 ft. Sandy Gravel as described below.
	BH60535C				5952					0.5-0.8 ft. VOA sample obtained from this interval.
				0.80 /2.00		1				0.8-2.0 ft. No recovery for this interval.
					5951	2			GM	2.0-3.0 ft. Sandy Gravel with some silt and trace clay, dark grayish brown (10YR4/2) at 0.0-0.5 ft., very pale brown (10YR8/3) to (10YR7/3), gravel maximum size 0.15", average size 0.1", angular to sub-angular, consisting of quartzite and quartz, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, clay exhibits moderate plasticity. 50% gravel, 33.9% sand, 10.5% silt, 5.6% clay
	BH60532C			1.00 /2.00	5950	3				3.0-6.0 ft. No recovery for this interval.
					5949	4				
				0.00 /2.00	5948	5				
					5947	6			GM	6.0-6.6 ft. Sandy Gravel as described above
	BH60536C			0.90 /2.00	5946	7				6.6-6.9 ft. VOA sample obtained from this interval.
										6.9-8.0 ft. No recovery for this interval.
					5945	8			GM	8.0-8.7 ft. Sandy Gravel as described above
	BH60537C			1.00 /2.00	5944	9				8.7-9.0 ft. VOA sample obtained from this interval.
										9.0-10.0 ft. No recovery for this interval.
					5943	10				

DRAFT

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 20.1	GROUND ELEVATION (FT): 5952.80	PROJECT NUMBER: OU6 RFI/RI	LOG OF BORING NUMBER:	
NORTH: 750971	AREA: IHSS 156.2	CASING DIAMETER (IN):	GEOLOGIST: MICHAEL MAY	63592	
EAST: 2086336	LOCATOR NUMBER: I13	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED: 01/07/93		
REMARKS: SURFACE SEALED 01/08/93					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
GM	10.0-11.2 ft. Sandy Gravel as described above.
	11.2-12.1 ft. No recovery for this interval.
GM	12.1-12.9 ft. Sandy Gravel as described above.
CH	12.9-13.6 ft. Silty Clay as described below.
	13.6-13.9 ft. VOA sample obtained from this interval.
	13.9-14.2 ft. No recovery for this interval.
CH	14.2-16.1 ft. Silty Clay with trace sand, light gray to olive gray (5Y6/1-6/2) to olive gray (5Y5/2), sand is fine- to medium-grained, well sorted, sub-angular, consisting of quartz with iron oxide staining, approximately 15% porosity, high plasticity, voids filled with CaCO3 and fine- to medium-grained sand at 14.2-14.8 ft. and 16.2-17.0 ft., plant roots at 13.6 ft., fractures 90 degrees at 16.6 ft. healed with CaCO3, clasts of clay give appearance of reworked bedrock, moist, fracture healed with CaCO3. 1.5% sand, 9.8% silt, 88.7% clay
	16.1-16.2 ft. No recovery for this interval.
CH	16.2-16.6 ft. Silty Clay as described above. Top of bedrock at 16.6 ft.
CLAYSTONE	16.6-17.9 ft. Claystone with trace silt and sand, light gray to olive gray (5Y6/1-6/2), sand is fine- to medium-grained, poorly graded, consisting of quartz with iron oxide staining on grains and along bedding plane (approximately 0 degrees), high plasticity, low friability, moist, fracture 90 degrees at 19.4 ft., local iron oxide and manganese oxide staining, voids filled with CaCO3 and fine- to medium-grained sand. 0.4% sand, 2.0% silt, 97.6% clay
	17.9-18.2 ft. VOA sample obtained from this interval.
CLAYSTONE	18.2-20.1 ft. Claystone as described above.

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 14.0	GROUND ELEVATION (FT)	5937.00	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	751032	AREA THSS 156.2	CASING DIAMETER (IN)		GEOLOGIST	J.P. GIROD	63692
EAST	2086252	LOCATOR NUMBER J13	BOREHOLE DIAMETER (IN)	6.5	DATE DRILLED	01/08/93	
REMARKS	SURFACE SEALED 01/12/93						

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5937	0			SM	0.0-1.4 ft. Silty Sand with some gravel and trace clay, dark brown (7.5YR3/2), gravel maximum size 0.2', average size 0.025', sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, very angular to sub-angular, consisting of quartz, quartzite with iron oxide staining, clay exhibited no plasticity, extensive plant roots at 0.0-0.2 ft., moist. 15% gravel, 60.8% sand, 19.4% silt, 4.8% clay
				1.60 /2.00	5936	1				1.4-1.6 ft. VOA sample obtained from this interval.
	BH6550C									1.6-2.0 ft. No recovery for this interval.
					5935	2			SM	2.0-2.8 ft. Silty Sand with trace clay and gravel, pinkish gray (7.5YR7/2) to white (N8) to pink (7.5YR7/4) to reddish yellow (7.5YR7/6-7/8) to light brown (7.5YR6/4) to light gray (2.5Y7/2), gravel maximum size 0.075', average size 0.025', sub-angular to sub-rounded, consisting of quartzite, sand is fine- to medium-grained with trace coarse sand, poorly graded, sub-angular to rounded, consisting of quartz and quartzite, clay exhibits no plasticity with an unconformity at 8.7 ft., extensive iron oxide staining on sand grains, sand become better sorted with no gravel at 6.0-8.7 ft. 2.2% gravel, 80.6% sand, 12.0% silt, 5.2% clay
	BH6552C									
	BH6592C			0.80 /2.00	5934	3				
					5933	4				
				1.60 /2.00	5932	5				2.8-4.0 ft. No recovery for this interval.
									SM	4.0-5.4 ft. Silty Sand as described above.
	BH6594C									5.4-5.6 ft. VOA sample obtained from this interval.
										5.6-6.0 ft. No recovery for this interval.
					5931	6			SM	6.0-7.3 ft. Silty Sand as described above.
				1.30 /1.90	5930	7				
	BH6596C									7.3-7.9 ft. No recovery for this interval.
					5929	8			SM	7.9-8.7 ft. Silty Sand as described above, discordant bedding.
				1.40 /2.10	5928	9			CH	8.7-9.2 ft. Sandy Clay as described below.
	BH6598C									9.2-9.4 ft. VOA sample obtained from this interval.
										9.4-10.0 ft. No recovery for this interval.
						10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 14.0	GROUND ELEVATION (FT)	5937.00	PROJECT NUMBER	006 RFI/RI	LOG OF BORING NUMBER
NORTH	751032	AREA IHSS 156.2	CASING DIAMETER (IN)		GEOLOGIST	J.P. GIROD	63692
EAST	2086252	LOCATOR NUMBER J13	BOREHOLE DIAMETER (IN)	6.5	DATE DRILLED	01/08/93	

REMARKS: SURFACE SEALED 01/12/93

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5927	10			CH:	10.0-11.4 ft. Sandy Clay with trace silt, light olive gray (5Y6/2) at 8.7-9.1 ft., light yellowish brown (10YR6/4) at 9.1-12.0 ft., white (10YR8/2) at 12.0-12.75 ft., sand is fine-grained, well sorted, sub-angular, consisting of quartz, clay exhibits high plasticity, extensive iron oxide staining with manganese oxide staining along fractures, clay clasts and mottled texture suggest reworked bedrock, moist.
				1.60 /2.00	5926	11				6.2% sand, 3.7% silt, 90.1% clay.
					5925	12				11.4-11.6 ft. VOA sample obtained from this interval.
										11.6-11.8 ft. VOA sample obtained from this interval.
										11.8-12.0 ft. No recovery for this interval.
									CH:	12.0-12.75 ft. Sandy Clay as described above.
				1.20 /2.00	5924	13				Top of bedrock at 12.75 ft.
									CLAYSTONE:	12.75-13.2 ft. Claystone with trace silt and sand, light olive gray (5Y6/2) sand is fine-grained, well sorted, sub-angular, consisting of quartz with extensive iron oxide staining, clay exhibits high plasticity, moist.
					5923	14				0.8% sand, 2.0% silt, 97.2% clay.
										13.2-14.0 ft. No recovery for this interval.
										Total depth at 14.0 ft.
					5922	15				
					5921	16				
					5920	17				
					5919	18				
					5918	19				
						20				

DRAFT

STATE PLANE COORDINATE:	TOTAL DEPTH (FT) 22.0	GROUND ELEVATION (FT) 5954.60	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER	
NORTH 751004	AREA IHSS 156.2	CASING DIAMETER (IN)	GEOLOGIST KERRY MIYOSHI	73592	
EAST 2086447	LOCATOR NUMBER J13	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 12/15/92		
REMARKS					

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH

SAMPLE NUMBER: BH60198WC, BH60200WC, BH60199WC, 0222WC, 0128WC

SAMPLE GRAIN SIZE: 0% 50% 100%

PERCENT RECOVERY: 0% 100%

RECOVERY/INTERVAL: 1.20/2.00; 1.60/2.00; 1.40/2.00; 1.50/2.00; 1.20/2.00

DATUM (FT): 5954, 5953, 5952, 5951, 5950, 5949, 5948, 5947, 5946, 5945

DEPTH (FT): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

WELL OR PIEZOMETER CONSTRUCTION

LITHOLOGY

UNIFIED SOILS CLASSIFICATION OR ROCK TYPE

DESCRIPTION

SC: 0.0-1.0 ft
Gravelly Sand with some clay and trace silt, dark brown (7.5YR4/2) to very pale brown (10YR7/4) to yellow (10YR7/6) to brown (7.5YR4/4) to pinkish white (7.5YR8/2), gravel maximum size 0.2', average size 0.025', angular to sub-rounded, consisting of quartzite, quartz, and schist, sand is fine- to coarse-grained, angular to sub-rounded, consisting of quartz and quartzite with iron oxide staining, clay exhibits low plasticity, top soil 0.0-0.4 ft. with extensive roots, dry.
29.8% gravel, 55.9% sand, 2.9% silt, 11.4% clay

1.0-1.2 ft. VOA sample obtained from this interval

1.2-2.0 ft. No recovery for this interval

SC: 2.0-3.6 ft. Gravelly Sand as described above

3.6-4.0 ft. No recovery for this interval

SC: 4.0-5.2 ft. Gravelly Sand as described above

5.2-5.4 ft. VOA sample obtained from this interval

5.4-6.0 ft. No recovery for this interval

SC: 6.0-7.5 ft. Gravelly Sand as described above

7.5-8.0 ft. No recovery for this interval

SC: 8.0-9.0 ft. Gravelly Sand as described above

9.0-9.2 ft. VOA sample obtained from this interval

9.2-10.0 ft. No recovery for this interval

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 22.0	GROUND ELEVATION (FT) 5954.60	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	751004	AREA IHSS 156.2	CASING DIAMETER (IN)	GEOLOGIST KERRY MIYOSHI	73592
EAST	2086447	LOCATOR NUMBER J13	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 12/15/92	
REMARKS					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERED (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				1.60 /2.00	5944	10–11			SC	10.0-11.6 ft. Gravelly Sand as described above.
					5943	11				11.6-12.0 ft. No recovery for this interval.
				1.70 /2.00	5942	12–13			SC	12.0-13.0 ft. Gravelly Sand as described above. Top of bedrock at 13.0 ft.
					5941	13			CLAYSTONE	13.0-13.5 ft. Claystone as described below.
	BH60129C									13.5-13.7 ft. VOA sample obtained from this interval.
	223C									13.7-14.0 ft. No recovery for this interval.
				1.80 /2.00	5940	14–15			CLAYSTONE	14.0-15.8 ft. Claystone with trace sand and silt, gray (10YR5/1-6/1) to very pale brown (10YR7/3) to light olive gray (5Y6/2) to white (N9) to strong brown (7.5YR5/8), sand is fine-grained, well sorted, clay exhibits low plasticity, localized iron oxide staining with 0% porosity, caliche zone at 13.0 ft., 14.7-15.0 ft., and 16.3-16.7 ft. with a fracture of 40 degrees at 15.0 ft. healed with $CaCO_3$, large sandstone gravel at 21.0 ft. (approximately 0.1 ft. diameter), carbonaceous material is present throughout bedrock interval 1% gravel, 2% sand, 2% silt, 95% clay.
					5939	16				15.8-16.0 ft. No recovery for this interval.
				1.30 /2.00	5938	17			CLAYSTONE	Hole drilled on 12/04/92 to 16.0 ft. 16.0-17.1 ft. Claystone as described above.
	BH60106C									17.1-17.3 ft. VOA sample obtained from this interval.
					5937	18				17.3-18.0 ft. No recovery for this interval.
				2.00 /2.00	5936	19			CLAYSTONE	18.0-21.7 ft. Claystone as described above.
	104C				5935	20				

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 22.0	GROUND ELEVATION (FT) 5954.60	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH 751004	AREA IHSS 156.2	CASING DIAMETER (IN)	GEOLOGIST	KERRY MIYOSHI	73592
EAST 2086447	LOCATOR NUMBER J13	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED	12/15/92	
REMARKS					

DRAFT

CHEMICAL SAMPLE / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6040WC			1.90/2.00	5934, 5933, 5932, 5931, 5930, 5929, 5928, 5927, 5926, 5925	20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30				21.7-21.9 ft. VOA sample obtained from this interval.
										21.9-22.0 ft. No recovery for this interval.
										Hole re-drilled on 12/15/92 to 22.0 ft. Total depth at 22.0 ft.

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 24.6	GROUND ELEVATION (FT)	5953.50	PROJECT NUMBER	006 RFI/RI	LOG OF BORING NUMBER
NORTH	750889	AREA IHSS 156.2	CASING DIAMETER (IN)		GEOLOGIST	KERRY MIYOSHI	73692
EAST	2086514	LOCATOR NUMBER I13	BOREHOLE DIAMETER (IN)	10.0	DATE DRILLED	12/03/92	

REMARKS: SURFACE SEALED 12/16/92

DRAFT

CHEMICAL SAMPLE / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5953	0			GC	0.0-1.4 ft. Sandy Gravel with abundant clay and trace silt, brown to very dark grayish brown (10YR4/3-3/2), gravel is well graded sub-angular to 18 ft., sand is well graded, fine- to coarse-grained, coarse is angular, remainder is sub-angular to sub-rounded, fines exhibit medium plasticity, damp. 38% gravel, 31% sand, 2% silt, 29% clay
				1.60 /2.00	5952	1				1.4-1.6 ft. VOA sample obtained from this interval
	BH6014QC									1.6-2.0 ft. No recovery for this interval.
					5951	2			GC	2.0-3.4 ft. Sandy Gravel as described above.
	BH6015QC			1.40 /2.00	5950	3				3.4-4.0 ft. No recovery for this interval
					5949	4			CL	4.2-5.7 ft. Clay with some sand and trace silt, grayish brown to white (10YR5/2-8/2), caliche rich clay, with poorly graded fine sand, angular to sub-rounded, moist, fines exhibit low to medium plasticity. 24% sand, 4% silt, 72% clay.
				1.70 /2.00	5948	5				5.5-5.7 ft. VOA sample obtained from this interval
	BH6016QC									5.7-6.0 ft. No recovery for this interval. Top of bedrock at 6.0 ft.
					5947	6			CLAYSTONE	6.0-8.5 ft. Claystone, light brownish gray (10YR6/2), soft stone with light caliche and iron oxides as disseminations and coating fractures, sand is well sorted, fine-grained, sub-angular to sub-rounded quartz grains, fines show plasticity, damp. 24% sand, 4% silt, 72% clay
				2.00 /2.00	5946	7				
					5945	8			SANDY CLAYSTONE	8.5-9.7 ft. Sandy Claystone, light gray (10YR7/2), poorly graded, fine, sub-angular to rounded quartz sand, fines exhibits medium plasticity, damp. 34% sand, 1% silt, 65% clay
	BH6017QC			1.70 /2.00	5944	9				9.7-10.0 ft. No recovery for this interval
						10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 24.6	GROUND ELEVATION (FT)	5953.50	PROJECT NUMBER	006 RFI/RI	LOG OF BORING NUMBER
NORTH	750889	AREA THSS 156.2	CASING DIAMETER (IN)		GEOLOGIST	KERRY MIYOSHI	73692
EAST	2086514	LOCATOR NUMBER I13	BOREHOLE DIAMETER (IN)	10.0	DATE DRILLED	12/03/92	

REMARKS: SURFACE SEALED 12/16/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
						10			CLAYSTONE	10.0-11.8 ft. Claystone, light yellow brown to grayish brown (2.5Y6/4-5/2) and 10YR equivalents, also light olive brown (2.5Y5/4) varicolored clean claystone, local zones of light to pervasive iron oxide staining, trace manganese oxide and carbonized vegetation, horizontal bedding, fines show medium to high plasticity, damp. <1% sand, <1% silt, 99% clay
				1.80/2.00	5943	11				
					5942					11.8-12.0 ft. No recovery for this interval.
						12			CLAYSTONE	12.0-17.8 ft. Claystone as described above.
					5941					
				2.00/2.00		13				
					5940					
						14				
					5939					
	BH6018SIC			2.00/2.00		15				
					5938					
						16				
					5937					
				1.80/2.00		17				
					5936					
										17.8-18.0 ft. No recovery for this interval.
						18			CLAYSTONE	18.0-21.9 ft. Claystone as described above.
					5935					
				1.90/2.00		19				
					5934					
						20				

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 24.6	GROUND ELEVATION (FT): 5953.50	PROJECT NUMBER: OU6 RFI/RI	LOG OF BORING NUMBER	
NORTH: 750889	AREA: IHSS 156.2	CASING DIAMETER (IN):	GEOLOGIST: KERRY MIYOSHI	73692	
EAST: 2086514	LOCATOR NUMBER: I13	BOREHOLE DIAMETER (IN): 10.0	DATE DRILLED: 12/03/92		
REMARKS: SURFACE SEALED 12/16/92					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH60186WC			1.90 /2.00	5933, 5932	20, 21				
						22				21.9-22.0 ft. No recovery for this interval.
									CLAYSTONE:	22.0-24.0 ft. Claystone as described above.
				2.00 /2.00	5931, 5930	23				
						24				24.0-24.6 ft. No recovery for this interval
				0.00 /0.60	5929					
										Total depth at 24.6 ft.
					5928	25				
					5927	26				
					5926	27				
					5925	28				
					5924	29, 30				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 9.9		GROUND ELEVATION (FT)	5953.30	PROJECT NUMBER	OU6 RFI/RI
NORTH	750761	AREA IHSS 156.2		CASING DIAMETER (IN)		GEOLOGIST	LVS
EAST	2086591	LOCATOR NUMBER	I13	BOREHOLE DIAMETER (IN)	6.5	DATE DRILLED	12/10/92
REMARKS	SURFACE SEALED 12/16/92						

LOG OF BORING NUMBER

73792

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%						GC	0.0-1.5 ft Sandy Gravel, olive yellow (2.5Y6/6) to light yellow brown (2.5Y6/4) to reddish brown (7.5YR7/8) to strong brown (7.5YR5/6) to grayish brown (2.5Y5/2) to brown (7.5YR5/4), gravel maximum size 0.2', average size 0.05', angular to sub-angular, consisting of quartzite and quartz, sand is fine- to coarse-grained, well graded, angular to sub-rounded consisting of quartz and quartzite, clay exhibits moderate plasticity, moist. 49.8% gravel, 43.7% sand, 5% silt, 7.5% clay
	BH6025AC			1.70/2.00	5953 5952	0 1				1.5-1.7 ft VOA sample obtained from this interval.
										1.7-2.0 ft No recovery for this interval.
					5951	2			GC	2.0-2.8 ft Sandy Gravel as described above.
	BH6022AC			0.80/2.00	5950	3				2.8-4.0 ft No recovery for this interval.
					5949	4			GC	4.0-4.9 ft Sandy Gravel as described above Top of bedrock at 4.9 ft.
				1.90/1.90	5948	5			CLAYEY SANDSTONE	4.9-5.5 ft Clayey Sandstone as described below.
	BH6026AC									5.5-5.7 ft VOA sample obtained from this interval.
										5.7-5.9 ft No recovery for this interval.
					5947	6			CLAYEY SANDSTONE	5.9-7.3 ft Clayey Sandstone with some silt, white (2.5Y8/2) to light gray (2.5Y7/2) to light brown (7.5YR6/4) to brown (7.5YR5/4) sand is fine-grained, well sorted, sub-angular to sub-rounded, consisting of quartz and quartzite, caliche zone at 4.9-5.7 ft with iron oxide weathering and fractures, 30 degrees at 5.3 ft, iron oxide weathering extensive at 6.5-7.0 ft, carbonaceous material throughout section, 30 degree fracture at 8.5 ft, moist 43.5% sand, 16.9% silt, 39.6% clay
				1.40/2.00	5946	7				
	BH6023AC									7.3-7.9 ft No recovery for this interval.
					5945	8			CLAYEY SANDSTONE	7.9-9.7 ft Clayey Sandstone as described above
				2.00/2.00	5944	9				
										9.7-9.9 ft VOA sample obtained from this interval
	BH6027AC					10				Total depth at 9.9 ft

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 18.0	GROUND ELEVATION (FT)	5952.80	PROJECT NUMBER	006 RFI/RI	LOG OF BORING NUMBER
NORTH	751059	AREA IHSS 156.2	CASING DIAMETER (IN)		GEOLOGIST	KERRY MIYOSHI	73892
EAST	2086588	LOCATOR NUMBER J13	BOREHOLE DIAMETER (IN)	10.0	DATE DRILLED	12/07/92	
REMARKS	SURFACE SEALED 12/16/92						

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				0.00/1.00	5952	0			SC	0.0-0.8 ft. Gravelly Sand as described below.
	BH6270UC					1				0.8-1.0 ft. VOA sample obtained from this interval.
										1.0-2.0 ft. No recovery for this interval.
				1.00/1.00	5951	2			SC	2.0-3.1 ft. Gravelly Sand with some clay and silt, very dark gray (5Y3/1) to yellow (10YR8/6-8/8) to light yellowish brown (10YR6/4) to black (N1), gravel maximum size 0.15', average size 0.025', angular, consisting of quartzite and quartz, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz and quartzite, clay exhibits moderate plasticity with extensive iron oxide staining, mottled texture, CaCO3 in voids and asphalt at 0.6-0.8 ft. and 2.0-2.9 ft., dry. 27% gravel, 40.2% sand, 11.5% silt, 21.3% clay
	BH6267UC			1.10/2.00	5950	3				3.1-4.0 ft. No recovery for this interval
					5949	4			SC	4.0-5.0 ft. Gravelly Sand as described above.
	BH6271UC			1.20/2.00	5948	5				5.0-5.2 ft. VOA sample obtained from this interval.
										5.2-6.0 ft. No recovery for this interval.
					5947	6			SC	6.0-6.5 ft. Gravelly Sand as described above
				1.20/2.00	5946	7			SC	6.5-7.2 ft. Gravelly Sand as described below
										7.2-8.0 ft. No recovery for this interval
					5945	8			SC	8.0-9.4 ft. Gravelly Sand as described below.
	BH6268UC			1.60/2.00	5944	9				
	BH6272UC									9.4-9.6 ft. VOA sample obtained from this interval
					5943	10				9.6-10.0 ft. No recovery for this interval

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 18.0	GROUND ELEVATION (FT)	5952.80	PROJECT NUMBER	006 RFI/RI	LOG OF BORING NUMBER
NORTH	751059	AREA IHSS 156.2	CASING DIAMETER (IN)		GEOLOGIST	KERRY MIYOSHI	73892
EAST	2086588	LOCATOR NUMBER J13	BOREHOLE DIAMETER (IN)	10.0	DATE DRILLED	12/07/92	

REMARKS: SURFACE SEALED 12/16/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%			10			SC	10.0-11.4 ft Gravelly Sand with some clay and trace silt, dark gray (10YR4/1) to very dark grayish brown (10YR3/2) to white (10YR8/2) to pink (7.5YR7/4) to reddish yellow (7.5YR7/6) to light brownish gray (10YR6/2), gravel maximum size 0.1', average size 0.025', angular to sub-rounded, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz and quartzite, clay exhibits moderate plasticity. 35% gravel, 51.1% sand, 2.8% silt, 11.1% clay
				1.40/2.00	5942	11				
					5941	12				11.4-12.0 ft No recovery for this interval.
									SC	12.0-13.1 ft Gravelly Sand as described above.
				1.40/2.00	5940	13				
	BH6273C									13.1-13.4 ft VOA sample obtained from this interval
										13.4-14.0 ft No recovery for this interval.
					5939	14			SC	14.0-15.1 ft Gravelly Sand as described above
	BH6275C			1.10/2.00	5938	15				
										15.1-16.0 ft No recovery for this interval.
					5937	16			SC	16.0-16.3 ft Gravelly Sand as described above Top of bedrock at 16.3 ft
				1.60/2.00	5936	17			SILTY CLAYSTONE	16.3-18.0 ft Silty Claystone with some sand 8.7% sand, 18.3% silt, 73% clay
	BH6275C									17.4-17.6 ft VOA sample obtained from this interval
					5935	18				17.6-18.0 ft No recovery for this interval.
										Total depth at 18.0 ft
					5934	19				
					5933	20				

DRAFT

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 14.0	GROUND ELEVATION (FT): 5955.50	PROJECT NUMBER: 006 RFI/RI	LOG OF BORING NUMBER:	
NORTH: 750935	AREA: IHSS 156.2	CASING DIAMETER (IN):	GEOLOGIST: LVS		
EAST: 2086658	LOCATOR NUMBER: 113	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED: 12/11/92	73992	

REMARKS: SURFACE SEALED 12/16/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
			5955	0	SC	0.0-1.5 ft. Gravelly Sand as described below.
						1.5-1.7 ft. VOA sample obtained from this interval
						1.7-2.0 ft. No recovery for this interval.
		0.00 /2.00	5954	1	SC	2.0-2.9 ft. Gravelly Sand with some clay and trace silt, black (5YR2.5/1) to yellow (10YR7/8) to light gray (10YR6/1) at 0.0-1.7 ft., grayish brown (10YR5/2) at 2.0-2.9 ft., pale yellow brown (10YR6/3) at 4.0-4.6 ft., white (N9) at 4.6-5.4 ft., very dark grayish brown (10YR5/2) at 5.4-6.8 ft., mottled texture throughout, gravel maximum size 0.2', average 0.05', angular to sub-angular, consisting of quartzite and lithic rocks, sand is medium to fine-grained, poorly graded, angular to sub-rounded, consisting of quartz and quartzite, clay exhibits moderate to high plasticity, topsoil with extensive plant roots at 0.0-0.7 ft. with some plant roots throughout 0.0-6.8 ft. interval, local iron oxide staining, voids filled with CaCO3 at 2.9 ft. and a caliche zone at 4.6-5.4 ft., moist. 32% gravel, 53% sand, 1.5% silt, 13.5% clay.
BH6028UC				2		
			5953			
BH6030UC		0.00 /2.00		3		
			5952			
				4		2.9-4.0 ft. No recovery for this interval.
			5951		SC	4.0-5.3 ft. Gravelly Sand as described above.
		0.00 /2.00		5		
BH6024UC			5950			5.3-5.5 ft. VOA sample obtained from this interval
BH6029UC						5.5-5.7 ft. VOA sample obtained from this interval.
						5.7-6.0 ft. No recovery for this interval.
			5949	6	SC	6.0-6.8 ft. Gravelly Sand as described above
		0.00 /1.80				6.8-7.8 ft. No recovery for this interval
			5948	7	GC	7.8-9.4 ft. Sandy Gravel with some clay and trace silt, very pale brown (10YR7/3-7/4) to white (10YR8/2) to yellow (10YR7/6-7/8) at 7.8-9.5 ft., light olive gray (5Y6/2) to light gray (5Y7/1) to white (N9) to very pale brown (10YR7/3-7/4) at 9.5-10.3 ft., gravel maximum size 0.1', average size 0.05', angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz, quartzite, and schist, fines exhibit moderate plasticity, a 90 degree fracture is present at 10.2 ft., healed with CaCO3, a caliche zone is also present at 7.8-8.8 ft., moist. 44.2% gravel, 39.9% sand, 1.6% silt, 14.3% clay
BH6032UC				8		
		0.00 /2.20	5947			
				9		
BH6033UC			5946			9.4-9.6 ft. VOA sample obtained from this interval
						9.6-10.0 ft. No recovery for this interval
				10		

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 14.0	GROUND ELEVATION (FT)	5955.50	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	750935	AREA IHSS 156.2	CASING DIAMETER (IN)		GEOLOGIST	LYS	73992
EAST	2086658	LOCATOR NUMBER I13	BOREHOLE DIAMETER (IN)	6.5	DATE DRILLED	12/11/92	

REMARKS: SURFACE SEALED 12/16/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50%	100% 0% 100%			10			GC	10.0-10.3 ft. Sandy Gravel as described above. Top of bedrock at 10.3 ft.
				1.60 /2.10	5945	11			SANDY CLAYSTONE	10.3-11.6 ft. Sandy Claystone with abundant silt, light gray (10YR7/1) to yellow (10YR7/8), sand is fine-grained, well sorted, sub-angular to sub-rounded, consisting of quartz, fines exhibit low plasticity, 10% porosity, high friability, moist, horizontal bedding with iron oxide staining, iron oxide staining extensive at 10.0-10.7 ft., fractures at 70 degrees at 11.4 ft. and healed with CaCO3. 34.2% sand, 26.3% silt, 39.5% clay.
	B6G021WC				5944	12				
					5943					11.6-12.1 ft. No recovery for this interval.
				1.80 /1.90		13			SANDY CLAYSTONE	12.1-13.7 ft. Sandy Claystone with abundant silt, light brownish gray (2.5Y6/2) to light gray (2.5Y7/1), 0 porosity, moderately friable, moist, faint horizontal bedding with localized iron oxide staining and carbonaceous material, fracture at 80 degrees at 13.1'. 34.2% sand, 26.3% silt, 39.5% clay.
	B6G033WC				5942					
						14				13.7-13.9 ft. VOA sample obtained from this interval.
					5941					13.9-14.0 ft. No recovery for this interval.
						15				Total depth at 14.0 ft.
					5940					
					5939	16				
					5938	17				
					5937	18				
					5936	19				
						20				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 18.0	GROUND ELEVATION (FT)	5954.40	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	750803	AREA IHSS 156.2	CASING DIAMETER (IN)		GEOLOGIST	LVS	74092
EAST	2086734	LOCATOR NUMBER I13	BOREHOLE DIAMETER (IN)	6.5	DATE DRILLED	12/10/92	

REMARKS: SURFACE SEALED 12/16/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL DEPTH | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION

BH60313WC

BH60314WC

RECOVERY/INTERVAL	DATUM (FT)
1.50 /2.00	5954, 5953
0.80 /2.00	5952, 5951
0.70 /1.50	5950, 5949
1.00 /2.50	5948, 5947
1.50 /2.00	5946, 5945

DEPTH (FT): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
SM	0.0-1.1 ft. Gravelly Sand with some silt and trace clay, pale brown (10YR6/3) to yellowish red (5Y4/6) to dark grayish brown (10YR4/2), gravel maximum size 0.1', average size 0.025', angular to sub-angular, consisting of quartzite and quartz, sand is fine- to coarse-grained, well graded, angular to rounded, consisting of quartzite and quartz, clay exhibits moderate plasticity, 0.0-0.8 ft. voided with abundant plant roots and some CaCO3, moist. 19.2% gravel, 59% sand, 15.3% silt, 6.5% clay
	1.1-1.3 ft. VOA sample obtained from this interval.
	1.3-1.5 ft. VOA sample obtained from this interval.
	1.5-2.0 ft. No recovery for this interval.
SM	2.0-2.8 ft. Gravelly Sand as described above.
	2.8-4.0 ft. No recovery for this interval.
SM	4.0-4.2 ft. Gravelly Sand as described above.
CH	4.2-4.5 ft. Sandy Clay with some silt, very pale brown (10YR7/3-7/4) to brownish yellow (10YR6/6-6/8), sand is fine- to medium-grained, poorly graded, angular to sub-angular, consisting of quartzite, clay exhibits high plasticity, fracture at 30 degrees at 4.3 ft., healed with fine to medium sand and CaCO3, clay clasts and mottled texture suggest reworked bedrock, large piece of gravel (0.15') appears to have been pushed through this section to 4.5 ft., moist. 31.7% sand, 10.2% silt, 58.1% clay
	4.5-4.7 ft. VOA sample obtained from this interval.
	4.7-5.5 ft. No recovery for this interval.
CH	5.5-5.8 ft. Sandy Clay as described above
SC	5.8-6.5 ft. Gravelly Sand with some clay and silt, brown (10YR4/3) to dark brown (10YR3/3) to white (10YR8/1), gravel maximum size 0.15', average size 0.05', angular to sub-angular, consisting of quartzite, sand is fine- to medium-grained, with trace coarse sand, poorly graded, angular to sub-rounded, consisting of quartz and quartzite, clay exhibits moderate plasticity, moist, caliche zone at 8.5-9.5 ft. 33.4% gravel, 44% sand, 6.8% silt, 15.8% clay
	6.5-8.0 ft. No recovery for this interval
SC	8.0-9.3 ft. Gravelly Sand as described above.
	9.3-9.5 ft. VOA sample obtained from this interval
	9.5-10.0 ft. No recovery for this interval

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 18 0	GROUND ELEVATION (FT) 5954 40	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	750803	AREA IHSS 156 2	CASING DIAMETER (IN)	GEOLOGIST LVS	74092
EAST	2086734	LOCATOR NUMBER I13	BOREHOLE DIAMETER (IN) 6 5	DATE DRILLED 12/10/92	

REMARKS SURFACE SEALED 12/16/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
						10			SC	10 0-10.3 ft. Gravelly Sand as described above. Top of bedrock at 10.0 ft
					5944				SANDY CLAYSTONE	10 3-11 5 ft. Sandy Claystone with trace silt, light gray (2.5Y7/1-7/2) to brownish yellow (10YR6/2) to light yellowish brown (10YR6/4) sand is fine-grained, well sorted, sub-angular to sub-rounded, consisting of quartz, clay exhibits moderate plasticity, caliche at 12.0-12.4 ft and 10.3-11.2 ft., carbonaceous material, extensive iron oxide staining at 12.0-12.4 ft., 13.6-13.7 ft., 14.2-14.6 ft., and 17.1-17.6 ft., moist, moderate friability, 8% porosity. 17.1% sand, 4.1% silt, 78.8% clay
				1.50 /2.00		11				
					5943					
						12				11 5-12.0 ft. No recovery for this interval.
				1.10 /1.60	5942				SANDY CLAYSTONE	12 0-12 9 ft. Sandy Claystone as described above.
	BH6019AC					13				12 9-13 1 ft. VOA sample obtained from this interval
					5941					13 1-13 6 ft. No recovery for this interval
						14			SANDY CLAYSTONE	13.6-14.6 ft. Sandy Claystone as described above.
					5940					
	BH6020AC			1.40 /2.40						14 6-14.8 ft. VOA sample obtained from this interval
	BH6021AC									14.8-15.0 ft. VOA sample obtained from this interval
	BH6015AC					15				15 0-16.0 ft. No recovery for this interval.
					5939					
						16			SANDY CLAYSTONE	16 0-17 6 ft. Sandy Claystone as described above
					5938					
				1.60 /2.80		17				
					5937					
										17 6-18 0 ft. No recovery for this interval
						18				Total depth at 18 0 ft.
					5936					
						19				
					5935					
						20				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 18.0	GROUND ELEVATION (FT) 5953.20	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	751026	AREA IHSS 156.2	CASING DIAMETER (IN)	GEOLOGIST KERRY MIYOSHI	74192
EAST	2086671	LOCATOR NUMBER J13	BOREHOLE DIAMETER (IN) 10.0	DATE DRILLED 12/08/92	

REMARKS: SURFACE SEALED 12/16/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5953	0			GC	0.0-1.0 ft. Sandy Gravel as described below.
										1.0-1.2 ft. VOA sample obtained from this interval.
	BH0295AC(D)			1.40/2.00	5952	1				1.2-1.4 ft. VOA sample obtained from this interval.
	BH0295AC									1.4-2.0 ft. No recovery for this interval.
									GC	2.0-3.4 ft. Sandy Gravel with some clay and trace silt, dark grayish brown (2.5YR3/2) to light yellowish brown (2.5Y6/4) to light brownish gray (10YR6/2) to grayish brown (10YR5/2), gravel maximum size 0.15', average size 0.05', angular, consisting of quartzite and quartz, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz and quartzite, clay exhibits moderate plasticity, 0.0-0.7 ft extensive plant roots with CaCO3, 2.0-3.0 ft. appears to be reworked bedrock with plant roots, fine to coarse sand and a mottled texture, dry. 40.7% gravel, 32.2% sand, 2.7% silt, 24.4% clay
					5951	2				
	BH0293AC			1.40/2.00	5950	3				
										3.4-4.0 ft. No recovery for this interval.
					5949	4			GC	4.0-5.5 ft. Sandy Gravel as described above.
				1.70/2.00	5948	5				
	BH0297AC									5.5-5.7 ft. VOA sample obtained from this interval.
										5.7-6.0 ft. No recovery for this interval.
					5947	6			GC	6.0-7.2 ft. Sandy Gravel as described above.
				1.20/2.00	5946	7				
										7.2-8.0 ft. No recovery for this interval.
					5945	8			GC	8.0-8.3 ft. Sandy Gravel as described above.
									SC	8.3-9.4 ft. Gravelly Sand as described below.
	BH0294AC			1.60/2.00	5944	9				
	BH0298AC									9.4-9.6 ft. VOA sample obtained from this interval.
										9.6-10.0 ft. No recovery for this interval.
						10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 18.0	GROUND ELEVATION (FT) 5953.20	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	751026	AREA IHSS 156.2	CASING DIAMETER (IN)	GEOLOGIST KERRY MIYOSHI	74192
EAST	2086671	LOCATOR NUMBER J13	BOREHOLE DIAMETER (IN) 10.0	DATE DRILLED 12/08/92	

REMARKS: SURFACE SEALED 12/16/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				1.80/2.00	5943	10			SC	10.0-11.8 ft. Gravelly Sand with abundant clay and some silt, pink (7.5YR7/4-8/4) to pinkish white (7.5YR8/2) to white (N8) to pale yellow (2.5Y7/4), gravel maximum size 0.2', average size 0.05', angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, clay exhibits moderate plasticity, mottled texture, CaCO3 present with plant roots at 10.0-11.0 ft., dry. 28.3% gravel, 36.5% sand, 7% silt, 28.2% clay
					5942	11				11.8-12.0 ft. No recovery for this interval.
					5941	12			SC	12.0-13.8 ft. Gravelly Sand as described above.
				2.00/2.00	5940	13				
	BH0295AC									13.8-14.0 ft. VOA sample obtained from this interval.
					5939	14			SC	14.0-15.9 ft. Gravelly Sand as described above.
	BH0295BC			1.90/2.00	5938	15				
										15.9-16.0 ft. No recovery for this interval.
					5937	16			SC	16.0-17.4 ft. Gravelly Sand as described above. Top of bedrock at 17.4 ft
				2.00/2.00	5936	17			CLAYSTONE	17.4-17.8 ft. Claystone with some sand and trace silt, gray (10YR5/1), sand is fine-grained, well sorted, sub-angular to sub-rounded, consisting of quartz, clay exhibits moderate plasticity, moderate friability, less than 5% porosity, dry. 8% sand, 4.6% silt, 95% clay
	BH0300AC				5935	18				17.8-18.0 ft. VOA sample obtained from this interval.
										Total depth at 18.0 ft
					5934	19				
						20				

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 24.3	GROUND ELEVATION (FT) 5954.10	PROJECT NUMBER OU6 RFI/RI	LOG OF BORING NUMBER	
NORTH 751116	AREA IHSS 156.2	CASING DIAMETER (IN)	GEOLOGIST LVS	74292	
EAST 2086716	LOCATOR NUMBER J13	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 12/17/92		
REMARKS SURFACE SEALED 12/21/92					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5954	0			SC	0.0-0.7 ft. Clayey Sand with some gravel and silt, brown (10YR5/3) to very pale brown (10YR7/3) to very dark gray (10YR3/1) to yellow (10YR7/8) to brownish yellow (10YR6/8) to white (10YR8/2) to yellowish red (5YR4/6), gravel maximum size 0.2', average 0.05', angular to sub-rounded, consisting of quartzite and quartz, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit moderate plasticity, iron oxide staining, moist. 22.6% gravel, 32.8% sand, 15.6% silt, 29% clay
	BH6047OWC			0.90 /2.00	5953	1				
					5952	2				0.7-0.9 ft. VOA sample obtained from this interval.
										0.9-2.0 ft. No recovery for this interval.
	BH6046BWC			0.40 /2.00	5951	3			SC	2.0-2.4 ft. Clayey Sand as described above.
										2.4-4.0 ft. No recovery for this interval.
					5950	4			SC	4.0-4.8 ft. Clayey Sand as described above.
	BH6047IWC			1.00 /2.00	5949	5				4.8-5.0 ft. VOA sample obtained from this interval.
										5.0-6.0 ft. No recovery for this interval.
					5948	6			SC	6.0-7.0 ft. Clayey Sand as described above.
				1.00 /1.90	5947	7				7.0-7.9 ft. No recovery for this interval.
					5946	8			SC	7.9-8.5 ft. Clayey Sand as described above.
	BH6047ZWC									8.5-8.7 ft. VOA sample obtained from this interval.
	[illegible]469WC			0.80 /2.20	5945	9				8.7-10.1 ft. No recovery for this interval.
						10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 24.3	GROUND ELEVATION (FT) 5934.10	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	751116	AREA THSS 156.2	CASING DIAMETER (IN)	GEOLOGIST LVS	74292
EAST	2086716	LOCATOR NUMBER J13	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 12/17/92	

REMARKS: SURFACE SEALED 12/21/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5934	10			SC	10.1-11.0 ft Clayey Sand as described above.
				2.20/2.20	5933	11				11.0-12.3 ft No recovery for this interval.
					5932	12			SC	12.3-13.1 ft Clayey Sand as described above.
	BH6M73UC			1.00/1.90	5931	13				13.1-13.3 ft VOA sample obtained from this interval.
										13.3-14.2 ft No recovery for this interval.
					5930	14			SC	14.2-15.5 ft Clayey Sand as described above.
	BH6M75UC			1.70/1.70	5929	15				
										15.5-15.9 ft No recovery for this interval.
					5928	16			SC	15.9-16.6 ft Clayey Sand as described above.
	BH6M74UC			0.90/1.90						16.6-16.8 ft VOA sample obtained from this interval.
					5927	17				16.8-17.8 ft No recovery for this interval.
					5926	18			SC	17.8-18.8 ft Clayey Sand as described above.
	BH6M86UC			1.00/2.00	5925	19				18.8-19.8 ft No recovery for this interval.
						20				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 24.3	GROUND ELEVATION (FT)	5954.10	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	751116	AREA THSS 156.2	CASING DIAMETER (IN)		GEOLOGIST	LVS	74292
EAST	2086716	LOCATOR NUMBER J13	BOREHOLE DIAMETER (IN)	6.5	DATE DRILLED	12/17/92	

REMARKS: SURFACE SEALED 12/21/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5934	20			SC	19.8-20.1 ft. Clayey Sand as described above. Top of bedrock at 20.1 ft.
									SANDY CLAYSTONE	20.1-20.7 ft. Sandy Claystone as described below.
	BH6M75AC			1.10/2.30	5933	21				20.7-20.9 ft. VOA sample obtained from this interval.
										20.9-22.1 ft. No recovery for this interval.
	BH6M87AC				5932	22				
									SANDY CLAYSTONE	22.1-23.9 ft. Sandy Claystone with trace silt, light gray (10YR6/1) to strong brown (10YR5/8) to reddish yellow (10YR6/8) to pinkish white (10YR8/2), sand is fine-grained, well sorted, sub-angular to sub-rounded, consisting of quartz, fines exhibit moderate to high plasticity, porosity is less than 5% argillaceous cementation, moist, local iron oxide staining and carbonaceous material, with fractures (0-10 degrees) at 23.2 ft. and (20 degrees) at 23.3 ft., healed with sand and $CaCO_3$, with extensive iron oxide staining. 14.8% sand, 4.3% silt, 80.9% clay.
				1.80/2.20	5931	23				
					5930	24				23.9-24.3 ft. No recovery for this interval.
										Total depth at 24.3 ft.
					5929	25				
					5928	26				
					5927	27				
					5926	28				
					5925	29				
						30				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 12.9	GROUND ELEVATION (FT) 5953.10	PROJECT NUMBER OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	750991	AREA IHSS 156.2	CASING DIAMETER (IN)	GEOLOGIST LYS	74392
EAST	2086798	LOCATOR NUMBER I13	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 12/11/92	
REMARKS	SURFACE SEALED 12/16/92				

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%		5953	0			SC	0.0-1.3 ft. Gravelly Sand with some clay and silt, pale brown (10YR6/3) to brownish yellow (10YR6/8) to yellowish red (5YR4/6) to dark red (10R3/6) to grayish brown (10YR5/2) to white (10YR8/1) to light gray (10YR7/2), gravel maximum size 0.2", average size 0.1", angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit moderate plasticity, plant roots at 0.0-0.5 ft extensive iron oxide staining, voided, with mottled texture, caliche zone at 4.7-5.2 ft., moist.
				1.50/2.00	5952	1				28.6% gravel, 52.4% sand, 7.6% silt, 11.4% clay
	BH6036UC									1.3-1.5 ft. VOA sample obtained from this interval.
					5951	2				1.5-2.0 ft. No recovery for this interval.
	BH6039UC			0.80/2.00	5950	3			SC	2.0-2.8 ft. Gravelly Sand as described above.
										2.8-4.0 ft. No recovery for this interval
					5949	4			SC	4.0-5.2 ft. Gravelly Sand as described above.
				1.40/1.90	5948	5				
	BH6036UC									5.2-5.4 ft. VOA sample obtained from this interval.
										5.4-5.9 ft. No recovery for this interval.
					5947	6			SC	5.9-6.6 ft. Gravelly Sand as described above
										6.6-8.0 ft. No recovery for this interval
				0.70/2.10	5946	7				
									SC	8.0-8.35 ft. Gravelly Sand as described above
	BH6038UC								CL	8.35-9.1 ft. Sandy Clay with some silt and trace gravel, white (10YR8/2) to very pale brown (10YR8/3), gravel maximum and average size 0.1", sub-angular, quartzite, sand is predominantly fine-grained, well sorted, trace medium to coarse sand, angular to sub-angular, consisting of quartz and quartzite, fines exhibit low plasticity, moist, caliche zone.
					5945	8				5% gravel, 15.7% sand, 7.9% silt, 71.2% clay
				1.30/1.80	5944	9				9.1-9.3 ft. VOA sample obtained from this interval
	0362UC									9.3-9.8 ft. No recovery for this interval
										Top of bedrock at 9.8 ft.
						10			SANDY CLAYSTONE	9.8-11.4 ft

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 12.9	GROUND ELEVATION (FT) 5953.10	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	750991	AREA IHSS 156.2	CASING DIAMETER (IN)	GEOLOGIST LVS	74392
EAST	2086798	LOCATOR NUMBER 113	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 12/11/92	

REMARKS: SURFACE SEALED 12/16/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6035AC			1.40 /2.70	5943	10				Sandy Claystone with some silt, light gray (5YR7/1) to white (5YR8/1), sand is fine-grained, well sorted, sub-rounded, consisting of quartz and quartzite, fines exhibit moderate plasticity, less than 5% porosity, argilloceous cementation, moderate to high friability, veinlets of CaCO3, localized iron oxide staining, fractures (30 degrees) at 10.5-10.7 ft. healed with CaCO3, faint bedding 10 degrees, moist. 28.1% sand, 7.2% silt, 64.7% clay.
					5942	11				11.4-12.1 ft. No recovery for this interval.
					5941	12			SANDY CLAYSTONE	12.2-12.5 ft. Sandy Claystone as described above.
	BH6036AC			0.50 /0.40						12.5-12.7 ft. VOA sample obtained from this interval.
					5940	13				12.7-12.9 ft. No recovery for this interval.
										Total depth at 12.9 ft
					5939	14				
					5938	15				
					5937	16				
					5936	17				
					5935	18				
					5934	19				
						20				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 14.2	GROUND ELEVATION (FT) 5949.40	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH 750860		AREA IHSS 156.2	CASING DIAMETER (IN)	GEOLOGIST LVS	74492
EAST 2086872		LOCATOR NUMBER 113	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 12/08/92	
REMARKS SURFACE SEALED 12/16/92					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5949	0			SC	0.0-0.9 ft Gravelly Sand with some clay and silt, very pale brown (10YR8/4), light gray (10YR7/1) to pink (5YR7/3) to black (N1) to yellow (10YR7/6) to brown-dark brown (10YR4/3) to white (N9), gravel maximum size 0.2', average size 0.05', angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, angular to sub-rounded, consisting of quartz and quartzite, moderate plasticity, thin beds (0.05-0.1') sorted sand, clay and gravel at 0.0-1.0 ft., plant roots at 0.0-0.7 ft., asphalt at 2.4 ft., fill at 5.9-7.5 ft., reworked, moist 22.2% gravel 46.8% sand, 9.3% silt, 21.7% clay
	BH6287AC			1.10 /2.00	5948	1				
					5947	2				0.9-1.1 ft. VOA sample obtained from this interval. 1.1-2.0 ft. No recovery for this interval.
	BH6289AC			0.80 /2.00	5946	3			SC	2.0-2.8 ft. Gravelly Sand as described above 2.8-4.0 ft. No recovery for this interval.
					5945	4			SC	4.0-4.8 ft. Gravelly Sand as described above
	BH6288AC			1.00 /1.90	5944	5				4.8-5.0 ft. VOA sample obtained from this interval. 5.0-5.9 ft. No recovery for this interval.
					5943	6			SC	5.9-7.5 ft. Gravelly Sand as described above
				1.60 /2.10	5942	7				7.5-8.0 ft. No recovery for this interval. Top of bedrock at 8.0 ft.
	BH6285AC				5941	8			SILTY CLAYSTONE	8.0-8.6 ft Silty Claystone with some sand and trace gravel, light gray (10YR7/1-7/2) to yellow (10YR7/6-7/8) to white (10YR8/1), gravel is 0.025', sub-angular, quartzite, sand is fine-grained, well sorted, sub-angular to sub-rounded, consisting of quartz, fines exhibit moderate to high plasticity, 5% to 10% porosity, low to moderate friability, mottled texture, localized iron oxide staining and $CaCO_3$, moist 0.1% gravel, 16.5% sand, 33.4% silt, 50% clay
	BH6289AC			0.80 /2.10	5940	9				8.6-8.8 ft. VOA sample obtained from this interval. 8.8-10.1 ft. No recovery for this interval.
						10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 14.2	GROUND ELEVATION (FT) 5949.40	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	750860	AREA THSS 156.2	CASING DIAMETER (IN)	GEOLOGIST LYS	74492
EAST	2086872	LOCATOR NUMBER I13	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 12/08/92	

REMARKS: SURFACE SEALED 12/16/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5949	0			SC	0.0-0.9 ft. Gravelly Sand with some clay and silt, very pale brown (10YR8/4), light gray (10YR7/1) to pink (5YR7/3) to black (N1) to yellow (10YR7/6) to brown-dark brown (10YR4/3) to white (N9), gravel maximum size 0.2', average size 0.05', angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, angular to sub-rounded, consisting of quartz and quartzite, moderate plasticity, thin beds (0.05-0.1') sorted sand, clay and gravel at 0.0-1.0 ft., plant roots at 0.0-0.7 ft., asphalt at 2.4 ft., fill at 5.9-7.5 ft., reworked, moist. 22.2% gravel, 46.8% sand, 9.3% silt, 21.7% clay
	BH6287AC			1.10 /2.00	5948	1				
					5947	2				0.9-1.1 ft. VOA sample obtained from this interval. 1.1-2.0 ft. No recovery for this interval
	BH6288AC			0.80 /2.00	5946	3			SC	2.0-2.8 ft. Gravelly Sand as described above. 2.8-4.0 ft. No recovery for this interval
					5945	4			SC	4.0-4.8 ft. Gravelly Sand as described above
	BH6288AC			1.00 /1.90	5944	5				4.8-5.0 ft. VOA sample obtained from this interval. 5.0-5.9 ft. No recovery for this interval
					5943	6			SC	5.9-7.5 ft. Gravelly Sand as described above
				1.60 /2.10	5942	7				7.5-8.0 ft. No recovery for this interval. Top of bedrock at 8.0 ft.
	BH6289AC				5941	8			SILTY CLAYSTONE	8.0-8.6 ft. Silty Claystone with some sand and trace gravel, light gray (10YR7/1-7/2) to yellow (10YR7/6-7/8) to white (10YR8/1), gravel is 0.025', sub-angular, quartzite, sand is fine-grained, well sorted, sub-angular to sub-rounded, consisting of quartz, fines exhibit moderate to high plasticity, 5% to 10% porosity, low to moderate friability, mottled texture, localized iron oxide staining and $CaCO_3$, moist. 0.1% gravel, 16.5% sand, 33.4% silt, 50% clay
	BH6289AC			0.80 /2.10	5940	9				8.6-8.8 ft. VOA sample obtained from this interval. 8.8-10.1 ft. No recovery for this interval
						10				

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 14.2	GROUND ELEVATION (FT): 5949.40	PROJECT NUMBER: 006 RFI/RI	LOG OF BORING NUMBER:	
NORTH 750860	AREA: IHSS 156.2	CASING DIAMETER (IN):	GEOLOGIST: LVS	74492	
EAST 2086872	LOCATOR NUMBER: I13	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED: 12/08/92		
REMARKS: SURFACE SEALED 12/16/92					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5939	10			SILTY CLAYSTONE	10.1-10.8 ft. Silty Claystone as described above.
				0.70 /2.00	5938	11				10.8-12.1 ft. No recovery for this interval.
	BH60286C				5937	12			SILTY CLAYSTONE	12.1-13.2 ft. Silty Claystone as described above.
	BH60290C			1.30 /2.10	5936	13				13.2-13.4 ft. VOA sample obtained from this interval.
										13.4-14.0 ft. No recovery for this interval.
					5935	14				Total depth at 14.2 ft.
					5934	15				
					5933	16				
					5932	17				
					5931	18				
					5930	19				
						20				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 24.0	GROUND ELEVATION (FT)	5954.50	PROJECT NUMBER:	006 RFI/RI	LOG OF BORING NUMBER
NORTH	751088	AREA: THSS 156.2	CASING DIAMETER (IN)		GEOLOGIST:	LYS	74592
EAST	2086832	LOCATOR NUMBER: J13	BOREHOLE DIAMETER (IN)	6.5	DATE DRILLED:	12/15/92	
REMARKS							

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6014C			1.40/2.00	5954	0			SM	0.0-1.2 ft Silty Sand with abundant gravel and some pinkish white (10YR8/2) to dark brown (10YR3/2) to brown-dark brown (10YR4/2), gravel maximum size 0.15', average size 0.05', angular to sub-angular, consisting of quartz and quartzite, fines exhibit, moderate grained, well graded, angular, consisting of quartzite and quartz, extensive plant roots at 0.0-2.5 ft., moist. 26.4% gravel, 27.5% sand, 27.7% silt, 18.4% clay
					5953	1				1.2-1.4 ft VOA sample obtained from this interval
										1.4-2.0 ft No recovery for this interval
						2			SM	2.0-2.5 ft Silty Sand as described above
					5952				GC	2.5-2.8 ft. Clayey Gravel with trace sand and silt, light olive gray (5Y6/2) to light gray (5Y6/1), gravel maximum and average size 0.2', angular to sub-angular, consisting of quartz and quartzite, sand is fine-grained, well sorted, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit moderate plasticity, moist. 50% gravel, 2.6% sand, 2.4% silt, 45% clay
	BH6010C			0.80/2.00		3				
					5951					2.8-4.0 ft No recovery for this interval
						4			SM	4.0-4.4 ft Silty Sand with abundant gravel, some clay, very dark grayish brown (10YR3/2), gravel maximum and average size 0.05', angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate plasticity, moist. 26.4% gravel, 27.5% sand, 27.7% silt, 18.4% clay
					5950					
	BH6015C BH6015CDS/150			1.20/2.00		5			GC	4.4-4.5 ft Clayey Gravel as described at 2.5-2.8 ft., moist
					5949				SC	4.5-4.8 ft Clayey Sand as described above
										4.8-5.0 ft VOA sample obtained from this interval
										5.0-5.2 ft VOA sample obtained from this interval
										5.2-6.0 ft No recovery for this interval
						6			SC	6.0-7.1 ft. Clayey Sand with some gravel and trace silt, yellow red (5Y4/6) at 4.5-5.2 ft., brown-dark brown (10YR4/3-3/3) at 6.0-6.4 ft., brownish yellow (10YR6/8) at 6.4-7.1 ft., brown (10YR5/3) at 8.0-12.0 ft., white (N9) at 12.0-13.3 ft., very pale brown (10YR7/2) at 14.1-14.7 ft., pink (7.5YR8/4) at 14.7-17.3 ft., pink (5YR7/4) to yellowish red (5YR5/6) at 18.0-25.3 ft., gravel maximum size 0.2', average size 0.05', angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit moderate plasticity, caliche zones at 12.0-13.3 ft., 14.7-17.3 ft., mottled texture at 6.0-6.4 ft. and 10.0-10.8 ft., CaCO3 in voids, horizontal bedding, moist. 23.5% gravel, 38.6% sand, 3.8% silt, 34.1% clay
				1.10/2.00	5948	7				
					5947					
						8				
	BH6016C BH6016C			0.90/2.00	5946					
						9				7.1-8.0 ft No recovery for this interval
					5945				SC	8.0-8.7 ft Clayey Sand as described above
										8.7-8.9 ft VOA sample obtained from this interval
						10				8.9-10.0 ft No recovery for this interval

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 24.0	GROUND ELEVATION (FT) 5954.50	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	751088	AREA IHSS 156.2	CASING DIAMETER (IN)	GEOLOGIST LYS	74592
EAST	2086832	LOCATOR NUMBER J13	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 12/15/92	
REMARKS					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				0.80/1.80	5944	10			SC	10.0-10.8 ft Clayey Sand as described above.
					5943	11				10.8-11.8 ft No recovery for this interval.
				1.50/2.30	5942	12			SC	11.8-13.1 ft Clayey Sand as described above.
	BH0417AC				5941	13				13.1-13.3 ft VOA sample obtained from this interval.
										13.3-14.1 ft No recovery for this interval.
	BH0412AC			1.00/2.00	5940	14			SC	14.1-15.1 ft Clayey Sand as described above.
					5939	15				15.1-16.1 ft No recovery for this interval.
				1.20/1.90	5938	16			SC	16.1-17.1 ft Clayey Sand as described above.
	BH0418AC				5937	17				17.1-17.3 ft VOA sample obtained from this interval.
										17.3-18.0 ft No recovery for this interval.
				1.30/2.40	5936	18			SC	18.0-19.3 ft Clayey Sand as described above.
	BH0429AC				5935	19				19.3-20.4 ft No recovery for this interval.
						20				

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 24.0	GROUND ELEVATION (FT): 5954.50	PROJECT NUMBER: OU5 RFT/RI	LOG OF BORING NUMBER
NORTH	751088	AREA: IHSS 156.2	CASING DIAMETER (IN):	GEOLOGIST: LVS	74592
EAST:	2086832	LOCATOR NUMBER: J13	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED: 12/15/92	

REMARKS:

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%			20			SC:	20.4-21.3 ft. Clayey Sand as described above.
					5934	21			CL:	21.3-21.8 ft. Silty Clay with some sand, light gray (10YR6/1), sand is fine-grained, well sorted, angular to sub-rounded, quartz, fines exhibit moderate plasticity, clay clasts suggest re-worked bedrock, moist. 10.5% sand, 26.8% silt, 62.7% clay.
				1.60 /2.10	5933	22				21.8-22.0 ft. VOA sample obtained from this interval.
	BH0419C									22.0-22.5 ft. No recovery for this interval.
	BH0420C				5932				SC:	22.5-23.1 ft. Clayey Sand as described at 4.5-21.3 ft., moist. Top of bedrock at 23.1 ft.
				1.30 /1.50	5931	23			SILTY CLAYSTONE:	23.1-23.8 ft. Silty Claystone with some sand, light gray (10YR6/1), sand is fine-grained, well sorted, sub-angular to sub-rounded, consisting of quartz, fines exhibit moderate plasticity, less than 5% porosity, moderate friability, local iron oxide staining and carbonaceous material, moist. 12.2% sand, 26.3% silt, 61.5% clay.
					5930	24				23.8-24.0 ft. No recovery for this interval.
					5929	25				Total depth at 24.0 ft.
					5928	26				
					5927	27				
					5926	28				
					5925	29				
						30				

DRAFT

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 12 2	GROUND ELEVATION (FT)	5951 10	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH 750960	AREA THSS 156 2	CASING DIAMETER (IN)		GEOLOGIST	LYS	74692
EAST 2086910	LOCATOR NUMBER I13	BOREHOLE DIAMETER (IN)	6 5	DATE DRILLED	12/07/92	
REMARKS SURFACE SEALED 12/16/92						

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%		5951	0			GM:	0.0-1.3 ft Sandy Gravel with some silt and clay, dark brown (10YR3/3) to light brownish gray (10YR6/2), gravel maximum size 0.15', average size 0.05', angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz and quartzite, fines exhibit no plasticity, local iron oxide staining and CaCO3, moist 39.5% gravel, 30.7% sand, 20.9% silt, 8.9% clay
				1.50/2.00	5950	1				1.3-1.5 ft VOA sample obtained from this interval
	BH6023BC									1.5-2.0 ft No recovery for this interval
					5949	2			GM:	2.0-2.5 ft Sandy Gravel as described above
										2.5-4.0 ft No recovery for this interval
	BH6023SC			0.50/2.00	5948	3				
					5947	4			GM:	4.0-4.5 ft Sandy Gravel as described above
									CL:	4.5-4.7 ft Silty Clay with trace sand and gravel, light gray (5Y7/2), sand is fine-grained, well sorted, sub-angular to sub-rounded, consisting of quartz, fines exhibit moderate plasticity, moist 1% gravel, 4% sand, 14% silt, 81% clay
	BH6023GC			0.90/2.00	5946	5				4.7-4.7 ft VOA sample obtained from this interval
										4.9-6.0 ft No recovery for this interval
					5945	6			GM	6.0-6.7 ft Sandy Gravel as described above, moist
	BH6023HC									6.7-8.3 ft No recovery for this interval Top of bedrock at 8.3 ft
				0.70/2.30	5944	7				
					5943	8			SANDY SILTSTONE	8.3-9.5 ft Sandy Siltstone with some clay, gray (N5) to white (N9), sand is fine-grained, well sorted, sub-angular to sub-rounded, consisting of quartz, fines exhibit moderate plasticity, localized iron oxide staining and CaCO3, 5% porosity, high friability, moist 22.3% sand, 62.2% silt, 15.5% clay
				1.40/2.00	5942	9				9.5-9.7 ft VOA sample obtained from this interval
	BH6024DC									9.7-10.3 ft No recovery for this interval
						10				

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 12.2	GROUND ELEVATION (FT):	5951.10	PROJECT NUMBER:	006 RFI/RI	LOG OF BORING NUMBER
NORTH:	750960	AREA: THSS 156.2	CASING DIAMETER (IN):		GEOLOGIST:	LVS	74692
EAST:	2086910	LOCATOR NUMBER: 113	BOREHOLE DIAMETER (IN):	6.5	DATE DRILLED:	12/07/92	

REMARKS: SURFACE SEALED 12/16/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6037AC			1.20/1.90	5941	10			SANDY CLAYSTONE	10.3-11.5 ft. Sandy Claystone with trace silt, light gray (10YR7/2) to brownish yellow (10YR6/8), sand is fine-grained, well sorted angular to sub-angular, consisting of quartz, fines exhibit moderate to high plasticity, less than 5% porosity, moderately friable, local iron oxide staining, fractures and bedding 0 degrees at 10.7-11.0 ft. healed with CaCO3 and iron oxide, moist. 27.6% sand, 3.1% silt, 59.3% clay.
					5940	11				
					5939	12				11.5-12.2 ft. No recovery for this interval.
					5938	13				Total depth at 12.2 ft.
					5937	14				
					5936	15				
					5935	16				
					5934	17				
					5933	18				
					5932	19				
						20				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 24.2	GROUND ELEVATION (FT)	5952.00	PROJECT NUMBER	006 RFI/RI	LOG OF BORING NUMBER
NORTH	751175	AREA THSS 156.2	CASING DIAMETER (IN)		GEOLOGIST	LYS	74792
EAST	2086861	LOCATOR NUMBER J13	BOREHOLE DIAMETER (IN)	6.5	DATE DRILLED	12/16/92	

REMARKS: SURFACE SEALED 12/21/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL (0% – 100%)	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5952	0			SC	0.0-1.1 ft Clayey Sand with abundant gravel and some silt, brown (10YR5/3), red (2.5YR4/6-5/6), dark grayish brown (10YR3/2), gravel maximum size 0.1', average size 0.05', angular to sub-angular, consisting of quartzite and quartz, sand is fine- to coarse-grained, well graded, angular to sub-angular consisting of quartz and quartzite, fines exhibit moderate plasticity, plant roots at 0.0-0.4 ft. and 6.1-6.3 ft., cob webs at 0.0-0.2 ft. and 6.1-6.3 ft., caliche zone at 6.8 ft. mottled texture, moist. 26.7% gravel, 31.2% sand, 8.4% silt, 33.7% clay
				1.30/2.10	5951	1				1.1-1.3 ft VOA sample obtained from this interval.
										1.3-2.1 ft No recovery for this interval.
	B60-01UC				5950	2			SC	2.1-2.8 ft Clayey Sand as described above.
	B60-07UC			0.70/2.00	5949	3				2.8-4.1 ft No recovery for this interval.
	B60-05UC									
					5948	4			SC	4.1-4.7 ft Clayey Sand as described above.
	B60-08UC									4.7-4.9 ft VOA sample obtained from this interval.
	B60-02UC			1.00/2.00	5947	5				4.9-5.1 ft VOA sample obtained from this interval.
										5.1-6.1 ft No recovery for this interval.
					5946	6			SC	6.1-7.5 ft Clayey Sand as described above.
				1.40/1.98	5945	7				
										7.5-8.0 ft No recovery for this interval.
					5944	8			SC	8.0-8.8 ft Clayey Sand as described above.
	B60-03UC			1.00/2.00	5943	9				8.8-9.0 ft VOA sample obtained from this interval.
	08UC									9.0-10.0 ft No recovery for this interval.
						10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 24 2	GROUND ELEVATION (FT)	5952 00	PROJECT NUMBER	006 RFI/RI	LOG OF BORING NUMBER
NORTH	751175	AREA IHSS 156 2	CASING DIAMETER (IN)		GEOLOGIST	LYS	74792
EAST	2086861	LOCATOR NUMBER J13	BOREHOLE DIAMETER (IN)	6 5	DATE DRILLED	12/16/92	

REMARKS SURFACE SEALED 12/21/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5942	10			SC	10 0-10 8 ft Clayey Sand as described above
				0 80 /2 30	5941	11				10 8-12 3 ft No recovery for this interval
					5940	12				
									SC	12 3-13 0 ft Clayey Sand as described above
	BH6034SC			0 90 /1 90	5939	13				13 0-13 2 ft VOA sample obtained from this interval
										13 2-14 2 ft No recovery for this interval
					5938	14				
									CL	14 2-15 6 ft Sandy Clay with some silt and trace gravel, pinkish white (7 5YR8/2), gravel maximum size 0 025', average 0 01', angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate plasticity, approximately 30% of clay is CaCO3 0 4% gravel, 42 8% sand, 17% silt, 39 8% clay
	BH6035SC			1 40 /2 20	5937	15				
					5936	16				15 6-16 4 ft No recovery for this interval
									CL	16 4-16 8 ft Sandy Clay as described above
					5935	17			SM	16 8-17 5 ft Silty Sand with some gravel and clay, reddish yellow (5Y6/6) gravel maximum size 0 15', average size 0 025', angular to sub-angular, consisting of quartzite, sand is fine- to medium-grained, poorly graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit low to moderate plasticity, voided, CaCO3 present, fracture, 90 degrees at 17 4 ft, healed with CaCO3, moist 12 5% gravel, 59 1% sand, 19 9% silt, 8 5% clay
	BH6036SC			1 30 /2 00	5934	18				17 5-17 7 ft VOA sample obtained from this interval
										17 7-18 4 ft No recovery for this interval
				0 80 /1 60	5933	19			GM	18 4-19 2 ft Sandy Gravel with some silt and trace clay, dark gray (7 5YRN4) to pinkish gray (7 5YR7/2), gravel maximum size 0 2', average size 0 05', angular, consisting of quartzite,
	BH6037SC					20				

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 24.2	GROUND ELEVATION (FT):	5952.00	PROJECT NUMBER:	006 RFI/RI	LOG OF BORING NUMBER
NORTH	751175	AREA: IHSS 156.2	CASING DIAMETER (IN):		GEOLOGIST:	LVS	74792
EAST	2086861	LOCATOR NUMBER: J13	BOREHOLE DIAMETER (IN):	6.5	DATE DRILLED:	12/16/92	
REMARKS:	SURFACE SEALED 12/21/92						

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%							
					5932	20				19.2-20.0 ft. No recovery for this interval.
				1.80/2.20	5931	21			GM:	20.0-20.5 ft. Sandy Gravel as described above.
									CH:	20.5-21.6 ft. Silty Clay with trace sand, light gray (10YR7/1), grayish brown (2.5Y5/2), sand is fine-grained, well sorted, sub-rounded, consisting of quartz, fines exhibit moderate to high plasticity, moist. 4.7% sand, 9.5% silt, 85.8% clay
	BH0156JC				5930	22				
	BH0154JC									21.6-23.8 ft. VOA sample obtained from this interval
										21.8-22.2 ft. No recovery for this interval
				1.60/2.00	5929	23			ML:	22.2-22.6 ft. Sandy Silt with abundant clay, light gray (10YR7/1), grayish brown (2.5Y5/2), sand is fine- to medium-grained, poorly graded, angular to sub-rounded, consisting of quartz, fines exhibit moderate plasticity, mottled texture, appearance of reworked bedrock, moist. 27.5% sand, 47.1% silt, 25.4% clay. Top of bedrock at 22.6 ft.
					5928	24				
					5927	25			CLAYSTONE:	22.6-23.8 ft. Claystone with trace silt and sand, light gray (10YR7/1), grayish brown (2.5Y5/2), sand is fine-grained, well sorted, sub-rounded, consisting of quartz, fines exhibit high plasticity, local iron oxide staining, less than 10% porosity, friability, fracture of 60 degrees at 23.1 ft., carbonaceous material, moist. 3.3% sand, 4.8% silt, 91.9% clay
					5926	26				23.8-24.2 ft. No recovery for this interval
					5925	27				Total depth at 24.2 ft.
					5924	28				
					5923	29				
						30				

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 14.0	GROUND ELEVATION (FT):	5951.30	PROJECT NUMBER:	006 RFI/RI	LOG OF BORING NUMBER
NORTH:	751062	AREA: IHSS 156.2	CASING DIAMETER (IN):		GEOLOGIST:	J.P. GIROD	74892
EAST:	2086925	LOCATOR NUMBER: J13	BOREHOLE DIAMETER (IN):	6.5	DATE DRILLED:	12/14/92	
REMARKS: SURFACE SEALED 12/16/92							

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5951	0			SC	0.0-1.0 ft. Clayey Sand with some gravel and trace silt, pale brown (10YR6/3), dusky red (2.5YR3/2), light brownish gray (2.5Y6/4), brown (10YR5/3), very pale brown (10YR8/3), gravel maximum size 0.15', average size 0.05', angular to sub-rounded, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to rounded, consisting of quartz and quartzite, fines exhibit moderate plasticity, extensive plant roots at 0.0-0.7 ft, CaCO3 and iron oxide staining, mottled texture, moist. 17.1% gravel, 41.6% sand, 8.3% silt, 33% clay
	BH6037NC			1.20 /2.00	5950	1				1.0-1.2 ft. VOA sample obtained from this interval.
					5949	2				1.2-2.0 ft. No recovery for this interval.
	BH6037MC			1.80 /2.00	5948	3			SC	2.0-3.8 ft. Clayey Sand as described above.
										3.8-4.0 ft. No recovery for this interval.
					5947	4			SC	4.0-4.9 ft. Clayey Sand as described above.
	BH6037BLC			1.10 /2.00	5946	5				4.9-5.1 ft. VOA sample obtained from this interval.
										5.1-6.0 ft. No recovery for this interval.
					5945	6			SC	6.0-7.3 ft. Clayey Sand as described above.
				1.30 /2.00	5944	7				7.3-8.0 ft. No recovery for this interval.
	BH6037SLC				5943	8			SC	8.0-8.7 ft. Clayey Sand as described above.
	BH6037SLC			0.90 /2.00	5942	9				8.7-8.9 ft. VOA sample obtained from this interval.
										8.9-10.0 ft. No recovery for this interval.
						10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 14.0	GROUND ELEVATION (FT) 5951.30	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	751062	AREA IHSS 156.2	CASING DIAMETER (IN)	GEOLOGIST	J.P. GIROD	74892
EAST	2086925	LOCATOR NUMBER J13	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED	12/14/92	

REMARKS: SURFACE SEALED 12/16/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50%)	PERCENT RECOVERY (100% 0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				1.80 /2.00	5941	10			CL	10.0-11.8 ft. Gravelly Clay with some silt, white (N9) to light gray (5YR8/1-7/1), gravel maximum size 0.15', average size 0.1', consisting of quartzite, sand is fine-grained, well sorted, sub-rounded, consisting of quartz, fines exhibit moderate to high plasticity, caliche zone at 10.0-10.4 ft., local iron oxide staining, CaCO3 in voids, fractures 0-30 degrees at 11.2 ft. and 90 degrees at 11.6-11.8 ft., healed with CaCO3 and iron oxide, moist.
					5940	11				
	BH0376UC					12				11.6% gravel, 0.7% sand, 8.8% silt, 78.9% clay
					5939					11.8-12.0 ft. No recovery for this interval.
									CL	12.0-12.6 ft. Gravelly Clay as described above.
	BH0383UC									12.6-12.8 ft. VOA sample obtained from this interval.
	BH0380UC			1.00 /2.00		13				12.8-13.0 ft. VOA sample obtained from this interval.
					5938					13.0-14.0 ft. No recovery for this interval.
					5937	14				Total depth at 14.0 ft.
					5936	15				
					5935	16				
					5934	17				
					5933	18				
					5932	19				
						20				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 22.0		GROUND ELEVATION (FT)	5951.80	PROJECT NUMBER	OU6 RFI/RI
NORTH	751152	AREA IHSS 156.2		CASING DIAMETER (IN)		GEOLOGIST	J.P. GIROD
EAST	2086952	LOCATOR NUMBER	J13	BOREHOLE DIAMETER (IN)	6.5	DATE DRILLED	12/14/92

REMARKS: SURFACE SEALED 12/17/92

LOG OF BORING NUMBER

74992

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL BOTTOM DEPTH

SAMPLE NUMBER: BH60396C, BH60394C, BH60402C, BH60397C, BH60395C, BH60398C

SAMPLE GRAIN SIZE: 0% 50% 100%

PERCENT RECOVERY: 0% 100%

RECOVERY/INTERVAL: 1.40/2.00; 0.80/2.00; 2.00/2.00; 2.00/2.00; 1.30/2.00

DATUM (FT): 5951, 5950, 5949, 5948, 5947, 5946, 5945, 5944, 5943, 5942

DEPTH (FT): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

WELL OR PIEZOMETER CONSTRUCTION

LITHOLOGY

UNIFIED SOILS CLASSIFICATION OR ROCK TYPE

DESCRIPTION

SC: 0.0-1.2 ft.
Gravelly Sand with some clay and silt, grayish brown (2.5Y5/2), light brownish gray (2.5Y6/2) at 0.0-2.3', pale yellow (2.5Y7/4), light brownish gray (2.5Y6/2) at 2.3-4.8', brown (10YR5/3), light brownish gray (2.5Y6/2) at 4.8-6.3', reddish yellow (7.5YR6/8) to dark reddish brown (2.5YR2.5/4) at 6.3-7.1', brown (7.5YR5/4), very pale brown (10YR7/3-7/4) at 7.1-10.5', very dark gray (10YR3/1) at 10.5-11.7', gravel maximum size 0.15', average size 0.05', angular to sub-angular, consisting of quartzite, quartz and schist, fines exhibit moderate plasticity, plant roots at 0.0-2.8 ft., mottled texture, CaCO3 in voids, voided, extensive iron oxide staining on grains at 6.3-7.1', 8.0', 10.5-11.7', plant roots and cob webs, fracture of 30 degrees at 4.3' filled with fine to coarse sand, moist
30% gravel, 47.3% sand, 6.8% silt, 15.9% clay

1.2-1.4 ft. VOA sample obtained from this interval.

1.4-2.0 ft. No recovery for this interval.

SC: 2.0-2.8 ft. Gravelly Sand as described above.

2.8-4.0 ft. No recovery for this interval.

SC: 4.0-5.8 ft. Gravelly Sand as described above.

5.8-6.0 ft. VOA sample obtained from this interval.

SC: 6.0-9.1 ft. Gravelly Sand as described above.

9.1-9.3 ft. VOA sample obtained from this interval.

9.3-10.0 ft. No recovery for this interval.

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 22.0	GROUND ELEVATION (FT) 5951.80	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	751152	AREA IHSS 156.2	CASING DIAMETER (IN)	GEOLOGIST J.P. GIROD	74992
EAST	2086952	LOCATOR NUMBER J13	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 12/14/92	

REMARKS: SURFACE SEALED 12/17/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%			10			SC	10.0-11.7 ft. Gravelly Sand as described above
				2.00/2.00	5941	11				
					5940	12			CL	11.7-13.2 ft. Sandy Clay with trace silt and gravel, pinkish white (5YR8/2), gravel maximum size 0.15', average size 0.1', angular to sub-angular, consisting of quartzite, sand is fine-grained, well sorted, with trace medium to coarse sand, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit low plasticity, CaCO3 cementation, moist. 1% gravel, 27% sand, 3.4% silt, 65.6% clay
				1.40/2.00	5939	13				13.2-13.4 ft. VOA sample obtained from this interval.
BH6039UC										13.4-14.0 ft. No recovery for this interval.
					5938	14			CL	14.0-15.8 ft. Sandy Clay as described above. Top of bedrock at 15.8 ft.
				2.00/2.00	5937	15				
					5936	16			SILTY CLAYSTONE	15.8-17.4 ft. Silty Claystone with some sand, olive gray (5Y5/2), very dark gray (5Y3/1), sand is fine-grained, well sorted, angular to sub-angular, consisting of quartzite and quartz, fines exhibit moderate plasticity, 5% porosity, moderate to high friability, argillaceous cementing, fracture approximately 20 degrees at 18.4 ft., horizontal bedding at 15.9 ft., localized iron oxide staining, moist. 15.6% sand, 25.3% silt, 59.1% clay
				1.60/2.00	5935	17				17.4-17.6 ft. VOA sample obtained from this interval.
BH6040UC										17.6-18.0 ft. No recovery for this interval.
					5934	18			SILTY CLAYSTONE	18.0-18.9 ft. Silty Claystone as described above.
BH6041UC				2.00/2.00	5933	19			SANDY CLAYSTONE	18.9-20.0 ft. Sandy Claystone with trace silt, light brown gray (2.5Y6/2) to yellow (2.5Y7/6), sand is fine-grained, well sorted, sub-rounded, consisting of quartz, fines exhibit high plasticity veinlets of CaCO3, less than 5% porosity, low friability, moist
					5932	20				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 22.0	GROUND ELEVATION (FT) 5951.80	PROJECT NUMBER OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	751152	AREA IHSS 156.2	CASING DIAMETER (IN)	GEOLOGIST J.P. GIROD	74992
EAST	2086952	LOCATOR NUMBER J13	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 12/14/92	
REMARKS SURFACE SEALED 12/17/92					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
										43.3% sand, 2.8% silt, 53.9% clay
						20			CLAYSTONE	20.0-21.8 ft Claystone with some sand, trace silt, yellow (2.5Y7/6), olive yellow (2.5Y6/6), white (10YR8/1), sand is fine-grained, well sorted, sub-rounded, consisting of quartz, fines exhibit moderate friability, argillaceous cementing, carbonaceous material, some $CaCO_3$ at 20.0-20.5 ft., extensive iron oxide staining at 20.5-20.8 ft., iron oxide staining along horizontal bedding, moist
				2.00 /2.00	5931	21				
					5930					9.5% sand, 4.5% silt, 86% clay
	BH60-01MC					22				21.8-22.0 ft. VOA sample obtained from this interval.
										Total depth at 22.0 ft.
					5929	23				
					5928	24				
					5927	25				
					5926	26				
					5925	27				
					5924	28				
					5923	29				
					5922	30				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 14 0	GROUND ELEVATION (FT)	5956 20	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	750915	AREA IHSS 156 2	CASING DIAMETER (IN)	2 0	GEOLOGIST	KERRY MIYOSHI	75892
EAST	2086558	LOCATOR NUMBER I13	BOREHOLE DIAMETER (IN)	10 0	DATE DRILLED	11/30/92	
REMARKS	WELL SET 12/03/93						

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				1 70 /2.00	5956	0			SC	0 0-1 5 ft Clayey Sand with abundant gravel, dark brown to brown (7 5YR3/4-5/4), gravel is sub-angular to sub-rounded quartzite, sand is well graded, angular to sub-rounded, quarzt, quartzite, and feldspar clasts, some caliche coating grains, fines have abundant CaCO3 and medium plasticity 3% gravel, 43% sand, 5% silt, 19% clay
	BH60134C				5955	1				1 5-1 7 ft VOA sample obtained from this interval
										1 7-2 0 ft No recovery for this interval
				1 60 /2.00	5954	2			SC	2 0-3 6 ft Sandy Clay wit abundant gravel, yellow brown (10YR5/6) to white, gravel is sub-rounded to angular with abundant caliche coating, size to 0 15', sand is well graded, very fine to coarse, predominantly angular to sub-angular, with some rounded, clear quartz grains, fines exhibit medium plasticity, caliche pervades core and coats clasts, apparently replacing some clasts, thin (0 2') dark organic looking layer at 5 0 ft 22% gravel, 37% sand, 19% silt, 40% clay
					5953	3				
					5952	4				3 6-4 0 ft No recovery for this interval
									SC	4 0-5 2 ft Sandy Clay as described above
				1 40 /2.00	5951	5				
	BH60135C									5 2-5 4 ft VOA sample obtained from this interval
										5 4-6 0 ft No recovery for this interval
					5950	6			SC	6 0-7 6 ft Clayey Sand with some gravel, white to very pale brown (10YR8/2-8/3), caliche zone, gravel is angular and well graded, sand is well graded with angular grains becoming more rounded with decreasing size, to sub-angular to sub-rounded, fines exhibit low plasticity 11% gravel, 45% sand, 2% silt, 42% clay
				1 60 /2.00	5949	7				Top of bedrock at 7 6 ft
					5948	8				7 6-8 0 ft No recovery for this interval
									CLAYEY SILTSTONE	8 0-9 7 ft Clayey Siltstone with some sand, light gray (10YR7/1), sand is well sorted, very fine with average grain size 0 005mm predominantly angular with some well rounded grains, argillaceous cement, 5% porosity, rock is moderately to highly friable, trace coarse sand, dry 0% gravel, 22% sand, 51% silt, 27% clay
				1 90 /2.00	5947	9				9 7-9 9 ft VOA sample obtained from this interval
	BH60136C									9 9-10 0 ft No recovery for this interval
						10				

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 14.0	GROUND ELEVATION (FT) 5956.20	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER	
NORTH 750915	AREA IHSS 156.2	CASING DIAMETER (IN) 2.0	GEOLOGIST KERRY MIYOSHI	75892	
EAST 2086558	LOCATOR NUMBER 113	BOREHOLE DIAMETER (IN) 10.0	DATE DRILLED 11/30/92		
REMARKS WELL SET 12/03/93					

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				2.00/2.00	5946	10			CLAYSTONE	10.0-12.0 ft Claystone with some silt, olive yellow to grayish brown (2.5Y6/8-5/2), upper 0.5' is highly fractured with iron oxide selectively staining chuncks and caliche filling fracture voids, grades to a more competent dark gray brown, local iron oxide and caliche coatings on fractures 0% gravel, 0% sand, 10% silt, 90% clay
				1.90/1.90	5945	11				
					5944	12			CLAYSTONE	12.0-13.9 ft Claystone with some sand, very similar to rock described above, but decreased silt, sand is very fine, sub-rounded to angular quartz with trace of angular medium grains 0% gravel, 7% sand, 2% silt, 91% clay
					5943	13				
					5942	14				13.9-14.0 ft No recovery for this interval Total depth at 14.0 ft
					5941	15				
					5940	16				
					5939	17				
					5938	18				
					5937	19				
						20				

DRAFT

STATE PLANE COORDINATE:		TOTAL DEPTH (FT) 13.3	GROUND ELEVATION (FT) 5949.60	PROJECT NUMBER:	006 RFI/RI	LOG OF BORING NUMBER
NORTH	751049	AREA THSS 156.2	CASING DIAMETER (IN)	GEOLOGIST:	LYS	77592
EAST:	2087016	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED	12/07/92	

REMARKS: SURFACE SEALED 12/16/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5949	0			SC	0.0-1.0 ft. Gravelly Sand with some clay and silt, dark grayish brown (10YR4/2), yellow brown (10YR5/4), dark gray (10YR3/1), gravel maximum size 0.15', average size 0.05', angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate plasticity, plant roots at 0.0-0.3 ft., CaCO3 in voids at 9.7-10.2 ft., and in fractures 0 degrees at 8.8 ft., iron oxide staining on grains, mottled texture, moist. 27% gravel, 38.5% sand, 13.8% silt, 20.7% clay
	BH6255AC			1.20 /2.00	5948	1				
					5947	2				1.0-1.2 ft. VOA sample obtained from this interval
				0.00 /1.40						1.2-1.4 ft. No recovery for this interval
	BH6252AC				5946	3				
				0.00 /1.00		4				
					5945				SC	4.4-5.5 ft. Gravelly Sand as described above
				1.30 /2.00		5				
	BH6256AC				5944	6				5.5-5.7 ft. VOA sample obtained from this interval
										5.7-6.4 ft. No recovery for this interval
					5943	7			SC	6.4-7.1 ft. Gravelly Sand as described above
				0.70 /1.80	5942					7.1-8.2 ft. No recovery for this interval
	BH6253AC				5941	8			SC	8.2-8.9 ft. Gravelly Sand as described above
	BH6257AC			0.90 /2.00		9				8.9-9.1 ft. VOA sample obtained from this interval
					5940					9.1-10.2 ft. No recovery for this interval. Top of bedrock at 10.2 ft
						10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 13.3	GROUND ELEVATION (FT) 5949.60	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	751049	AREA IHSS 156.2	CASING DIAMETER (IN)	GEOLOGIST LVS	77592
EAST	2087016	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 12/07/92	
REMARKS SURFACE SEALED 12/16/92					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5939	10			CLAYSTONE	10.2-11.6 ft. Claystone with some silt and trace sand, light gray - gray (5YR6/1), white (5YR8/1), sand is fine-grained, well sorted, sub-rounded, consisting of quartz, less than 0.1% coarse sand, fines exhibit high plasticity, veinlets of CaCO3, low friability, less than 5% porosity, trace iron oxide staining moist. 0% gravel, 3.5% sand, 9.6% silt, 86.9% clay.
				1.40 /1.90	5938	11				11.6-12.1 ft. No recovery for this interval.
	DH6025AC					12			CLAYSTONE	12.1-12.6 ft. Claystone as described above.
	DH6025BC			0.70 /1.20	5937	13				12.6-12.8 ft. VOA sample obtained from this interval.
										12.8-13.3 ft. No recovery for this interval.
					5936	14				Total depth at 13.3 ft.
					5935	15				
					5934	16				
					5933	17				
					5932	18				
					5931	19				
					5930	20				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 19 5	GROUND ELEVATION (FT) 5952 10	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	751148	AREA IHSS 156 2	CASING DIAMETER (IN)	GEOLOGIST LYS	77692
EAST	2087055	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN) 6 5	DATE DRILLED 12/04/92	

REMARKS SURFACE SEALED 12/16/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%		5952	0			SC	0.0-0.9 ft. Clayey Sand with some gravel and silt, grayish brown (10YR 5/2) to brown-yellow (10YR6/8) to very grayish dark brown (10YR3/2) at 0.0-2.8 ft., light yellowish brown (2.5Y6/4) to white (10YR8/1) to yellowish red (5YR4/6) to yellow brown (10YR5/8) at 4.0-6.9 ft., dark reddish brown (2.5YR2.5/4) to brown (7.5YR4/4) to yellow brown (10YR5/6) at 7.9-8.2 ft., dark brown (10YR3/3) to gray (5Y5/1) to olive (5Y5/3) to dusky red (10R3/3) at 8.2-11.1 ft., gravel maximum size .15' average size 0.025', angular to sub-angular, consisting of quartzite and granitics, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartzite and quartz, fines exhibit high plasticity, caliche zones at 4.0-5.3 ft. and 10.4-10.7 ft., fractures 0-30 degrees healed with CaCO3 and iron oxide staining, localized manganese oxide staining present, moist. 24.2% gravel, 36.6% sand, 13.7% silt, 25.5% clay
	BH6201AC			1.10 /2.00	5951	1				
					5950	2				
	BH6207AC BH6212AC			0.80 /2.00	5949	3				
					5948	4			SC	0.9-1.1 ft. VOA sample obtained from this interval.
										1.1-2.0 ft. No recovery for this interval.
									SC	2.0-2.8 ft. Clayey Sand as described above
										2.8-4.0 ft. No recovery for this interval.
									SC	4.0-5.1 ft. Clayey Sand as described above
				1.30 /1.90	5947	5				
	BH6206AC									5.1-5.3 ft. VOA sample obtained from this interval
										5.3-5.9 ft. No recovery for this interval.
					5946	6			SC	5.9-6.9 ft. Clayey Sand as described above
				1.00 /2.00	5945	7				6.9-7.9 ft. No recovery for this interval
					5944	8			SC	7.9-8.7 ft. Clayey Sand as described above
	BH6210AC BH6208AC			1.00 /2.10	5943	9				8.7-8.9 ft. VOA sample obtained from this interval
										8.9-10.0 ft. No recovery for this interval
						10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 19.5	GROUND ELEVATION (FT): 5952.10	PROJECT NUMBER: 006 RFI/RI	LOG OF BORING NUMBER:
NORTH	751148	AREA: IHSS 156.2	CASING DIAMETER (IN):	GEOLOGIST: LVS	7692
EAST	2087055	LOCATOR NUMBER: J14	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED: 12/04/92	
REMARKS: SURFACE SEALED 12/16/92					

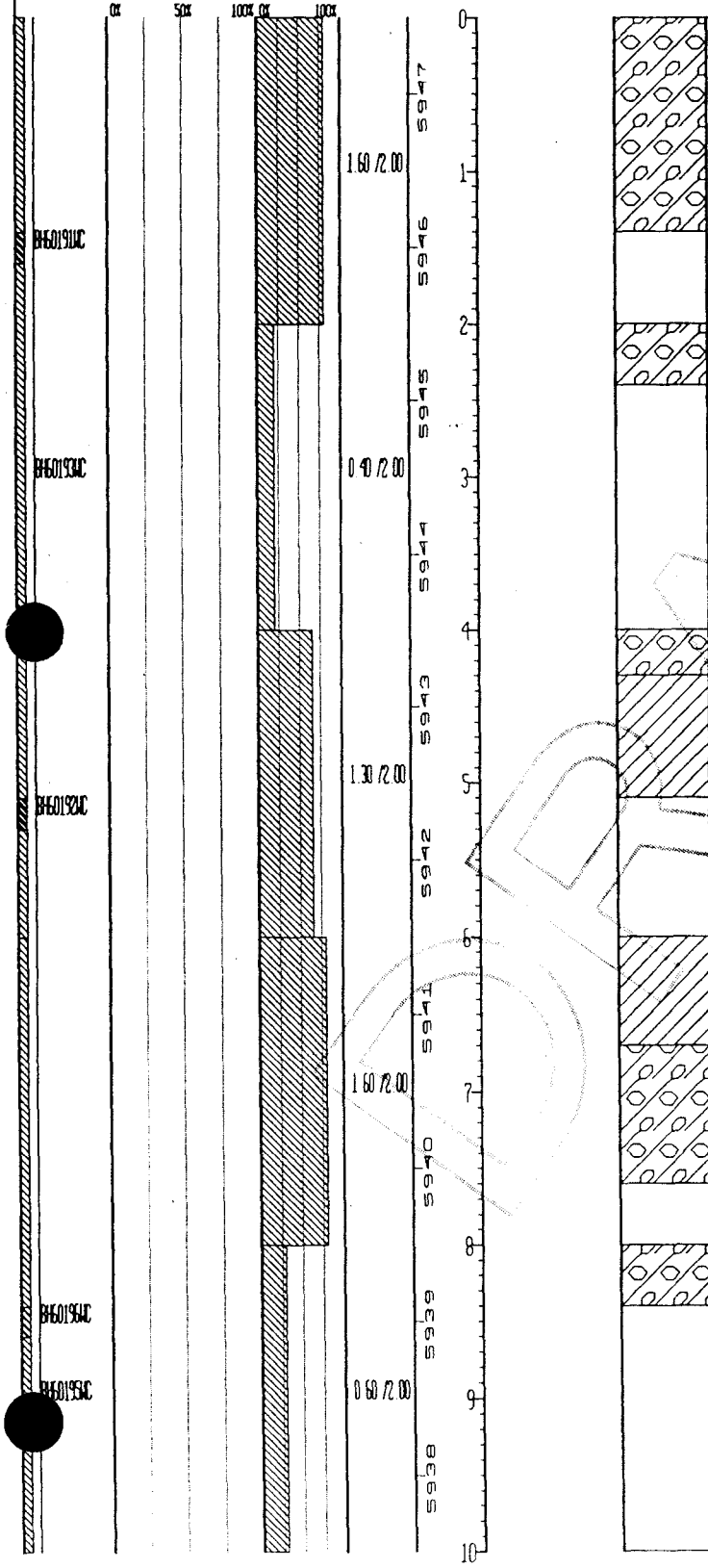
DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5942	10			SC:	10.0-11.0 ft. Clayey Sand as described above.
				1.10/2.00	5941	11				11.1-12.0 ft. No recovery for this interval.
					5940	12			CL:	12.0-12.9 ft. Sandy Clay with some silt and gravel, pink (5YR8/3) to reddish yellow (5YR7/8-6/8) to pinkish white (7.5YR8/2), gravel maximum size 0.1', average size 0.025', angular to sub-rounded, consisting of quartz and quartzite coated with CaCO3, sand is fine-grained, well sorted, with trace amounts of medium- and coarse-grained sand, sub-angular to rounded, consisting of quartz and quartzite, grains coated with CaCO3 fines exhibits moderate plasticity, fracture at 14.2 ft., 30 degrees from horizontal, localized iron oxide staining and mottled texture, moist. 19.6% gravel, 29.4% sand, 20.4% silt, 30.6% clay
	BH6211AC			1.10/2.10	5939	13				12.9-13.1 ft. VOA sample obtained from this interval.
										13.1-14.1 ft. No recovery for this interval.
					5938	14			CL:	14.1-14.8 ft. Sandy Clay as described above. Top of bedrock at 14.8 ft.
				1.20/2.20	5937	15			SANDY CLAYSTONE:	14.8-15.3 ft. Sandy Claystone as described below.
										15.3-16.3 ft. No recovery for this interval.
					5936	16			SANDY CLAYSTONE:	16.3-18.0 ft. Sandy Claystone with some silt, white (10YR8/1) to light gray (10YR7/1) to yellow (10YR7/8) to very pale brown (10YR7/4), sand is fine-grained, well sorted, sub-rounded to well rounded, consisting of quartz, clay exhibits moderate plasticity, caliche zone at 14.8-15.0 ft. with voids filled with CaCO3, localized iron oxide and manganese oxide staining, near horizontal fractures healed with iron oxide stained fine sand, moist. 40% sand, 6% silt, 54% clay
				1.90/2.10	5935	17				
	BH6231AC				5934	18				18.0-18.2 ft. VOA sample obtained from this interval.
	BH6232AC									18.2-18.4 ft. No recovery for this interval.
				1.00/1.10	5933	19			SANDY CLAYSTONE:	18.4-19.4 ft. Sandy Claystone as described above.
										19.4-19.5 ft. No recovery for this interval.
						20				Total depth at 19.5 ft.

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 24.4	GROUND ELEVATION (FT):	5947.50	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	751255	AREA IHSS 156.2	CASING DIAMETER (IN)		GEOLOGIST	LVS	77792
EAST	2087076	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN)	6.5	DATE DRILLED	12/03/92	
REMARKS	SURFACE SEALED 12/16/92						

DRAFT

CHEMICAL SAMPLE DEPTH | GRADATIONAL SAMPLE DEPTH | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION

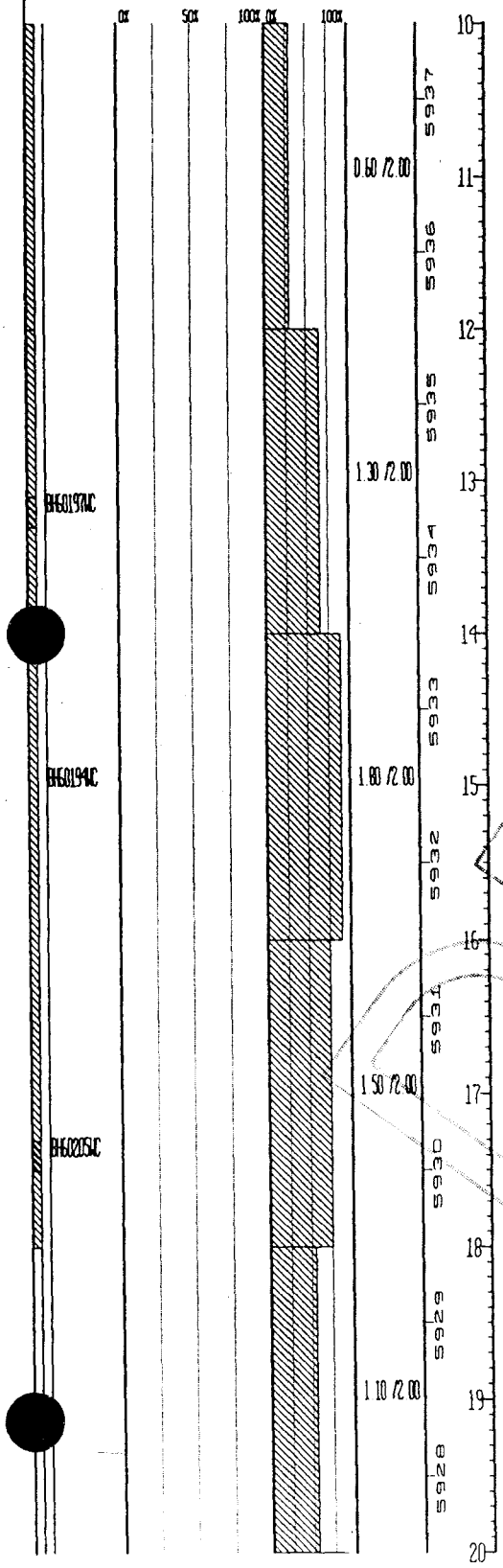


GC: 0.0-1.4 ft
Sandy Gravel with abundant clay and some silt, brown (10YR5/3) to dark brown (10YR4/3), gravel maximum size 0.2', average size 0.1', angular to sub-rounded, consisting of quartzite and quartz, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite and schist, fines exhibit moderate plasticity, plant roots at 0.0-1.6 ft., local iron oxide staining, CaCO3 in voids at 2.0-2.4 ft., moist.
35.7% gravel, 26.8% sand, 11.2% silt, 26.5% clay
1.4-1.6 ft VOA sample obtained from this interval
1.6-2.0 ft No recovery for this interval
GC: 2.0-2.4 ft Sandy Gravel as described above
2.4-4.0 ft No recovery for this interval
GC: 4.0-4.3 ft Sandy Gravel as described above
CL: 4.3-5.1 ft
Sandy Clay with some silt and trace gravel, light gray (10YR7/1), brownish yellow (10YR6/8), gravel maximum and average size 0.1', angular to sub-rounded, consisting of quartzite, sand is fine- to medium-grained, poorly graded, angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate plasticity, mottled texture at 4.3-5.3 ft. and 6.3-6.7 ft., extensive iron oxide staining, CaCO3 in voids, appearance of reworked bedrock, weathered, moist.
2.3% gravel, 7.4% sand, 9.0% silt, 81.3% clay
5.1-5.3 ft VOA sample obtained from this interval
5.3-6.0 ft No recovery for this interval
CL: 6.0-6.7 ft Sandy Clay as described above
GC: 6.7-7.6 ft
Sandy Gravel with some clay and silt, brown-dark brown (10YR4/3), dark brown (10YR3/3), gravel maximum and average size 0.1', angular, consisting of quartz, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz, quartzite, and schist, fines exhibit moderate plasticity, iron oxide staining on grains, CaCO3 and carbonaceous material present, moist
45.5% gravel 24.5% sand, 9% silt, 21% clay
7.6-8.0 ft No recovery for this interval
GC: 8.0-8.4 ft Sandy Gravel as described above
8.4-8.6 ft VOA sample obtained from this interval
8.6-10.0 ft No recovery for this interval

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 24.4	GROUND ELEVATION (FT):	5947.50	PROJECT NUMBER:	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH:	751255	AREA: IHSS 156.2	CASING DIAMETER (IN):		GEOLOGIST:	LYS	77792
EAST:	2087076	LOCATOR NUMBER: J14	BOREHOLE DIAMETER (IN):	6.5	DATE DRILLED:	12/03/92	

REMARKS: SURFACE SEALED 12/16/92

DRAFT



WELL OR PIEZOMETER CONSTRUCTION

LITHOLOGY

UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
GC	10.0-10.5 ft. Sandy Gravel as described above.
SC	10.5-10.6 ft. Clayey Sand as described below.
	10.6-12.0 ft. No recovery for this interval.
SC	12.0-13.1 ft. Clayey Sand with some gravel and trace silt, pinkish white (5YR8/2) to pink (5YR7/3), gravel maximum size 0.1", average size 0.025", angular, consisting of quartzite, sand is fine- to medium-grained, poorly graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit low to moderate plasticity, CaCO3 present, CaCO3 and argillaceous cementing, moist. 9.5% gravel, 49.3% sand, 4.1% silt, 37.1% clay
	13.1-13.3 ft. VOA sample obtained from this interval.
	13.3-14.0 ft. No recovery for this interval.
SC	14.0-14.2 ft. Clayey Sand as described above. Top of bedrock at 14.2 ft.
CLAYEY SANDSTONE	14.2-15.8 ft. Clayey Sandstone with trace silt, light gray (2.5YN7-7/2), yellow (10YR7/8), sand is fine-grained, well sorted, sub-angular to sub-rounded, consisting of quartz and quartzite, fines exhibit moderate plasticity, extensive iron oxide staining along horizontal bedding at 14.2 ft., 14.9-15.1 ft., 15.4-15.6 ft., caliche zone at 18.2-18.4 ft. with stringers of CaCO3, moist, less than 20% porosity, moderately friable, CaCO3 and argillaceous cementation. 0% gravel, 59.1% sand, 4.1% silt, 36.8% clay
	15.8-16.0 ft. No recovery for this interval.
CLAYEY SANDSTONE	16.0-17.3 ft. Clayey Sandstone as described above
	17.3-17.5 ft. VOA sample obtained from this interval.
	17.5-18.0 ft. No recovery for this interval.
CLAYEY SANDSTONE	18.0-18.9 ft. Clayey Sandstone as described above
SANDY CLAYSTONE	18.9-19.1 ft. Sandy Claystone as described below
	19.1-20.0 ft. No recovery for this interval.

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 24.4	GROUND ELEVATION (FT) 5947.50	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH 751255		AREA IHSS 156.2	CASING DIAMETER (IN)	GEOLOGIST LYS	77792
EAST 2087076		LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 12/03/92	

REMARKS: SURFACE SEALED 12/16/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				1.80/2.00	5927	20			SANDY CLAYSTONE	20.0-21.8 ft. Sandy Claystone with trace silt, olive (5Y5/3), olive gray (5Y5/2), brownish yellow (10YR6/8), sand is fine-grained, well sorted, sub-angular, consisting of quartz and quartzite fines exhibit moderate to high plasticity, less than 10% porosity, moderate friability, fractures 30 degrees at 20.3', 30 degrees at 20.9' and 60 degrees at 21.9', all healed with $CaCO_3$, extensive iron oxide staining at 20.7-21.8 ft., carbonaceous material present, interbedded sand and silt with less than 0.1% coarse sand at 21.2-21.8 ft., moist. 0% gravel, 26.5% sand, 3.7% silt, 69.8% clay
					5926	21				
					5925	22				21.8-22.0 ft. No recovery for this interval.
				2.40/2.40	5924	23			SANDY CLAYSTONE	22.0-22.4 ft. Sandy Claystone as described above.
					5923	24				
					5922	25				Total depth at 24.4 ft
					5921	26				
					5920	27				
					5919	28				
					5918	29				
						30				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 18.7	GROUND ELEVATION (FT) 5950.30	PROJECT NUMBER OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	751155	AREA IHSS 156.2	CASING DIAMETER (IN)	GEOLOGIST LVS	77892
EAST	2087132	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 12/04/92	

REMARKS: SURFACE SEALED 12/16/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5950	0			SC	0.0-1.1 ft. Clayey Sand with some gravel and silt, yellowish red (5YR4/6), yellow (10YR7/8), gravel maximum size 0.15', average size 0.05', angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, consisting of quartz and quartzite, angular to sub-rounded, fines exhibit moderate to high plasticity, plant roots at 0.0-2.2 ft., CaCO3 in voids, extensive iron oxide staining on grains, moist. 16.1% gravel, 52.5% sand, 7.8% silt, 23.6% clay
				1.30 /1.80		1				1.1-1.3 ft. VOA sample obtained from this interval.
	BH6248AC				5949					1.3-1.8 ft. No recovery for this interval.
					5948	2			SC	1.8-2.2 ft. Clayey Sand as described above.
	BH6249AC			1.50 /2.20	5947	3			CL	2.2-3.3 ft. Silty Clay with trace silt and gravel, light gray (10YR7/1), yellow (10YR7/8), gravel maximum and average size 0.025', angular, consisting of quartz, sand is fine- to coarse-grained, well graded, angular, consisting of quartz, fines exhibit moderate plasticity, plant roots, mottled texture and the presence of fine to coarse sand suggest reworked bedrock at 2.2-2.5', slump bedrock at 2.5-3.3' with iron oxide staining, CaCO3 in voids, moist. 0.4% gravel, 1.5% sand, 19.6% silt, 78.5% clay
					5946	4				3.3-4.0 ft. No recovery for this interval.
	BH6250AC			0.60 /2.00	5945	5			SC	4.0-4.4 ft. Clayey Sand as described below.
						4				4.4-4.6 ft. VOA sample obtained from this interval.
										4.6-6.0 ft. No recovery for this interval.
					5944	6			SC	6.0-7.3 ft. Clayey Sand with some gravel and silt, yellowish brown (10YR5/4), brown-dark brown (10YR4/3), gravel maximum size 0.2', average size 0.1', angular to sub-angular, consisting of quartz, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit moderate plasticity, mottled texture, iron oxide staining, CaCO3 in voids, moist. 17.6% gravel, 48.8% sand, 10.1% silt, 23.5% clay
				1.30 /2.00	5943	7				7.3-8.0 ft. No recovery for this interval.
					5942	8			SC	8.0-9.4 ft. Clayey Sand as described above
	BH6251AC			1.60 /2.00	5941	9				
	BH6252AC									9.4-9.6 ft. VOA sample obtained from this interval.
										9.6-10.0 ft. No recovery for this interval
						10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 18.7	GROUND ELEVATION (FT): 5950.30	PROJECT NUMBER: 006 RFI/RI	LOG OF BORING NUMBER
NORTH	751155	AREA: IHSS 156.2	CASING DIAMETER (IN):	GEOLOGIST: LYS	77892
EAST	2087132	LOCATOR NUMBER: J14	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED: 12/04/92	

REMARKS: SURFACE SEALED 12/16/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5940	10			SC	10.0-10.8 ft. Clayey Sand as described above.
				0.80 /2.20	5939	11				10.8-12.2 ft. No recovery for this interval.
					5938	12			SC	12.2-12.3 ft. Clayey Sand as described above.
	BH6025UC			1.00 /2.10	5937	13			CH	12.3-12.9 ft. Silty Clay with trace sand, light gray - gray (10YR6/1), sand is fine-grained, well sorted, sub-angular, consisting of quartz and quartzite, fines exhibit moderate to high plasticity, fracture approximately 30 degrees at 12.3 ft healed with CaCO3 and sand, plant roots and CaCO3 present, appearance of reworked weathered bedrock, moist. 0% gravel, 5% sand, 9.5% silt, 85.5% clay
	BH6024UC				5936	14				12.9-13.1 ft. VOA sample obtained from this interval.
									CH	13.1-13.2 ft. Silty Clay as described above.
										13.2-14.3 ft. No recovery for this interval. Top of bedrock at 14.3 ft.
				1.90 /2.20	5935	15			CLAYSTONE	14.3-16.2 ft. Claystone with some silt and trace sand, light gray - gray (10YR6/1), pale yellow (2.5Y7/3), sand is fine-grained, well sorted, sub-angular, consisting of quartz, fines exhibit moderate plasticity, less than 5% porosity, moderately friable, 90 degree fracture healed with CaCO3 at 14.3-16.2', caliche at 15.0-15.2', iron oxide staining, moist. 2.9% sand, 9.7% silt, 87.4% clay
					5934	16				16.2-16.5 ft. No recovery for this interval.
					5933	17			CLAYSTONE	16.5-17.6 ft. Claystone as described above.
				1.10 /2.20						17.6-18.7 ft. No recovery for this interval.
					5932	18				
					5931	19				
						20				Total depth at 18.7 ft.

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 12 0	GROUND ELEVATION (FT) 5946 00	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	751233	AREA IHSS 156 2	CASING DIAMETER (IN)	GEOLOGIST LVS	77992
EAST	2087177	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN) 6 5	DATE DRILLED 12/02/92	

REMARKS SURFACE SEALED 12/16/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5946	0			SC	0 0-1 0 ft Clayey Sand with some gravel and silt, light yellowish brown (10YR6/4), yellowish brown (10YR5/4-5/6), very dark grayish brown (10YR3/2), very pale brown (10YR8/3), gravel maximum size 0 1', average size 0.05', angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular, consisting of quartzite and quartz, fines exhibit low to moderate plasticity, plant roots at 0.0-2.6 ft., CaCO3 in voids, CaCO3 nodules 1/16" to 1/8", mottled texture, iron oxide staining, black (N1) and cemented at 8.0-8.8 ft., caliche zone at 10.3 ft., reworked bedrock at 4.0-5.6 ft. and 10.0-11.4 ft., moist. 20.6% gravel, 37.8% sand, 12.5% silt, 29.1% clay
	BH6016SC			1.20 /2.00	5945	1				
					5944	2				
										1.0-1.2 ft VOA sample obtained from this interval
	BH6017UC			0 60 /2 00	5943	3				1.2-2 0 ft No recovery for this interval
									SC	2.0-2 6 ft Clayey Sand as described above
										2 6-4 0 ft No recovery for this interval
					5942	4				
									SC	4 0-5 4 ft Clayey Sand as described above
				1.60 /2 00	5941	5				
	BH6018SC									5 4-5 6 ft VOA sample obtained from this interval
										5 6-6 0 ft No recovery for this interval
					5940	6			SC	6 0-6 5 ft Clayey Sand as described above
	BH6017UC									6 5-6 7 ft VOA sample obtained from this interval
	BH6017SC			0 70 /2 00	5939	7				6 7-8 0 ft No recovery for this interval
					5938	8			SC	8 0-8 8 ft Clayey Sand as described above
				0 80 /2 00	5937	9				8 8-10 0 ft No recovery for this interval
	BH6017SC					10				

STATE PLANE COORDINATE	TOTAL DEPTH (FT): 12.0	GROUND ELEVATION (FT): 5946.00	PROJECT NUMBER: 006 RFI/RI	LOG OF BORING NUMBER
NORTH: 751233	AREA: IHSS 156.2	CASING DIAMETER (IN)	GEOLOGIST: LYS	77992
EAST: 2087177	LOCATOR NUMBER: J14	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED: 12/02/92	

REMARKS: SURFACE SEALED 12/16/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5936	10			SC	10.0-11.2 ft. Clayey Sand as described above.
				1.40 /2.00	5935	11				
	BH60172C									11.2-11.4 ft. VOA sample obtained from this interval.
										11.4-12.0 ft. No recovery for this interval.
					5934	12				Total depth at 12.0 ft.
					5933	13				
					5932	14				
					5931	15				
					5930	16				
					5929	17				
					5928	18				
					5927	19				
						20				

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 16.4	GROUND ELEVATION (FT):	5963.50	PROJECT NUMBER:	OU6 RFI/RI	LOG OF BORING NUMBER:
NORTH	750421	AREA: IHSS 165	CASING DIAMETER (IN):		GEOLOGIST:	MICHAEL MAY	72292
EAST	2085420	LOCATOR NUMBER: I12	BOREHOLE DIAMETER (IN):	6.5	DATE DRILLED:	01/26/93	
REMARKS:	SURFACE SEALED 02/05/93						

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6654C			1.10 /2.00	5953	10				10.4-10.7 ft. VOA sample obtained from this interval.
										10.7-11.6 ft. No recovery for this interval.
					5952	11			SC	11.6-12.1 ft. Gravelly Sand as described above. Top of bedrock at 12.1 ft.
						12			SANDY CLAYSTONE	12.1-12.5 ft. Sandy Claystone with some silt, light olive gray (5YR6/2), sand is fine-grained, well sorted, fines exhibit low plasticity, less than 5% porosity, slightly friable, mottled texture, lens of sandstone, moist. 35.7% sand, 6.4% silt, 57.9% clay
				1.70 /2.00	5951					
	BH6670C					13			CLAYEY SANDSTONE	12.5-12.8 ft. Clayey Sandstone as described below.
					5950				SANDY CLAYSTONE	12.8-13.0 ft. Sandy Claystone as described above.
										13.0-13.3 ft. VOA sample obtained from this interval.
	3655C					14				13.3-13.6 ft. No recovery for this interval.
									SANDY CLAYSTONE	13.6-13.9 ft. Sandy Claystone as described above.
				1.50 /2.00	5949				CLAYEY SANDSTONE	13.9-14.8 ft. Clayey Sandstone with some silt, brownish yellow (10YR6/6-6/8), brown (7.5YR5/4), strong brown (7.5YR5/6), sand is fine- to medium-grained, poorly graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit moderate plasticity, extensive iron oxide staining, 20% porosity, argillaceous cement, highly friable, 90 degree fracture at 16.4 ft., moist. 61% sand, 15.6% silt, 23.3% clay
	BH6671C					15				
					5948					
				0.80 /0.80		16				
					5947					14.8-15.1 ft. VOA sample obtained from this interval.
										15.1-15.6 ft. No recovery for this interval.
									CLAYEY SANDSTONE	15.6-16.4 ft. Clayey Sandstone as described above.
						17				Total depth at 16.4 ft.
					5946					
						18				
					5945					
						19				
					5944					
						20				

DRAFT

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 16.0	GROUND ELEVATION (FT):	5959.40	PROJECT NUMBER:	006 RFI/RI	LOG OF BORING NUMBER:
NORTH:	750432	AREA: IHSS 165	CASING DIAMETER (IN):		GEOLOGIST:	MICHAEL MAY	72392
EAST:	2085651	LOCATOR NUMBER: I12	BOREHOLE DIAMETER (IN):	6.5	DATE DRILLED:	01/26/93	
REMARKS:	SURFACE SEALED 02/05/93						

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50%)	PERCENT RECOVERY (100% 0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5959	0			GC	0.0-1.2 ft. Sandy Gravel with some clay, trace silt, very dark brown (10YR2/2), dark reddish brown (5YR2.5/2), gravel maximum size 0.15', average size 0.05', angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate plasticity, moist. 50% gravel, 18.4% sand, 5.5% silt, 16.6% clay
				1.50 /2.00		1				1.2-1.5 ft. VOA sample obtained from this interval
	BH0672C				5958					1.5-2.0 ft. No recovery for this interval
						2			SM	2.0-3.2 ft. Gravelly Sand with some silt and clay, dark reddish brown (5YR3/4), very dark brown (10YR2/2), yellowish red (5YR4/6), gravel maximum size 0.1', average size 0.02', angular, consisting of quartzite and weathered granitics, sand is fine- to coarse-grained, well graded, angular to sub-angular consisting of quartz and quartzite, fines exhibit no plasticity, CaCO3 in voids, moist. 31.9% gravel, 36.4% sand, 22.2% silt, 9.5% clay
	BH0667C			1.50 /2.00	5957	3				
	BH0673C				5956					3.2-3.5 ft. VOA sample obtained from this interval
						4				3.5-4.0 ft. No recovery for this interval
					5955				SM	4.0-4.4 ft. Gravelly Sand as described above.
									SC	4.4-5.3 ft. Clayey Sand as described below.
				1.60 /1.80		5				5.3-5.6 ft. VOA sample obtained from this interval
										5.6-5.8 ft. No recovery for this interval
	BH0674C				5954				SC	5.8-6.8 ft. Clayey Sand with some silt, reddish brown (5YR4/4), brown (7.5YR5/4), sand is medium- to fine-grained, poorly graded, angular to sub-rounded, consisting of quartz, quartzite, and mica, fines exhibit low plasticity, 0-10 degree fractures healed with CaCO3, extensive iron oxide staining, moist. 0% gravel, 58.8% sand, 16.5% silt, 24.7% clay
						6				6.8-7.1 ft. VOA sample obtained from this interval
					5953					7.1-8.0 ft. No recovery for this interval
	BH0675C			1.60 /2.20		7			SC	8.0-8.9 ft. Clayey Sand with some silt and gravel, reddish brown (5YR4/4), brown (7.5YR5/4), gravel maximum size and average size 0.02', angular, consisting of quartzite, sand is fine- to medium-grained, poorly graded, angular to sub-angular, consisting of quartzite and quartz, fines exhibit low to moderate plasticity, stringers of CaCO3, iron oxide staining, moist. 6.2% gravel, 50.7% sand, 12.9% silt, 30.2% clay
					5952					
						8			CL	8.9-9.2 ft. Silty Clay with trace sand, light brownish gray (2.5Y6/2), light olive gray (5Y6/2), yellowish red (5YR5/6), white (5YR8/1), sand is fine-grained, well sorted, sub-angular to sub-rounded, consisting of quartz, fines exhibit moderate plasticity, stringers of CaCO3, local iron oxide staining, mottled texture, appears to be slumped bedrock, as much as 20% of clay appears to be CaCO3, moist. 0.6% sand, 9.5% silt, 89.5% clay
	BH0668C			1.50 /2.00	5951	9				
	BH0676C				5950					9.2-9.5 ft. VOA sample obtained from this interval
						10				9.5-10.0 ft. No recovery for this interval

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 16.0	GROUND ELEVATION (FT): 5959.40	PROJECT NUMBER: 006 [illegible]	LOG OF BORING NUMBER	
NORTH: 750432	AREA: IHSS 165	CASING DIAMETER (IN):	GEOLOGIST: MICHAEL MAY	72392	
EAST: 2085651	LOCATOR NUMBER: I12	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED: 01/26/93		
REMARKS: SURFACE SEALED 02/05/93					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
						10				9.5-10.0 ft. No recovery for this interval.
				2.00 /2.00	5949				SC	10.0-11.7 ft. Gravelly Sand with some clay, trace silt, light olive brown (2.5Y5/4), pale yellow (5Y7/3), gravel maximum size 0.15', average size 0.03', angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate plasticity, slump bedrock feature at 10.7-11.1 ft. same as 8.9-9.4 ft., moist. 21.4% gravel, 65.6% sand, 1.3% silt, 11.7% clay
					5948	11				
	BH60677WC									11.7-12.0 ft. VOA sample obtained from this interval.
					5947	12			SC	12.0-12.6 ft. Clayey Sand with trace gravel, some silt, yellow (10YR7/6-7/8), light brownish gray (2.5Y6/2), gravel maximum and average size 0.05', sub-angular, consisting of quartzite, sand is fine-grained, well sorted with trace medium-grained sand, angular to rounded, consisting of quartz, fines exhibit moderate plasticity, extensive iron oxide staining on grains, faint horizontal bedding at 12.3 ft., mottled texture, appearance of reworked bedrock, moist. 3.8% gravel, 65.9% sand, 9.1% silt, 21.2% clay. Top of bedrock at 12.6 ft.
				2.00 /2.00	5946	13				
	[illegible]678WC [illegible]69WC					14				
					5945				SANDY CLAYSTONE	12.6-13.4 ft. Sandy Claystone with some silt, brownish yellow (10YR6/6-6/8), light brownish gray (2.5Y6/2), medium- to coarse-grained, poorly graded, angular to sub-angular, consisting of quartz, fines exhibit moderate plasticity, less than 20% porosity, argillaceous cement, moderate to slightly friable, local iron oxide staining, moist. 26% sand, 7.4% silt, 66.6% clay
				2.00 /2.00	5944	15				
	BH60679WC								CLAYSTONE	13.4-13.7 ft. Claystone as described below.
						16				13.7-14.0 ft. VOA sample obtained from this interval.
					5943				CLAYSTONE	14.0-15.7 ft. Claystone with some silt, trace sand, brownish yellow (10YR6/6-6/8), light brownish gray (2.5Y6/2), sand is fine- to medium-grained, poorly graded, sub-angular to sub-rounded consisting of quartz, fines exhibit moderate to high plasticity, less than 5% porosity, slightly friable, local iron oxide and manganese oxide staining, carbonaceous material present, sluff at 14.0-14.2 ft., pebble at 15.4 ft. pushed by auger, moist. 5.7% sand, 9.4% silt, 84.9% clay
					5942	17				
					5941	18				15.7-16.0 ft. VOA sample obtained from this interval.
					5940	19				Total depth at 16.0 ft.
						20				

DRAFT

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 5.0	GROUND ELEVATION (FT):	5958.20	PROJECT NUMBER:	OU6 RFI/RI
NORTH:	750475	AREA: IHSS 165	CASING DIAMETER (IN):		GEOLOGIST:	MICHAEL MAY
EAST:	2085770	LOCATOR NUMBER: I12	BOREHOLE DIAMETER (IN):	4.0	DATE DRILLED:	01/27/93
REMARKS:	SURFACE SEALED 02/05/93					

LOG OF BORING NUMBER: 72492

DRAFT

CHEMICAL SAMPLE / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%		5958	0			GM	0.0-0.7 ft. Sandy Gravel with trace clay and silt, very dark brown (10YR2/2), dark yellowish brown (10YR4/6), yellowish red (5YR5/8), gravel maximum size 0.1', average size 0.05', angular to sub-angular, consisting of quartzite and quartz, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit low plasticity, plant roots at 0.0-0.3 ft., top soil at 0.0-0.7 ft., CaCO3 in voids, iron oxide staining extensive at 2.0-4.8 ft., moist. 50.5% gravel, 43.3% sand, 4.3% silt, 1.9% clay
	BH60714C			1.00 /2.00	5957	1				
					5956	2				0.7-1.0 ft. VOA sample obtained from this interval.
	BH60716C									1.0-2.0 ft. No recovery for this interval.
				1.30 /2.00					GM	2.0-3.0 ft. Sandy Gravel as described above.
	BH60719C				5955	3				3.0-3.3 ft. VOA sample obtained from this interval.
										3.3-4.0 ft. No recovery for this interval.
					5954	4			GM	4.0-4.8 ft. Sandy Gravel as described above.
				0.80 /1.00						
					5953	5				4.8-5.0 ft. No recovery for this interval.
										Total depth at 5.0 ft.
					5952	6				
					5951	7				
					5950	8				
					5949	9				
						10				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 5.0		GROUND ELEVATION (FT)	5963.30	PROJECT NUMBER	006 RFI/RI
NORTH	750523	AREA IHSS 165		CASING DIAMETER (IN)		GEOLOGIST	MICHAEL MAY
EAST	2085417	LOCATOR NUMBER	M10	BOREHOLE DIAMETER (IN)	4.0	DATE DRILLED	01/26/93
REMARKS	SURFACE SEALED 02/05/93						

LOG OF BORING NUMBER 72592

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%		5963	0			SC	0.0-1.3 ft Clayey Sand with abundant gravel, some silt, dark reddish brown (2.5YR2.5/4), reddish brown (2.5YR4/4), yellowish red (5YR4/6-5/8), gravel maximum size 0.1', average size 0.02', angular, consisting of quartzite and sandstone clasts, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit moderate plasticity, CaCO3 in voids at 2.4-3.1 ft., local iron oxide staining on grains, fill to 1.3 ft. with aluminum foil in matrix, moist 25% gravel, 31.2% sand, 10.9% silt, 32.9% clay
				1.60/2.00	5962	1				
	BH6680UC									
					5961	2				1.3-1.6 ft. VOA sample obtained from this interval
	BH6682UC									1.6-2.0 ft. No recovery for this interval
				2.00/2.00					SC	2.0-3.1 ft. Clayey Sand as described above.
					5960	3			SC	3.1-3.7 ft. Gravelly Sand with some clay and silt, white (10YR8/1-8/2), very dark brown (10YR2/2), brownish yellow (10YR6/8), yellowish brown (10YR5/8), gravel maximum size 0.1', average size 0.025', angular to sub-angular, consisting of quartzite sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate plasticity, moist 24.2% gravel, 49.3% sand, 6.6% silt, 19.9% clay
	BH6681UC									
				1.00/1.00	5959	4				
										3.7-4.0 ft. VOA sample obtained from this interval.
					5958	5			SC	4.0-4.7 ft. Gravelly Sand as described above.
									SC	4.7-5.0 ft. Clayey Sand with some silt, light reddish brown (5YR6/4), reddish yellow (5YR5/6), white (N9), sand is fine- to medium-grained, poorly graded, angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate plasticity, argillaceous cement, CaCO3 present, moist 64.5% sand, 7.1% silt, 28.4% clay
					5957	6				
					5956	7				Total depth at 5.0 ft.
					5955	8				
					5954	9				
						10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 4.0		GROUND ELEVATION (FT)	5961.50	PROJECT NUMBER	006 RFI/RI
NORTH	750523	AREA IHSS 165		CASING DIAMETER (IN)		GEOLOGIST	MICHAEL MAY
EAST	2085541	LOCATOR NUMBER	M10	BOREHOLE DIAMETER (IN)	4.0	DATE DRILLED	01/25/93
REMARKS	SURFACE SEALED 02/05/93						

LOG OF BORING NUMBER 72692

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5961	0			GC	0.0-1.2 ft. Sandy Gravel with some clay and silt, dark reddish brown (2.5YR3/4-2.5/4), red (2.5YR4/8-5/8), very dark brown (10YR2/2), gravel maximum size 0.2', average size 0.1', angular to sub-angular, consisting of quartz and quartzite, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz, quartzite and mica, fines exhibit moderate plasticity, CaCO3 present, moist. 50.7% gravel, 27.1% sand, 6.7% silt, 15.5% clay
				1.50/2.00		1				
	BH6661DC				5960					
	BH6660DC					2				1.2-1.5 ft. VOA sample obtained from this interval.
										1.5-2.0 ft. No recovery for this interval.
					5959				GC	2.0-3.2 ft. Sandy Gravel as described above.
				1.50/2.00		3				
	BH6662DC				5958					3.2-3.5 ft. VOA sample obtained from this interval
										3.5-4.0 ft. No recovery for this interval.
						4				Total depth at 4.0 ft.
					5957	5				
					5956	6				
					5955	7				
					5954	8				
					5953	9				
					5952	10				

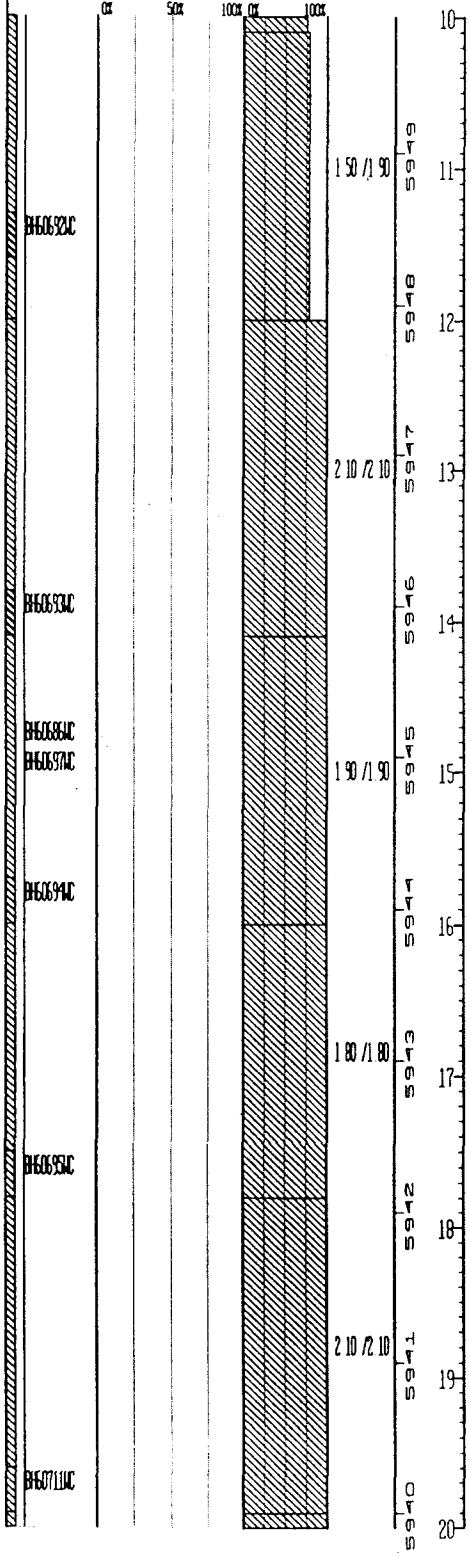
STATE PLANE COORDINATE		TOTAL DEPTH (FT) 23.8	GROUND ELEVATION (FT) 5959.90	PROJECT NUMBER OU6 RFI/RI	LOG OF BORING NUMBER
NORTH 750520		AREA THSS 165	CASING DIAMETER (IN)	GEOLOGIST MICHAEL MAY	72792
EAST 2085640		LOCATOR NUMBER M10	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 01/27/93	

REMARKS SURFACE SEALED 02/05/93

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%			0			CL	0.0-1.0 ft Gravelly Clay with some sand and silt, very dark brown (10YR2/2), gravel maximum size 0.1', average size 0.02', sub-angular, consisting of quartz, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz, quartzite and mica, fines exhibit moderate plasticity, slightly moist 27% gravel, 11.8% sand, 6.1% silt, 55.1% clay
	B6068AC			1.30/2.00	5959	1				1.0-1.3 ft. VOA sample obtained from this interval
					5958	2				1.3-2.0 ft. No recovery for this interval
	B6068BC								SM	2.0-2.2 ft. Gravelly Sand as described below
										2.2-2.5 ft. VOA sample obtained from this interval
	B6068CC									2.5-4.0 ft. No recovery for this interval
				0.50/2.00	5957	3			SM	4.0-5.0 ft Gravelly Sand with some silt and clay, light reddish brown (5YR6/4), very pale brown (10YR8/3-7/3), gravel maximum size 0.15', average size 0.05', angular to sub-angular, consisting of quartzite and quartz, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit moderate plasticity, $CaCO_3$ in voids, extensive iron oxide staining, slightly moist 23.5% gravel, 48.7% sand, 16.7% silt, 11.1% clay
					5956	4				
				1.60/1.60	5955	5				
	B6069AC									5.0-5.3 ft. VOA sample obtained from this interval
	B6069BC									5.3-5.6 ft. VOA sample obtained from this interval
					5954	6			SM	5.6-6.8 ft. Gravelly Sand as described above
				1.50/2.40	5953	7				
	B6069DC									6.8-7.1 ft. VOA sample obtained from this interval
										7.1-8.0 ft. No recovery for this interval
					5952	8			SM	8.0-9.3 ft Silty Sand with trace gravel and clay, light reddish brown (5YR6/3), reddish brown (5YR5/3), gravel maximum and average size 0.01', sub-angular, consisting of quartzite, sand is medium- to coarse-grained, poorly graded, angular to sub-rounded, consisting of quartz and quartzite, voided, slightly moist 2.1% gravel, 83.3% sand, 10.2% silt, 4.4% clay
	B6069EC			1.60/2.10	5951	9				
	B6069FC									9.3-9.6 ft. VOA sample obtained from this interval
					5950	10				9.6-10.1 ft. No recovery for this interval

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 23.8	GROUND ELEVATION (FT) 5959.90	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH 750520	AREA IHSS 165	CASING DIAMETER (IN)	GEOLOGIST MICHAEL MAY	72792
EAST 2085640	LOCATOR NUMBER M10	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 01/27/93	
REMARKS SURFACE SEALED 02/05/93				

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
SM	10.1-11.3 ft. Silty Sand as described above
	11.3-11.6 ft. VOA sample obtained from this interval
	11.6-12.0 ft. No recovery for this interval
ML	12.0-12.2 ft. Clayey Silt with trace sand, reddish yellow (7.5YR7/6), sand is fine-grained, well sorted, angular, consisting of quartz and mica, fines exhibit low to moderate plasticity, moist 1.2% sand, 69.1% silt, 29.7% clay
CL	12.2-13.8 ft. Silty Clay with trace sand and gravel, dark grayish brown (10YR4/2), sand is fine-grained, well sorted, sub-angular to sub-rounded, consisting of quartz, fines exhibit low plasticity, sand layer at 13.5-13.7 ft., same as 8.0-11.6 ft moist 2% gravel, 4% sand, 9.4% silt, 84.6% clay
	13.8-14.1 ft. VOA sample obtained from this interval
CL	14.1-14.3 ft. Silty Clay as described above
SM	14.3-15.7 ft. Silty Sand with trace gravel and clay, same as 8.0-11.6 ft., slightly moist at 8.0-12.0 ft., moist at 12.0-14.1 ft., moist to very moist at 14.1-17.8 ft., saturated at 17.8-18.9 ft., saturated with water at 18.0 ft 2.3% gravel, 79.6% sand, 12.7% silt, 5.4% clay
	15.7-16.0 ft. VOA sample obtained from this interval
SM	16.0-17.5 ft. Silty Sand as described above
	17.5-17.8 ft. VOA sample obtained from this interval
SM	17.8-18.9 ft. Silty sand as described above
CL	18.9-19.6 ft. Silty Clay with some sand, dark grayish brown (10YR4/2), gravel maximum and average size 0.01', sub-angular, consisting of quartz, sand poorly graded trace amounts of fine- to coarse-grained sand, sub-angular to sub-rounded, consisting of quartz, fines exhibit moderate plasticity, plant stem at 19.3', sluff at 19.9-20.3', mottled texture, appears to be reworked bedrock, $CaCO_3$ concretions, 30 degree fracture at 20.6', healed with fine to coarse sand, $CaCO_3$ along fracture, saturated 1% gravel, 6.5% sand, 9.3% silt, 83.2% clay
	19.6-19.9 ft. VOA sample obtained from this interval
CL	19.9-20.7 ft. Silty Clay as described above Top of bedrock at 20.7 ft

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 23 8	GROUND ELEVATION (FT) 5959 90	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	750520	AREA IHSS 165	CASING DIAMETER (IN)	GEOLOGIST MICHAEL MAY	72792
EAST	2085640	LOCATOR NUMBER M10	BOREHOLE DIAMETER (IN) 6 5	DATE DRILLED 01/27/93	

REMARKS SURFACE SEALED 02/05/93

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH60710C			1 80 /1 80	5939	21			CLAYSTONE	20 7-21 4 ft Claystone with some silt and trace sand, dark grayish brown (10YR4/2), sand is fine-grained, well sorted, sub-angular to sub-rounded, consisting of quartz, stuff at 21 7-22 1', less than 5% porosity, slightly friable, carbonaceous material present, CaCO3 in voids, some gravel present at 22 1-22 4' pushed by auger, extensive iron oxide staining, moist 2 6% sand, 9 7% silt, 87 7% clay
	BH60712C				5938	22				21 4-21 7 ft VOA sample obtained from this interval
				2 10 /2 10	5937	23			CLAYSTONE	21 7-22 4 ft Claystone as described above
	BH60713C				5936	24			CLAYEY SILTSTONE	22 4-23 5 ft Clayey Siltstone with trace sand, light gray-gray (10YR6/1), sand is fine-grained, well sorted, sub-rounded, consisting of quartz, fines exhibit low plasticity, less than 20% porosity, moderately friable, CaCO3 in voids, local iron oxide and manganese oxide staining, carbonaceous material present, moist 5 5% sand, 66 1% silt, 28 4% clay
					5935	25				23 5-23 8 ft VOA sample obtained from this interval
										Total depth at 23 8 ft
					5934	26				
					5933	27				
					5932	28				
					5931	29				
					5930	30				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 12.4	GROUND ELEVATION (FT) 5959.30	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH 750540		AREA IHSS 165	CASING DIAMETER (IN)	GEOLOGIST MICHAEL MAY	72892
EAST 2085772		LOCATOR NUMBER M10	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 01/28/93	
REMARKS SURFACE SEALED 02/05/93					

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRADN SIZE	PERCENT RECOVERY	RECOVERY/ INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%			0			SC	0.0-1.2 ft Clayey Sand with some gravel and silt, dark brown (10YR3/3), gravel maximum size 0.1', average size 0.025', angular to sub-angular, consisting of quartz and quartzite, sand is fine- to coarse-grained, well graded, angular to sub-rounded consisting of quartz and quartzite, fines exhibit low plasticity, plant roots at 0.0-0.1 ft (topsoil), black top at 0.5 ft (10YR2/1), moist 17% gravel, 40% sand, 12.9% silt, 30.1% clay
	BH6070UC			1.50/2.00	5959	1				1.2-1.5 ft VOA sample obtained from this interval
					5958					1.5-2.0 ft No recovery for this interval
					5957	2			SC	2.0-2.9 ft Clayey Sand with some gravel, trace silt, white (5YR8/1), pale olive (5Y6/3), reddish-yellow (5YR6/6), gravel maximum size 0.1', average size 0.02', angular to sub-angular, consisting of quartz and quartzite, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit moderate plasticity, $CaCO_3$ present, iron oxide staining, caliche at 1.0-1.2 ft, moist at 1.0-1.2 ft, slightly moist at 2.0-8.1 ft, moist at 8.1-10.6 ft 15.5% gravel, 64.6% sand, 3% silt, 16.9% clay
	BH6071SC BH6072SC			1.20/2.00	5956	3				2.9-3.2 ft VOA sample obtained from this interval
					5955	4				3.2-4.0 ft No recovery for this interval
	BH6073UC			1.00/2.00	5954	5			SC	4.0-4.7 ft Clayey Sand as described above
										4.7-5.0 ft VOA sample obtained from this interval
										5.0-6.0 ft No recovery for this interval
					5953	6			SC	6.0-7.1 ft Clayey Sand as described above
	BH6074UC			1.10/2.10	5952	7				7.1-7.4 ft VOA sample obtained from this interval
										7.4-8.1 ft No recovery for this interval
					5951	8			SC	8.1-9.8 ft Clayey Sand as described above
	BH6069UC			2.00/2.00	5950	9				
	BH6075SC					10				9.8-10.1 ft VOA sample obtained from this interval

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 12 4	GROUND ELEVATION (FT) 5959 30	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	750540	AREA IHSS 165	CASING DIAMETER (IN)	GEOLOGIST MICHAEL MAY	72892
EAST	2085772	LOCATOR NUMBER M10	BOREHOLE DIAMETER (IN) 6 5	DATE DRILLED 01/28/93	
REMARKS	SURFACE SEALED 02/05/93				

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50%	100% 0% 100%	1 70 /1 70	5949	10			SC	10 1-10 6 ft Clayey Sand as described above Top of bedrock at 10 6 ft
					5948	11			SANDSTONE	10 6-11 5 ft Sandstone as described below
	BH60706AC									11 5-11 8 ft VOA sample obtained from this interval
				0 60 /0 60	5947	12			SANDSTONE	11 8-12 4 ft Sandstone with some silt and trace clay, white (10YR8/1), light gray (10YR7/1), yellow (10YR7/6-7/8), sand is fine-grained, well sorted, sub-angular to rounded, consisting of quartz, fines exhibit low plasticity, less than 20% porosity silica and argillaceous cement, moderately to highly friable 90 degree fracture at 11 2 ft , moist 0% gravel, 81 8% sand, 14 6% silt, 3 6% clay Total depth at 12 4 ft
					5946	13				
					5945	14				
					5944	15				
					5943	16				
					5942	17				
					5941	18				
					5940	19				
						20				

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 15 0	GROUND ELEVATION (FT)	5961 50	PROJECT NUMBER	006 RFI/RI	LOG OF BORING NUMBER
NORTH 750625	AREA IHSS 165	CASING DIAMETER (IN)		GEOLOGIST	MICHAEL MAY	72992
EAST 2085530	LOCATOR NUMBER M10	BOREHOLE DIAMETER (IN)	6 5	DATE DRILLED	01/20/93	
REMARKS SURFACE SEALED 02/05/93						

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH

SAMPLE NUMBER	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		5961	0	SC	0 0-1 2 ft Gravelly Sand with some clay, trace silt, very dark brown (10YR2/2), dusky red (10YR3/4), white (N9), light brown (7 5YR6/6), reddish yellow (7 5YR6/8), gravel maximum size 0 2', average size 0 05', sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate to high plasticity, CaCO3 is present, iron oxide staining, moist at 0 0-1 5 ft, dry at 2 0-3.1 ft moist at 3 9-6 0 ft 25% gravel, 57 9% sand, 1 8% silt, 16 3% clay
	1 50 /2 00		1		
BH0633C		5960			
			2		1 2-1 5 ft VOA sample obtained from this interval
BH0634C		5959			1 5-2 0 ft No recovery for this interval
BH0624C	1 10 /1 90		3	SC	2 0-2 8 ft Gravelly Sand as described above
					2 8-3 1 ft VOA sample obtained from this interval
		5958			3 1-3 9 ft No recovery for this interval
			4	SC	3 9-5 7 ft Gravelly Sand as described above
		5957			
	2 10 /2 10		5		
		5956			
BH0642C					5 7-6 0 ft VOA sample obtained from this interval
			6	SC	6 0-6 2 ft Gravelly Sand as described above Top of bedrock at 6 2 ft
BH0638C		5955		SILTY CLAYSTONE	6 2-6 4 ft Silty Claystone as described below
BH0637C	1 00 /1 90		7		6 4-6 7 ft VOA sample obtained from this interval 6 7-7 0 ft VOA sample obtained from this interval 7 0-7 9 ft No recovery for this interval
		5954		SILTY CLAYSTONE	7 9-9 1 ft Silty Claystone with trace gravel, pale olive (5Y6/4), olive gray (5Y5/3), white (N9), yellowish red (5YR5/8), sand is fine-grained, well sorted, sub-angular to sub-rounded, consisting of quartz, fines exhibit moderate plasticity, less than 10% porosity, slightly friable, iron oxide staining, CaCO3 present at 6 5-11 4 ft, caliche at 6 5-8 6 ft, moist at 6 0-7 9 ft, wet to moist at 7 9-11 9 ft, moist at 11 9-15 0 ft 0% gravel, 1 3% sand, 19 7% silt, 79% clay
		5953	8		
BH0639C	1 50 /2 10		9		
BH0640C		5952			9 1-9 4 ft VOA sample obtained from this interval 9 4-10 0 ft No recovery for this interval
			10		

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 15.0	GROUND ELEVATION (FT) 5961.50	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH 750625	AREA IHSS 165	CASING DIAMETER (IN)	GEOLOGIST	MICHAEL MAY	72992
EAST 2085530	LOCATOR NUMBER M10	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED	01/20/93	
REMARKS SURFACE SEALED 02/05/93					

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION

Sample Number	Recovery/Interval	Depth (ft)	Unified Soils Classification or Rock Type	Description
		10	SILTY CLAYSTONE	10.0-11.1 ft Silty Claystone as described above
	1.40/1.90	11		
BH60640WC				11.1-11.4 ft VOA sample obtained from this interval
				11.4-11.9 ft No recovery for this interval
		12	SILTY CLAYSTONE	11.9-13.0 ft Silty Claystone as described above
	1.40/2.10	13		
BH60641WC				13.0-13.3 ft VOA sample obtained from this interval
BH60626WC				13.3-14.0 ft No recovery for this interval
		14	SILTY CLAYSTONE	14.0-15.0 ft Silty Claystone as described above
	1.00/1.00	15		
				Total depth at 15.0 ft

Depth scale: 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

Datum (ft): 5951, 5950, 5949, 5948, 5947, 5946, 5945, 5944, 5943, 5942

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 12 0	GROUND ELEVATION (FT) 5960 10	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	750720	AREA IHSS 165	CASING DIAMETER (IN)	GEOLOGIST MICHAEL MAY	73092
EAST	2085508	LOCATOR NUMBER M10	BOREHOLE DIAMETER (IN) 6 5	DATE DRILLED 01/25/93	
REMARKS SURFACE SEALED 02/05/93					

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%						SC	0 0-1 7 ft Clayey Sand with some gravel, trace silt, very dusky red (2 5YR2 5/2), dusky red (2 5YR3/2), very dark grayish brown (10YR3/2), white (10YR8/1), white (10YR8/2), gravel maximum size 0 1', average size 0 025', sub-angular, consisting of quartz, schist and granitics, sand is fine- to coarse-grained, well graded, sub-angular, consisting of quartz and schist, fines exhibit moderate plasticity, CaCO3 present, plant roots at 0 0-0 7 ft, iron oxide staining, moist 23 5% gravel, 41 1% sand, 3 5% silt, 31 9% clay
	BH6048C			2 00 /2 00	5959	1				
					5958	2				1 7-2 0 ft VOA sample obtained from this interval
									CL	2 0-2 9 ft Sandy Clay with trace gravel and silt, white(10YR8/1), white (10YR8/2), light gray (10YR7/2), gravel maximum and average size 0 15', sub-angular, consisting of quartzite, sand is fine- to coarse-grained (trace amounts of fine, medium, and coarse sand), poorly graded, angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate plasticity, clay is predominantly caliche, moist 5% gravel, 6 7% sand, 1 8% silt, 88 3% clay
	BH6044C BH6049C			1 20 /2 00	5957	3				
					5956	4				2 9-3 2 ft VOA sample obtained from this interval
										3 2-4 0 ft No recovery for this interval
									CL	4 0-4 7 ft Sandy Clay as described above Top of bedrock at 4 7 ft
	BH6050AC/M10			1 50 /2 00	5955	5			CLAYSTONE	4 7-4 9 ft Claystone with some silt, trace sand, light gray-gray (10YR6/1), yellowish brown (10YR5/6), sand is fine-grained, well sorted, angular, consisting of quartz and quartzite, fines exhibit moderate plasticity, less than 5% porosity, slightly friable, iron oxide staining, nodules of caliche, carbonaceous material present, moist 0% gravel, 2 2% sand, 9 8% silt, 88% clay
	BH6050C									
					5954	6				4 9-5 2 ft VOA sample obtained from this interval
				1 70 /2 00	5953	7				5 2-5 5 ft VOA sample obtained from this interval
										5 5-6 0 ft No recovery for this interval
	BH6051C								CLAYSTONE	6 0-7 4 ft Claystone as described above
										7 4-7 7 ft VOA sample obtained from this interval
										7 7-8 0 ft No recovery for this interval
					5952	8			CLAYSTONE	8 0-9 7 ft Claystone as described above
	BH6049C			2 00 /2 00	5951	9				
	BH6052C					10				9 7-10 0 ft VOA sample obtained from this interval

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 12 0	GROUND ELEVATION (FT)	5960 10	PROJECT NUMBER	006 RFI/RI	LOG OF BORING NUMBER
NORTH	750720	AREA IHSS 165	CASING DIAMETER (IN)		GEOLOGIST	MICHAEL MAY	73092
EAST	2085508	LOCATOR NUMBER M10	BOREHOLE DIAMETER (IN)	6 5	DATE DRILLED	01/25/93	
REMARKS	SURFACE SEALED 02/05/93						

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				2 00 /2 00	5950	10			CLAYSTONE	10 0-11 7 ft Claystone as described above
					5949	11				
	BH6053C									11 7-12 0 ft VOA sample obtained from this interval
					5948	12				Total depth at 12 0 ft
					5947	13				
					5946	14				
					5945	15				
					5944	16				
					5943	17				
					5942	18				
					5941	19				
						20				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 4 0	GROUND ELEVATION (FT) 5957 40	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	750733	AREA IHSS 165	CASING DIAMETER (IN)	GEOLOGIST MICHAEL MAY	73292
EAST	2085764	LOCATOR NUMBER M10	BOREHOLE DIAMETER (IN) 4 0	DATE DRILLED 02/01/93	

REMARKS SURFACE SEALED 2/5/93

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6074BC			1 00 /2 00	5957	0			SC	0 0-0 7 ft Clayey Sand with abundant gravel and some silt, dark brown (7 5YR3/2), gravel maximum size 0 1', average size 0 025', sub-angular, consisting of quartz, sand is fine- to medium-grained, poorly graded (trace coarse sand), sub-angular to sub-rounded, consisting of quartz and quartzite, fines exhibit moderate plasticity, plant roots at 0 0-0 5', top soil at 0 0-1 0 ft , caliche at 0 7 ft , moist 25 5% gravel 27% sand, 14 3% silt, 33 2% clay
	BH6075DC				5956	1				0 7-1 0 ft VOA sample obtained from this interval
						2				1 0-2 0 ft No recovery for this interval
	BH6075EC				5955				GC	2 0-2 6 ft Sandy Gravel with some clay, trace silt, white (10YR8/1), gravel maximum size 0 1', average size 0 03', angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate plasticity, dry 44 6% gravel, 31 5% sand, 2 4% silt, 21 4% clay
	BH6074BC			1 20 /2 00	5954	3				2 6-2 9 ft VOA sample obtained from this interval
										2 9-3 2 ft VOA sample obtained from this interval
					5953	4				3 2-4 0 ft No recovery for this interval
					5952	5				Total depth at 4 0 ft
					5951	6				
					5950	7				
					5949	8				
					5948	9				
						10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 12.0	GROUND ELEVATION (FT)	5954.90	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	750738	AREA IHSS 165	CASING DIAMETER (IN)		GEOLOGIST	MICHAEL MAY	73392
EAST	2085856	LOCATOR NUMBER M10	BOREHOLE DIAMETER (IN)	6.5	DATE DRILLED	01/28/93	
REMARKS	SURFACE SEALED 02/23/93						

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION

Sample Number	Recovery/Interval	Depth (ft)	Unified Soils Classification or Rock Type	Description
		0	SC	0.0-0.9 ft Gravelly Sand with some clay, trace silt, reddish brown (5YR4/4), dark grayish brown (10YR4/2), gravel maximum size 0.15', average size 0.02', angular to sub-angular, consisting of quartzite and quartz, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate plasticity, plant stems and roots at 0.0-0.9 ft., chunks of asphalt at 0.0-0.4 ft., banded horizontal beds at 0.5-0.9 ft., mottled texture, appears to be reworked, moist 22.2% gravel, 62.7% sand, 3% silt, 12.1% clay
BH60721WC	1.20/2.00	1		0.9-1.2 ft VOA sample obtained from this interval
		2		1.2-2.0 ft No recovery for this interval
			GC	2.0-3.1 ft Sandy Gravel with some clay and trace silt, dark brown (7.5YR4/4), yellowish brown (10YR5/4), pale brown (10YR6/3), gravel maximum and average size 0.03', angular to sub-angular, consisting of quartzite and quartz, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit moderate plasticity, extensive iron oxide staining, slightly moist 65.2% gravel, 25.2% sand, 2.4% silt, 7.2% clay
BH60718WC BH60722WC	1.40/2.00	3		3.1-3.4 ft VOA sample obtained from this interval
		4		3.4-4.0 ft No recovery for this interval
BH60733WC	1.50/2.20	5	GC	4.0-4.9 ft Sandy Gravel as described above
BH60723WC				4.9-5.2 ft VOA sample obtained from this interval
				5.2-5.5 ft VOA sample obtained from this interval
				5.5-6.2 ft No recovery for this interval
		6	GC	6.2-6.4 ft Sandy Gravel as described above Top of bedrock at 6.4 ft
			SILTY SANDSTONE	6.4-7.9 ft Silty Sandstone with some clay, very pale brown (10YR7/4), reddish yellow (7.5YR6/8), strong brown (7.5YR5/8), sand is fine-grained (with some medium-grained sand), poorly graded, angular to sub-angular, consisting of quartz, fines exhibit moderate plasticity, less than 20% porosity, argillaceous and silica cement, moderately to highly friable, extensive iron oxide staining, 90 degree fracture at 6.4-7.3 ft., healed with iron oxide, thin claystone bed at 7.3-7.5 ft., caliche at 9.2 ft., gray sandstone at 9.4-10.7 ft., moist 0% gravel, 62.9% sand, 26% silt, 11.1% clay
	2.00/2.00	7		7.9-8.2 ft VOA sample obtained from this interval
BH60724WC		8		
BH60719WC	1.90/1.90	9	SILTY SANDSTONE	8.2-9.5 ft Silty Sandstone as described above
				9.5-9.8 ft VOA sample obtained from this interval
BH60725WCMS/MSD				
BH60725WC		10		9.8-10.1 ft VOA sample obtained from this interval

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 12 0	GROUND ELEVATION (FT) 5954 90	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	750738	AREA IHSS 165	CASING DIAMETER (IN)	GEOLOGIST MICHAEL MAY	73392
EAST	2085856	LOCATOR NUMBER M10	BOREHOLE DIAMETER (IN) 6 5	DATE DRILLED 01/28/93	

REMARKS SURFACE SEALED 02/23/93

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/ INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50%	100% 0% 100%	1 50 /1 90	5944 5943 5942 5941 5940 5939 5938 5937 5936 5935	10 11 12 13 14 15 16 17 18 19 20			SILTY SANDSTONE	10 1-11 3 ft Silty Sandstone as described above
	BH60726AC									11 3-11 6 ft VOA sample obtained from this interval
										11 6-12 0 ft No recovery for this interval
										Total depth at 12 0 ft

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 13.0	GROUND ELEVATION (FT) 5954.40	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	750840	AREA IHSS 165	CASING DIAMETER (IN)	GEOLOGIST MICHAEL MAY	73492
EAST	2085758	LOCATOR NUMBER M10	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 01/19/93	

REMARKS SURFACE SEALED 2/5/93

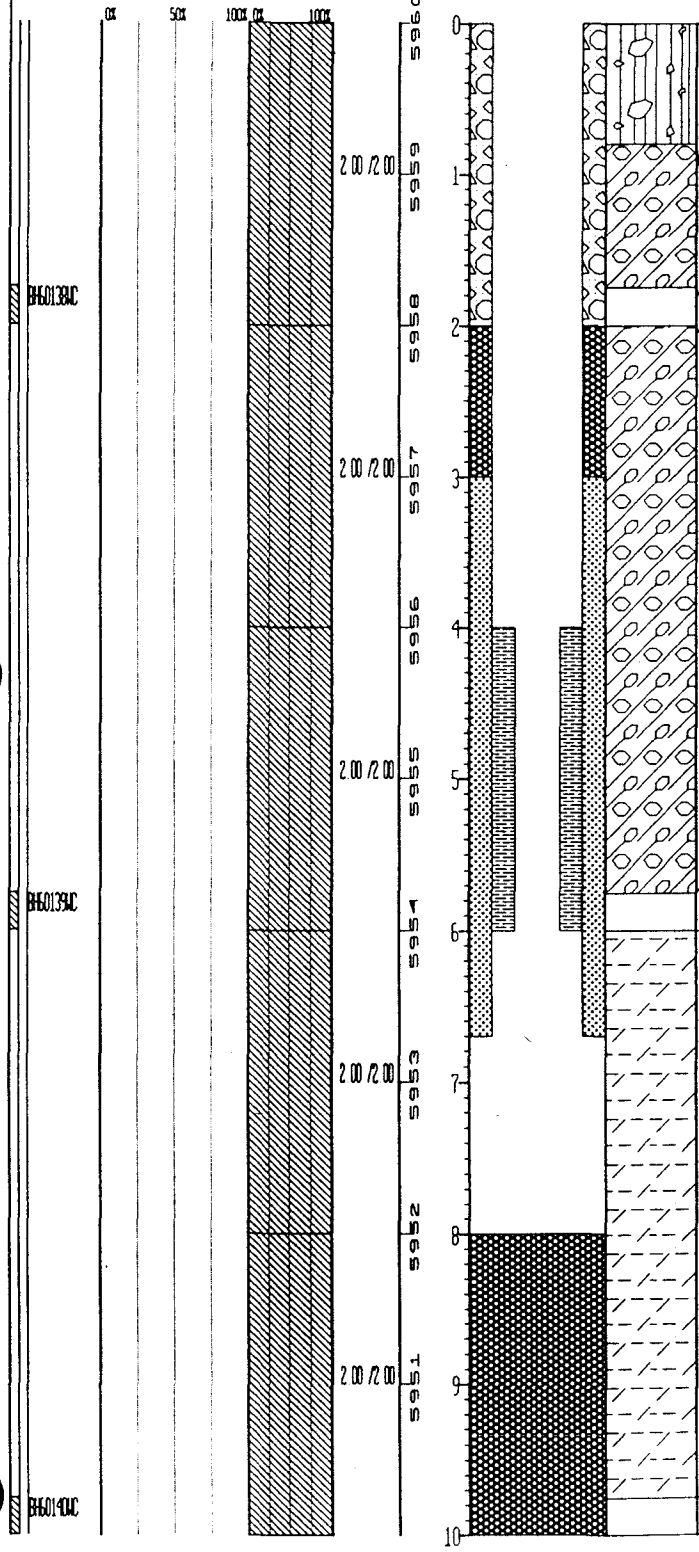
CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5954	0			SC	0.0-0.9 ft Gravelly Sand with some clay, trace silt, dusky red (2.5YR 3/2), dark reddish brown (2.5YR2.5/4), very dark grayish brown (10YR3/2), gravel maximum size 0.1', average size 0.025', angular to sub-angular, consisting of quartzite and quartz, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate plasticity, extensive iron oxide staining, plant roots at 0.0-0.5 ft., top soil at 0.0-0.5 ft moist 25% gravel, 62.1% sand, 1.9% silt, 11% clay
	BH6639C			1.20/2.00	5953	1				
					5952	2				0.9-1.2 ft. VOA sample obtained from this interval 1.2-2.0 ft. No recovery for this interval
	BH6622C								SC	2.0-3.0 ft. Gravelly Sand as described above.
	BH6627C			1.30/2.00	5951	3				3.0-3.3 ft. VOA sample obtained from this interval 3.3-4.0 ft. No recovery for this interval.
					5950	4			GC	4.0-5.0 ft Sandy Gravel with trace silt and clay, yellowish brown (10YR5/8), strong brown (10YR5/8), gravel maximum size 0.15' average size 0.05', angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate plasticity, moist at 4.0-5.6 ft., dry at 5.6-8.1 ft 61.8% gravel, 30.6% sand, 1.9% silt, 5.7% clay
				1.30/1.60						
	BH6628C				5949	5				
					5948	6				5.0-5.3 ft. VOA sample obtained from this interval. 5.3-5.6 ft. No recovery for this interval.
									GC	5.6-6.8 ft. Sandy Gravel as described above.
	BH6629C			1.50/2.50		7				6.8-7.1 ft. VOA sample obtained from this interval. 7.1-8.1 ft. No recovery for this interval. Top of bedrock at 8.1 ft
					5947				SILTY SANDSTONE	8.1-9.3 ft Silty Sandstone with trace clay, very pale brown (10YR7/4), reddish yellow (7.5YR6/8), sand is fine-grained (with some medium-grained sand), poorly graded, sub-angular to rounded, consisting of quartz, fines exhibit low to no plasticity, 15-20% porosity, silica cement, highly friable, 0-10 degree bedding, some carbonaceous material at 8.3-8.5 ft., sluff at 8.1-8.3 ft., extensive iron oxide staining, moist. 0% gravel, 72% sand, 21% silt, 7% clay
					5946	8				
	BH6623C BH6630C			1.50/2.10	5945	9				9.3-9.6 ft. VOA sample obtained from this interval 9.6-10.2 ft. No recovery for this interval
						10				

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 13.0	GROUND ELEVATION (FT) 5954.40	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER	
NORTH 750840	AREA IHSS 165	CASING DIAMETER (IN)	GEOLOGIST MICHAEL MAY	73492	
EAST 2085758	LOCATOR NUMBER M10	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 01/19/93		
REMARKS SURFACE SEALED 2/5/93					

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5944	10			SILTY SANDSTONE	10.2-10.9 ft Silty Sandstone as described above
	BH60632WC			1.30/1.80		11				10.9-11.2 ft VOA sample obtained from this interval
	BH60631WC				5943					11.2-11.5 ft VOA sample obtained from this interval
										11.5-12.0 ft No recovery for this interval
				1.00/1.00	5942	12			SILTY SANDSTONE	12.0-13.0 ft Silty Sandstone as described above
					5941	13				Total depth at 13.0 ft
					5940	14				
					5939	15				
					5938	16				
					5937	17				
					5936	18				
					5935	19				
						20				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 14 0	GROUND ELEVATION (FT)	5960 00	PROJECT NUMBER	006 RFI/RI	LOG OF BORING NUMBER
NORTH	750660	AREA IHSS 165	CASING DIAMETER (IN)	2 0	GEOLOGIST	J P GIROD	76192
EAST	2086122	LOCATOR NUMBER N10	BOREHOLE DIAMETER (IN)	10 0	DATE DRILLED	11/30/92	
REMARKS	WELL SET 12/03/92						

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION



GM

0 0-0 8 ft
Sandy Gravel with some silt and clay, very dark brown (10YR2/2), gravel maximum size 0.1', average size 0 03', angular to sub-angular, consisting of quartz and quartzite, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz and quartzite, fines exhibit low plasticity, plant roots at 0.0-0 8 ft (top soil), caliche at base 0 8 ft, CaCO3 in voids, dry
45 1% gravel, 29 6% sand, 15 2% silt, 10 1% clay

GC

0 8-1 75 ft Clayey Gravel as described below

1 75-2 0 ft VOA sample obtained from this interval

GC

2 0-5 75 ft
Clayey Gravel with some sand and silt, white (N9), gravel maximum size 0 2', average size 0 1', angular, consisting of quartzite, sand is fine- to coarse-grained (trace amounts of grain sizes), poorly graded, angular, consisting of quartzite, fines exhibit moderate plasticity, caliche cement dry
55 5% gravel, 11 2% sand, 6 7% silt, 26 6% clay

5 75-6 0 ft VOA sample obtained from this interval
Top of bedrock at 6 0 ft

SILTY CLAYSTONE

6 0-9 75 ft
Silty Claystone with some sand, light yellowish brown (2 5Y6/4), light olive brown (2 5Y5/6), light brownish gray (2 5Y6/2), sand is fine-grained, well sorted, sub-angular to sub-rounded, consisting of quartz, fines exhibit moderate plasticity, less than 5% porosity, slightly friable, CaCO3 in voids, caliche at 7 0-8 0 ft and 9 3-9 6 ft, local iron oxide staining, 90 degree fracture at 6 0-7 0 ft with CaCO3 thin silty sandstone bed at 9 1-9 3 ft, carbonaceous material present, top of section weathered, dry
0% gravel, 6 1% sand, 14 1% silt, 79 8% clay

9 75-10 0 ft VOA sample obtained from this interval

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 14 0	GROUND ELEVATION (FT)	5960 00	PROJECT NUMBER	006 RFI/RI
NORTH 750660	AREA IHSS 165	CASING DIAMETER (IN)	2 0	GEOLOGIST	J P GIROD
EAST 2086122	LOCATOR NUMBER N10	BOREHOLE DIAMETER (IN)	10 0	DATE DRILLED	11/30/92
REMARKS WELL SET 12/03/92					

LOG OF BORING NUMBER

76192

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH60141WC			1 40 /2 00	5950	10			SANDY CLAYSTONE	10 0-11 1 ft Sandy Claystone with some silt, light gray (10YR7/1), brownish yellow (10YR6/8), sand is fine-grained, well sorted sub-angular to sub-rounded, consisting of quartz, fines exhibit moderate plasticity, less than 10% porosity, argillaceous and silica cement, slightly friable, CaCO3 in voids, iron oxide staining along 0 degree bedding planes, carbonaceous material, dry 0% gravel, 25% sand, 7 5% silt, 67 5% clay
					5949	11				
					5948	12				11 1-11 4 ft VOA sample obtained from this interval
				0 00 /2 00	5947	13				11 4-14 0 ft No recovery for this interval
					5946	14				Total depth at 14 0 ft
					5945	15				
					5944	16				
					5943	17				
					5942	18				
					5941	19				
						20				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 21.2	GROUND ELEVATION (FT) 5957.00	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	750769	AREA IHSS 165	CASING DIAMETER (IN) 2.0	GEOLOGIST MICHAEL MAY	76292
EAST	2085681	LOCATOR NUMBER M10	BOREHOLE DIAMETER (IN) 10.0	DATE DRILLED 01/29/93	

REMARKS

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%		5957	0			GC	0.0-1.0 ft Clayey Gravel with some clay and trace silt, very dark brown (10YR2/2), very dusky red (2.5YR2.5/2), dark brown (7.5YR 3/2), yellowish red (5YR5/8), pale brown (10YR6/3), white (N9), light brownish gray (2.5Y6/2), maximum gravel size 0.2", average size 0.1", angular to sub-angular, consists of quartzite, quartz, and schist, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consists of quartz and quartzite, fines exhibit very low plasticity, CaCO3 in voids, gravel coated with CaCO3, iron oxide staining on grains, moist at 0.0-3.8 ft, dry at 3.8-6.2 ft slightly moist at 6.2-7.7 ft 46.5% gravel, 40.7% sand, 5.1% silt, 7.7% clay
	BH60792UC			1.30/2.00	5956	1				
					5955	2				
				1.50/1.80	5954	3				1.0-1.3 ft VOA sample obtained from this interval 1.3-2.0 ft No recovery for this interval
	BH60793UC								GC	2.0-3.2 ft Clayey Gravel as described above
	BH60793UC									3.2-3.5 ft VOA sample obtained from this interval 3.5-3.8 ft No recovery for this interval
					5953	4			GC	3.8-4.9 ft Clayey Gravel as described above
	BH60794UC			1.40/2.40	5952	5				4.9-5.2 ft VOA sample obtained from this interval 5.2-6.2 ft No recovery for this interval
					5951	6			GC	6.2-7.4 ft Clayey Gravel as described above
										7.4-7.7 ft VOA sample obtained from this interval 7.7-8.0 ft No recovery for this interval
				1.50/1.80	5950	7			SC	8.0-8.5 ft Clayey Sand with some silt, trace gravel, white (10YR8/1), yellow (10YR8/6-8/8), pink (7.5YR7/4), pale yellow (5Y7/3), pale olive (5Y6/3), yellowish red (5YR5/8), reddish yellow (7.5YR6/8), gravel maximum and average size 0.02", sub-angular, consisting of quartzite, sand is fine-grained, well sorted, trace medium and coarse sand, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit moderate plasticity, moist 0.8% gravel, 52% sand, 14.2% silt, 33% clay Top of bedrock at 8.5 ft
	BH60795UC				5949	8				
	BH60796UC			1.60/2.00	5948	9			CLAYEY SANDSTONE	8.5-9.3 ft Clayey Sandstone as described below
	BH60796UC									9.3-9.6 ft VOA sample obtained from this interval 9.6-10.0 ft No recovery for this interval
						10				

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 21 2	GROUND ELEVATION (FT) 5957 00	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH 750769	AREA IHSS 165	CASING DIAMETER (IN) 2 0	GEOLOGIST MICHAEL MAY	76292
EAST 2085681	LOCATOR NUMBER M10	BOREHOLE DIAMETER (IN) 10 0	DATE DRILLED 01/29/93	
REMARKS				

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION

BH60747WC

Recovery/Interval: 1 70 /2 00; 1 60 /1 60; 1 00 /1 40; 1 40 /1 70; 2 10 /2 10; 1 80 /1 80

Depth (FT): 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

Unified Soils Classification or Rock Type: CLAYEY SANDSTONE 10 0-11 7 ft

Clayey Sandstone with some silt, white (10YR8/1), yellow (10YR8/6-8/8), pink (7 5YR7/4), pale yellow (5Y7/3), pale olive (5Y6/3), yellowish red (5YR5/8), reddish yellow (7 5YR6/8), sand is fine-grained, well sorted, angular to sub-angular, consists of quartz, fines exhibit low plasticity, extensive iron oxide staining, less than 20% porosity, silica and argillaceous cement, highly friable, 90 degree fracture at 13 3-13 9 ft, sluff at 15 0-15 3 ft, thin claystone laminae beds 0 degrees, moist

79 6% sand, 6 1% silt, 14 3% clay

11 7-12 0 ft VOA sample obtained from this interval

CLAYEY SANDSTONE 12 0-14 6 ft Clayey Sandstone as described above

14 6-15 3 ft No recovery for this interval

CLAYEY SANDSTONE 15 3-16 7 ft Clayey Sandstone as described above

CLAYEY SANDSTONE 16 7-20 6 ft

Clayey Sandstone with some silt, color same as above, sand is fine-grained, well sorted, angular to sub-angular, consists of quartz, fines exhibit low plasticity, less than 10% porosity, argillaceous cement, highly to moderately friable, extensive iron oxide staining, 90 degree fracture at 17 9-18 8 ft, 0 degree fracture at 20 3 ft healed with CaCO3, 90 degree fracture at 20 1-20 6 ft, moist

59 1% sand, 12 3% silt, 28 6% clay

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 21 2	GROUND ELEVATION (FT) 5957 00	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	750769	AREA THSS 165	CASING DIAMETER (IN) 2 0	GEOLOGIST MICHAEL MAY	76292
EAST	2085681	LOCATOR NUMBER M10	BOREHOLE DIAMETER (IN) 10 0	DATE DRILLED 01/29/93	
REMARKS					

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				0 00 /0 60	5937	20				
					5936	21				20 6-21 2 ft No recovery for this interval
										Total depth at 21 2 ft
					5935	22				
	*rB				5934	23				
					5933	24				
					5932	25				
					5931	26				
					5930	27				
					5929	28				
					5928	29				
						30				

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 12.3	GROUND ELEVATION (FT) 5971.20	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH 752425	AREA IHSS 166.1	CASING DIAMETER (IN)	GEOLOGIST BRIAN J. RUBY	66892
EAST 2083922	LOCATOR NUMBER 610	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 12/08/92	
REMARKS SURFACE SEALED 12/16/92				

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50%	100% 0%	100%	5971	0			GC	0.0-1.2 ft Clayey Gravel with some sand and silt, brown (7.5YR5/2) to strong brown (7.5YR4/6), gravel maximum size 0.1', average size 0.025', angular to sub-angular, consisting of quartzite sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz, clay exhibits moderate to high plasticity, extensive plant roots at 0.0-0.6' and iron oxide staining at 0.0-0.4', organic material at 0.8-1.4', damp to wet at 0.0-1.4', dry at 2.2-2.7 ft 40% gravel, 20.8% sand, 13.8% silt, 25.4% clay
	BH6280C			1.40 /2.20	5970	1				
	BH6281C				5969	2				1.2-1.4 ft VOA sample obtained from this interval
	BH6277C									1.4-2.2 ft No recovery for this interval
										2.2-2.4 ft VOA sample obtained from this interval
										2.4-2.6 ft VOA sample obtained from this interval
	BH6278C			0.50 /2.00	5968	3			GC	2.6-2.7 ft Clayey Gravel as described above
										2.9-4.2 ft No recovery for this interval
					5967	4			GM	4.2-6.0 ft Sandy Gravel with some silt and trace clay, pink (7.5YR8/4) to reddish yellow (7.5YR7/8), gravel maximum size 0.2', average size 0.05', sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz, gravel consists of quartzite, clay exhibits low plasticity, extensive oxidized zone at 7.7-7.9 ft, iron oxide staining 60% gravel, 29.2% sand, 7.5% silt, 3.3% clay
				2.00 /2.00	5966	5				
	BH6282C				5965	6				6.0-6.2 ft VOA sample obtained from this interval
									GM	6.2-7.7 ft Sandy Gravel as described above
				1.70 /2.10	5964	7				7.7-7.9 ft VOA sample obtained from this interval
										7.9-8.3 ft No recovery for this interval
	BH6283C				5963	8			SM	8.3-8.4 ft Silty Sand, yellowish red (5YR5/8), fine- to medium-grained, wet 0% gravel, 85% sand, 15% silt, 0% clay Top of bedrock at 8.4 ft
									SILTY CLAYSTONE	8.4-9.8 ft Very Silty Claystone with trace sand, light gray (10YR7/1-6/1) to gray (10YR5/1), fine sand, well sorted, sub-rounded, poor porosity with trace amount of carbonaceous material, wet, high to moderate friability 0% gravel, 6% sand, 34% silt, 60% clay
	BH6279C			2.00 /2.00	5962	9				
						10			CLAYSTONE	9.8-10.1 ft Claystone as described below

DRAFT

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 12 3	GROUND ELEVATION (FT) 5971 20	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER	
NORTH 752425	AREA IHSS 166 1	CASING DIAMETER (IN)	GEOLOGIST BRIAN J RUBY	66892	
EAST 2083922	LOCATOR NUMBER 610	BOREHOLE DIAMETER (IN) 6 5	DATE DRILLED 12/08/92		
REMARKS SURFACE SEALED 12/16/92					

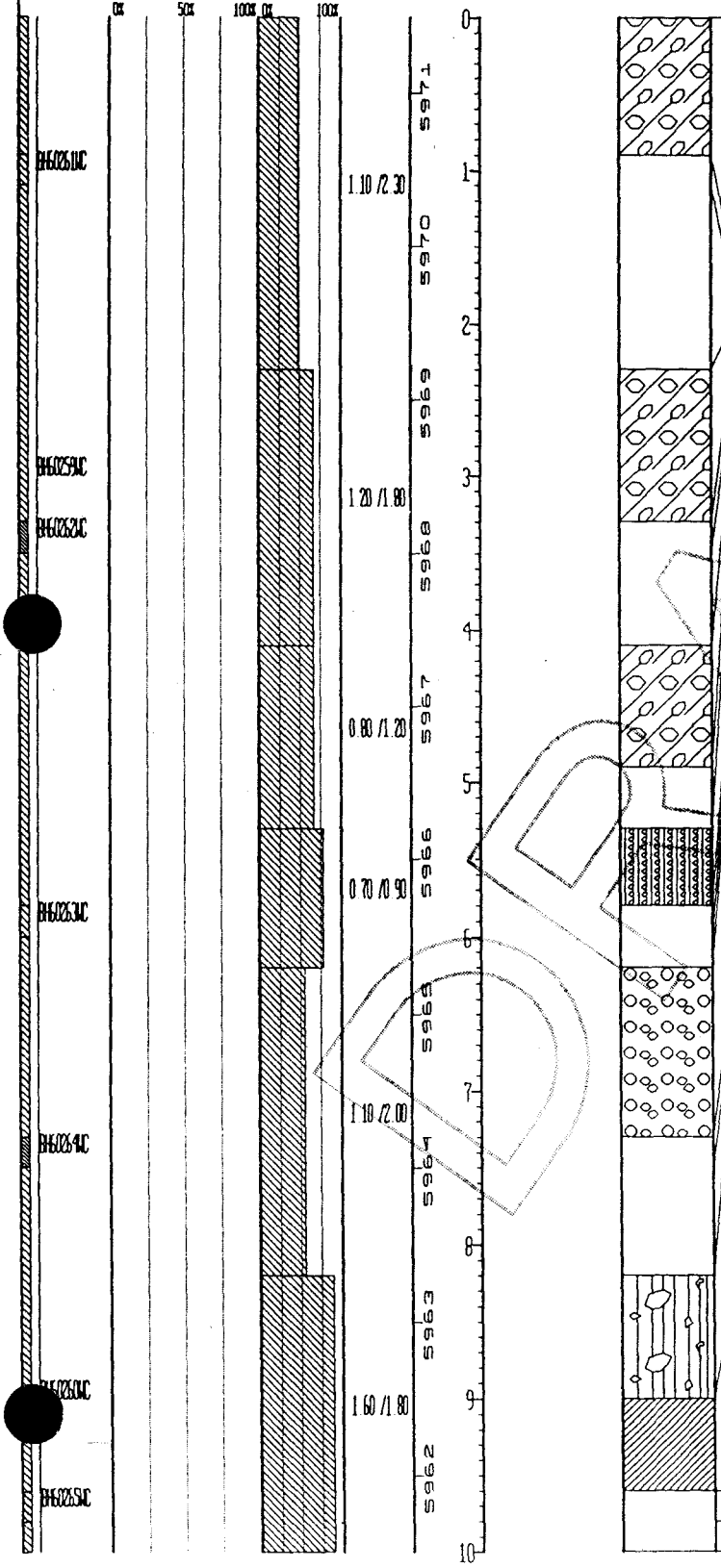
CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	B60003AC				5961	10				10 1-10 3 ft VOA sample obtained from this interval
				2.00 /2.00	5960	11			CLAYSTONE	10 3-12 1 ft Claystone with trace sand and some silt, light yellow brown (2 5Y6/4) to light olive brown (2 5YR5/4) to reddish yellow (7 5YR6/8), fine-grained, well sorted, sub-rounded, poor porosity, moderately friable, damp, faint bedding with inclusions of silt and extensive iron oxide staining and local manganese oxide staining 0% gravel, 1% sand, 6% silt, 93% clay
	B60004AC				5959	12				12 1-12 3 ft VOA sample obtained from this interval
										Total depth at 12 3 ft
					5958	13				
					5957	14				
					5956	15				
					5955	16				
					5954	17				
					5953	18				
					5952	19				
						20				

DRAFT

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 12.0	GROUND ELEVATION (FT): 5971.50	PROJECT NUMBER: 006 RFI/RI	LOG OF BORING NUMBER:	
NORTH: 752429	AREA: IHSS 166.1	CASING DIAMETER (IN):	GEOLOGIST: BRIAN J. RUBY	66992	
EAST: 2083945	LOCATOR NUMBER: K10	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED: 12/07/92		
REMARKS: SURFACE SEALED 12/16/92					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION



GC: 0.0-1.1 ft. Clayey Gravel with some sand and silt, dark yellowish brown (10YR4/4) to dark brown (10YR3/3), gravel maximum size 0.15' average size 0.025', sub-angular to sub-rounded, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and granitics, clay exhibits low plasticity, top soil 0.0-0.3', extensive roots, 0.3-5.9' caliche and localized iron oxide staining, wet to damp at depth.
70% gravel, 12.2% sand, 5.3% silt, 12.5% clay

0.9-1.1 ft. VOA sample obtained from this interval

1.1-2.3 ft. No recovery for this interval

GC: 2.3-3.3 ft. Clayey Gravel as described above

3.3-3.5 ft. VOA sample obtained from this interval

3.5-4.1 ft. No recovery for this interval

GC: 4.1-4.9 ft. Clayey Gravel as described above

4.9-5.3 ft. No recovery for this interval

SM: 5.3-5.8 ft. Silty Sand with trace clay, yellow brown (10YR5/4), sand is medium- to coarse-grained, poorly graded, consisting of quartz, angular to sub-rounded, clay exhibits low plasticity iron oxide staining, damp to dry.
82.4% sand, 15.0% silt, 2.6% clay

5.8-6.0 ft. VOA sample obtained from this interval

6.0-6.2 ft. No recovery for this interval

GW: 6.2-7.3 ft.
Sandy Gravel with trace silt and clay, dark gray (10YR4/1) to very dark gray (10YR3/1), gravel maximum size 0.1', average size 0.025', angular to sub-angular to sub-rounded, consisting of quartz and quartzite, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, clay exhibits no plasticity, iron oxide and manganese oxide staining, damp.
60% gravel, 33.7% sand, 1.6% silt, 4.7% clay

7.3-7.5 ft. VOA sample obtained from this interval

7.5-8.2 ft. No recovery for this interval

GM: 8.2-9.0 ft.
Sandy Gravel with some silt and trace clay, dark yellowish orange (10YR6/6), gravel maximum size 0.1', average size 0.05', consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz, with extensive iron oxide staining, clay exhibits no plasticity, saturated, appears to be a channel sand.
50% gravel, 39.8% sand, 9.2% silt, 1.0% clay

CH: 9.0-9.6 ft.
Clay with trace sand and silt, light gray (10YR6/1) to gray (10YR5/1) to very pale brown (10YR8/2), sand is fine-grained well sorted, clay exhibits high plasticity, appearance of reworked bedrock with inclusion of CaCO3 in voids and clasts of claystone, damp to moist.
5% sand, 5% silt, 95% clay

9.6-9.8 ft. VOA sample obtained from this interval

9.8-10.0 ft. No recovery for this interval

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 12.0	GROUND ELEVATION (FT):	5971.50	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH:	752429	AREA: IHSS 166.1	CASING DIAMETER (IN):		GEOLOGIST:	BRIAN J. RUBY	66992
EAST:	2083945	LOCATOR NUMBER: K10	BOREHOLE DIAMETER (IN):	6.5	DATE DRILLED	12/07/92	

REMARKS: SURFACE SEALED 12/16/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
										9.8-10.0 ft. No recovery for this interval.
					5961	10			GM:	10.0-10.6 ft. Sandy Gravel with some silt and trace clay, dark yellowish orange (10YR6/6), gravel maximum size 0.1", average size 0.05", angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz with extensive iron oxide staining, clay exhibits no plasticity, saturated, appears to be a channel sand. Top of bedrock at 10.6 ft. 50% gravel, 39.8% sand, 9.2% silt, 1.0% clay
	BH66266AC			1.10 /2.00	5960	11				
					5959	12			CLAYSTONE:	10.6-11.1 ft. Claystone with trace silt and clay, light gray (10YR6/1) to gray (5/1) to very pale brown (10YR8/4), sand is very fine-grained, well sorted, 0% porosity, low friability with faint horizontal bedding, localized iron oxide staining, dry. 5% sand, 5% silt, 95% clay
					5958	13				10.9-11.1 ft. VOA sample obtained from this interval.
					5957	14				11.1-12.0 ft. No recovery for this interval.
					5956	15				Total depth at 12.0 ft.
					5955	16				
					5954	17				
					5953	18				
					5952	19				
						20				

DRAFT

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 13.3	GROUND ELEVATION (FT): 5968.90	PROJECT NUMBER: 006 RFI/RI	LOG OF BORING NUMBER:	
NORTH: 752434	AREA: IHSS 166.1	CASING DIAMETER (IN):	GEOLOGIST: BRIAN J. RUBY	67092	
EAST: 2083971	LOCATOR NUMBER: K10	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED: 11/30/92		
REMARKS: SURFACE SEALED 12/16/92					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION

Depth scale: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Recovery/interval: 1.60/2.00; 1.60/2.40; 1.60/1.60; 2.60/3.00

Datum (FT): 5968, 5967, 5966, 5965, 5964, 5963, 5962, 5961, 5960, 5959

Sample number: BH60151WC, BH60154WC, BH60152WC, BH60153WC, BH60155WC, BH60156WC

Unified Soils Classification or Rock Type	Description
SW	0.0-1.4 ft. Gravelly Sand with some clay and trace silt, pale yellow (2.5Y8/2) to light yellowish brown (2.5Y6/4) to very dark gray brown (10YR3/2) to reddish yellow (7.5YR6/8) to weak red (10YR4/3), gravel maximum size 0.2', average size 0.1', sand is fine- to coarse-grained, well graded, gravel is sub-angular to sub-rounded, sand grains are sub-angular to sub-rounded, clay exhibits low plasticity, gravel consists of quartzite and quartz, sand grains consist of quartz and schist, CaCO3 is present, wet at 0.0-0.7', dry-damp at 0.7-3.6', wet at 3.6-6.7', damp-moist at 6.7-7.1', damp at 7.1-8.2', dry at 8.2-13.3'. 40% gravel, 52% sand, 2% silt, 6% clay
	1.4-1.6 ft. VOA sample obtained from this interval.
SW	1.6-3.4 ft. Gravelly Sand as described above.
	3.4-3.6 ft. VOA sample obtained from this interval.
	3.6-4.4 ft. No recovery for this interval.
SW	4.4-5.8 ft. Gravelly Sand as described above.
	5.8-6.0 ft. VOA sample obtained from this interval.
SW	6.0-7.1 ft. Gravelly Sand as described above. Top of bedrock at 7.1 ft.
CLAYEY SILTSTONE	7.1-8.2 ft. Clayey Siltstone and some sand, white (2.5Y8/2) to light gray (10YR7/1) with staining, yellow (10YR7/8), sand is fine grained, well sorted, sub-rounded, and predominantly quartz, moderate friability, no apparent bedding, iron staining and trace CaCO3, bedrock is weathered throughout interval with iron oxide staining and trace manganese oxide staining, slightly moist. 10% sand, 70% silt, 20% clay
SANDY CLAYSTONE	8.2-8.4 ft. Sandy Claystone as described below.
	8.4-8.6 ft. VOA sample obtained from this interval.
	8.6-9.0 ft. No recovery for this interval.
SANDY CLAYSTONE	9.0-13.3 ft. Sandy Claystone with some silt, yellow (10YR7/8-8/8) to light gray (10YR7/1) to gray (10YR5/1) to very dark gray (10YR3/1), white (10YT8/1) CaCO3 zone at 10.6-10.8',

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 13.3	GROUND ELEVATION (FT) 5968.90	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	752434	AREA IHSS 166.1	CASING DIAMETER (IN)	GEOLOGIST BRIAN J. RUBY	67092
EAST	2083971	LOCATOR NUMBER K10	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 11/30/92	

REMARKS: SURFACE SEALED 12/16/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				5.50/4.30	5958	10				sand is fine-grained, sub-rounded, predominantly quartz with some plagioclase, argillaceous cementing of sand grains, moderate friability, sand grains consist of plagioclase and quartz, faint horizontal bedding with fractures 60 degrees to 90 degrees and healed with CaCO3 and manganese oxide and iron oxide staining, lower 0.8' of bedrock is very dark gray (10YR3/1) with iron oxide staining with near vertical fracturing and bleaching, dry at 9.0-13.3', moist at 8.2-8.6', 110% recovery due to expansive properties of the claystone. 35.3% sand, 13.1% silt, 51.6% clay.
					5957	11				
					5956	12				
					5955	13				Total depth at 13.3 ft.
					5954	14				
					5953	15				
					5952	16				
					5951	17				
					5950	18				
					5949	19				
						20				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 12.5	GROUND ELEVATION (FT): 5967.70	PROJECT NUMBER: 006 RFI/RI	LOG OF BORING NUMBER:
NORTH	752439	AREA: IHSS 166.1	CASING DIAMETER (IN):	GEOLOGIST: BRIAN J. RUBY	67192
EAST	2083998	LOCATOR NUMBER: K10	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED: 12/02/92	

REMARKS: SURFACE SEALED 12/16/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5967	0			SC	0.0-0.9 ft. Gravelly Sand with some clay, trace silt, white (10YR8/1-8/2), very pale brown (10YR7/3), gravel maximum size 0.2", average size 0.05", angular to sub-rounded, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to rounded, consisting of quartz and quartzite, fines exhibit low plasticity, abundant plant roots at 0.0-0.3 ft., caliche present, mottled texture, 0.0-1.1 ft. wet, 2.2-3.8 ft. moist. 36.1% gravel, 44.9% sand, 2.4% silt, 13.3% clay.
	BH6017AC			1.10 /2.20	5966	1				0.9-1.1 ft. VOA sample obtained from this interval
						2				1.1-2.2 ft. No recovery for this interval
									SC	2.2-3.6 ft. Gravelly Sand as described above.
									SM	3.6-3.8 ft. Gravelly Sand as described above.
										3.8-4.0 ft. VOA sample obtained from this interval
					5965					4.0-4.2 ft. No recovery for this interval
	BH6018AC			1.80 /1.80		3			SM	4.2-5.0 ft. Gravelly Sand with some clay and silt, yellowish red (5YR5/8), gravel maximum size 0.025", average size 0.01", angular to sub-angular, consisting of quartzite and quartz, sand is fine- to coarse-grained, well graded, angular to rounded, consisting of quartz, quartzite, and mica, fines exhibit low plasticity, extensive iron oxide staining, twigs present, moist at 3.6-3.8 ft., saturated at 4.2-5.0 ft. 24.8% gravel, 49.3% sand, 15.5% silt, 10.4% clay. Top of bedrock at 5.0 ft.
	BH6017BC				5964	4				
					5963					
				1.80 /2.20		5			CLAYEY SILTSTONE	5.0-5.6 ft. Clayey Siltstone with some sand, light gray (10YR7/1), very pale brown (10YR7/6), sand is fine-grained, well sorted, sub-angular to sub-rounded, consisting of quartz and mica, fines exhibit low plasticity, local iron oxide staining, 10% porosity, highly friable, argillaceous cement, dry. 6.3% sand, 75% silt, 18.7% clay.
	BH6017DC				5962					
						6				5.6-5.8 ft. VOA sample obtained from this interval
										5.8-6.2 ft. No recovery for this interval
					5961				SANDY CLAYSTONE	6.2-7.4 ft. Sandy Claystone with some silt, trace gravel, light olive brown (2.5Y5/4-5/6), very dark brown (10YR2/2), yellow (10YR7/6), gravel maximum size 0.1", angular, $CaCO_3$ (calcite), sand is fine-grained, well sorted, angular to rounded, $CaCO_3$ (calcite), fines exhibit moderate plasticity, extensive iron oxide staining, mottled texture, 30 degree fractures at 7.1 ft., 6.2-7.6 ft. dry, 7.6-11.9 ft. wet, 11.9-12.2 ft. dry, damp. 1.2% gravel, 13.6% sand, 8.5% silt, 76.7% clay.
				1.60 /2.00		7				
	BH6018AC				5960					
						8				
										7.4-7.6 ft. VOA sample obtained from this interval
					5959				SANDY CLAYSTONE	7.6-7.8 ft. Sandy Claystone as described above.
				1.20 /1.20		9				7.8-8.2 ft. No recovery for this interval
	BH6018BC								SANDY CLAYSTONE	8.2-9.2 ft. Sandy Claystone as described above.
					5958					9.2-9.4 ft. VOA sample obtained from this interval
						10			SANDY CLAYSTONE	9.4-12.0 ft. Sandy Claystone as described above.

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 12.5	GROUND ELEVATION (FT): 5967.70	PROJECT NUMBER:	OU6 RFI/RI	LOG OF BORING NUMBER:
NORTH: 752439	AREA: IHSS 166.1	CASING DIAMETER (IN):	GEOLOGIST:	BRIAN J RUBY	67192
EAST: 2083998	LOCATOR NUMBER: K10	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED:	12/02/92	
REMARKS: SURFACE SEALED 12/16/92					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH60183WC			2.80 /3.10	5957	10				
					5956	11				
					5955	12				12.0-12.2 ft. VOA sample obtained from this interval.
					5954	13				12.2-12.5 ft. No recovery for this interval.
					5953	14				Total depth at 12.5 ft.
					5952	15				
					5951	16				
					5950	17				
					5949	18				
					5948	19				
						20				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 12.0	GROUND ELEVATION (FT):	5967.60	PROJECT NUMBER:	006 RFI/RI	LOG OF BORING NUMBER:
NORTH:	752443	AREA: IHSS 166.1	CASING DIAMETER (IN):		GEOLOGIST:	BRIAN J. RUBY	67292
EAST:	2084020	LOCATOR NUMBER: K11	BOREHOLE DIAMETER (IN):	6.5	DATE DRILLED:	12/02/92	

REMARKS: SURFACE SEALED 12/16/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50%)	PERCENT RECOVERY (100% 0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5967	0			GC	0.0-1.1 ft. Clayey Gravel with some sand, trace silt, white (2.5Y8/2), gray (2.5YN5), grayish brown (2.5Y6/2), gravel maximum size 0.15', average size 0.05', angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit moderate plasticity, plant roots at 0.0-0.3 ft., approximately 30% of clay is CaCO3, moist. 57.1% gravel, 14.3% sand, 1.9% silt, 27.2% clay.
						1				1.1-1.3 ft. VOA sample obtained from this interval.
				1.30 /2.00	5966					1.3-2.0 ft. No recovery for this interval.
						2			GC	2.0-3.1 ft. Clayey Gravel as described above.
					5965					3.1-3.3 ft. VOA sample obtained from this interval.
	BH60152C			1.30 /2.00		3				3.3-4.0 ft. No recovery for this interval.
	BH60160C								GC	4.0-4.3 ft. Clayey Gravel as described above.
					5964				CL	4.3-5.3 ft. Sandy Clay with trace silt and gravel, light brownish gray (2.5Y6/2), white (N9), gravel maximum and average size 0.01' angular, consisting of quartzite, sand is fine- to medium-grained, poorly graded, with trace coarse sand, angular to rounded, consisting of quartz, fines exhibit moderate plasticity, 0-10 degree fractures, 4.6-5.0 ft., healed with CaCO3, appears to be reworked bedrock. 0.4% gravel, 34.4% sand, 3.2% silt, 61% clay. Top of bedrock at 5.3 ft.
					5963	4				
				1.80 /2.00		5				
									CLAYEY SILTSTONE	5.3-5.8 ft. Clayey Siltstone as described below.
						4				5.8-6.0 ft. VOA sample obtained from this interval.
	BH60161C				5962				CLAYEY SILTSTONE	6.0-7.1 ft. Clayey Siltstone with some sand, light gray (10YR7/1), white (10YR8/1), sand is fine-grained, well sorted, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit low plasticity, 5-10% porosity, argillaceous cement, highly friable, 80 degree fracture at 6.9-7.1 ft., local iron oxide staining, damp. 0% gravel, 10% sand, 67.5% silt, 22.5% clay.
						6				
				1.30 /2.00	5961					
	BH60163C					7				
					5960					7.1-7.3 ft. VOA sample obtained from this interval.
										7.3-8.0 ft. No recovery for this interval.
						8			CLAYSTONE	8.0-9.5 ft. Claystone with trace silt and sand, yellow (10YR7/8), light gray (10YR7/1-7/2), sand is fine-grained, well sorted, sub-angular, consisting of quartz, fines exhibit high plasticity less than 5% porosity, low friability, CaCO3 in voids, carbonaceous material present, faint horizontal bedding, extensive iron oxide staining at 7.3-9.5 ft., damp at 7.3-9.7 ft., dry at 9.7-12.0 ft. 0% gravel, 1% sand, 4.9% silt, 95.1% clay.
					5959					
	BH60166C			2.00 /2.00		9				
	BH60164C				5958	10				9.5-9.7 ft. VOA sample obtained from this interval.

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 12.0	GROUND ELEVATION (FT): 5967.60	PROJECT NUMBER: 006 RFI/RI	LOG OF BORING NUMBER	
NORTH: 752443	AREA: IHSS 166.1	CASING DIAMETER (IN):	GEOLOGIST: BRIAN J. RUBY	67292	
EAST: 2084020	LOCATOR NUMBER: K11	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED: 12/02/92		
REMARKS: SURFACE SEALED 12/16/92					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
						10			CLAYSTONE:	9.7-11.8 ft. Claystone as described above.
				2.00 /2.00	5957	11				
	BH6016SWC				5956	12				11.8-12.0 ft. VOA sample obtained from this interval.
										Total depth at 12.0 ft.
					5955	13				
					5954	14				
					5953	15				
					5952	16				
					5951	17				
					5950	18				
					5949	19				
					5948	20				

DRAFT

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 12.5	GROUND ELEVATION (FT): 5968.00	PROJECT NUMBER: 006 RFI/RI	LOG OF BORING NUMBER:	
NORTH: 752448	AREA: IHSS 166.1	CASING DIAMETER (IN):	GEOLOGIST: BRIAN J. RUBY	67392	
EAST: 2084046	LOCATOR NUMBER: K11	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED: 12/04/92		
REMARKS: SURFACE SEALED 12/16/92					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL BORING DEPTH

SAMPLE NUMBER: BH60148WC, BH60167WC, BH60174WC, BH60147WC, BH60213WC, BH60217WC, BH60214WC

SAMPLE GRAIN SIZE: 0% 50% 100%

PERCENT RECOVERY: 0% 100%

RECOVERY/INTERVAL: 1.20/2.50; 0.80/1.30; 1.10/1.80; 2.00/2.00; 2.40/2.40

DATUM (FT): 5968, 5967, 5966, 5965, 5964, 5963, 5962, 5961, 5960, 5959

DEPTH (FT): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

WELL OR PIEZOMETER CONSTRUCTION

LITHOLOGY

UNIFIED SOILS CLASSIFICATION OR ROCK TYPE

DESCRIPTION

ML: 0.0-1.0 ft.
Sandy Silt with some clay and trace gravel, dark grayish brown (10YR4/2), gravel maximum size 0.05', average size 0.02', angular, consisting of quartz and quartzite, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit low plasticity, extensive roots at 0.0-0.7 ft., caliche at 1.0 ft., moist.
5.8% gravel, 33.6% sand, 36.4% silt, 24.2% clay
1.0-1.2 ft. VOA sample obtained from this interval
1.2-2.5 ft. No recovery for this interval

SM: 2.5-3.1 ft.
Silty Sand with some gravel and clay, reddish yellow (5YR 6/8-7/8), light yellowish brown (2.5Y6/4), gravel maximum size 0.15', average size 0.05', angular to sub-rounded, consisting of quartz and quartzite, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit low plasticity, extensive iron oxide staining, 2.5-3.3 ft. damp, 3.8-4.9 ft. dry, 5.6-5.9 ft. damp.
12.5% gravel, 63.2% sand, 17% silt, 7.3% clay
3.1-3.3 ft. VOA sample obtained from this interval
3.3-3.8 ft. No recovery for this interval

SM: 3.8-4.7 ft. Silty Sand as described above
4.7-4.9 ft. VOA sample obtained from this interval
4.9-5.6 ft. No recovery for this interval

SM: 5.6-5.9 ft. Silty Sand as described above.
Top of bedrock at 5.9 ft.

SILTY CLAYSTONE: 5.9-7.4 ft.
Silty Claystone with trace sand, white (10YR8/1), light gray (10YR7/1), yellow (10YR7/8-8/8), sand is fine-grained, well sorted, angular, consisting of quartz, fines exhibit high plasticity, less than 5% porosity, moderate friability, local and extensive iron oxide staining (especially at 9.5-10.5 ft.), CaCO3 in voids at top of bedrock at 5.9 ft. and at 6.8 ft., faint horizontal bedding at 10.9 ft. outlined by iron oxide staining, carbonaceous material present, 5.9-6.3 ft. dry, 6.3-11.5 ft. damp.
0% gravel, 1% sand, 19.8% silt, 79.2% clay
7.4-7.6 ft. VOA sample obtained from this interval

SILTY CLAYSTONE: 7.6-9.3 ft. Silty Claystone as described above

9.3-9.5 ft. VOA sample obtained from this interval

SILTY CLAYSTONE: 9.5-11.3 ft. Silty Claystone as described above

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 12.5	GROUND ELEVATION (FT): 5968.00	PROJECT NUMBER: OU6 RFI/RI	LOG OF BORING NUMBER	
NORTH: 752498	AREA: IHSS 166.1	CASING DIAMETER (IN):	GEOLOGIST: BRIAN J. RUBY	67392	
EAST: 2084046	LOCATOR NUMBER: K11	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED: 12/04/92		
REMARKS: SURFACE SEALED 12/16/92					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6021SC			1.50 /2.50	5967	11				11.3-11.5 ft. VOA sample obtained from this interval.
										11.5-12.0 ft. No recovery for this interval.
										Total depth at 12.5 ft.

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 12.4	GROUND ELEVATION (FT)	5968.10	PROJECT NUMBER	006 RFI/RI	LOG OF BORING NUMBER
NORTH:	752451	AREA: IHSS 166.1	CASING DIAMETER (IN)		GEOLOGIST	BRIAN J. RUBY	67492
EAST:	2084068	LOCATOR NUMBER: K11	BOREHOLE DIAMETER (IN)	6.5	DATE DRILLED:	12/04/92	
REMARKS:	SURFACE SEALED 12/16/92						

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5968	0			ML	0.0-0.4 ft. Gravelly Silt with some clay and sand, dark grayish brown (10YR4/2), gravel maximum size 0.05', average size 0.05', angular to sub-angular, consisting of quartzite, sand is medium-grained, poorly graded with trace amounts of fine and coarse sand, angular to sub-angular, consisting of quartz and quartzite, fines exhibit low plasticity, extensive plant roots at 0.0-0.4 ft., wet at 0.0-0.9 ft. 22.5% gravel, 19.6% sand, 40.5% silt, 17.4% clay
	BH6022SC			0.90 /2.10	5967	1			SC	0.4-0.7 ft. Gravelly Sand as described below
										0.7-0.9 ft. VOA sample obtained from this interval
										0.9-2.1 ft. No recovery for this interval
					5966	2			SC	2.1-3.7 ft. Gravelly Sand with some clay and silt, brownish yellow (10YR6/6-6/8), pale olive (5Y6/3), strong brown (7.5YR5/6-4/6), reddish yellow (7.5YR6/8), gravel maximum size 0.2', average size 0.05', angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit low plasticity, extensive iron oxide staining on grains, wet at 0.4-0.9 ft., damp at 2.1-3.9 ft., damp to dry at 4.2-5.3 ft., damp at 5.3-6.7 ft. 30.2% gravel, 38.1% sand, 6.5% silt, 15.3% clay
	BH6024SC			1.80 /2.10	5965	3				
	BH6027SC				5964	4				
										3.7-3.9 ft. VOA sample obtained from this interval
										3.9-4.2 ft. No recovery for this interval
				1.10 /1.60	5963	5			SC	4.2-5.1 ft. Gravelly Sand as described above
	BH6028SC									5.1-5.3 ft. VOA sample obtained from this interval
										5.3-5.8 ft. No recovery for this interval
					5962	6			SC	5.8-6.7 ft. Gravelly Sand as described above. Top of bedrock at 6.7 ft.
									CLAYSTONE	6.7-7.6 ft. Claystone with some silt and trace sand, very pale brown (10YR7/4), white (10YR8/2), sand is fine-grained, well sorted, angular, consisting of quartz and quartzite, fines exhibit moderate to high plasticity, less than 5% porosity, moderate friability, damp, carbonaceous material present 0% gravel, 2.2% sand, 9.8% silt, 88% clay
				2.00 /2.50	5961	7				
	BH6029SC									7.6-7.8 ft. VOA sample obtained from this interval
										7.8-8.3 ft. No recovery for this interval
					5960	8			CLAYSTONE	8.3-9.2 ft. Claystone as described above.
	BH6025SC									
	BH6030SC			1.70 /1.90	5959	9				
										9.2-9.4 ft. VOA sample obtained from this interval
						10			SILTY CLAYSTONE	9.2-10.0 ft. Silty Claystone as described below

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 12.4	GROUND ELEVATION (FT): 5968.10	PROJECT NUMBER: OU6 RFI/RI	LOG OF BORING NUMBER:	
NORTH 752451	AREA: IHSS 166.1	CASING DIAMETER (IN):	GEOLOGIST: BRIAN J. RUBY		
EAST 2084068	LOCATOR NUMBER: K11	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED 12/04/92	67492	
REMARKS: SURFACE SEALED 12/16/92					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6023OWC				5958	10			:	10.0-10.2 ft. VOA sample obtained from this interval
				1.90 /2.20	5957	11			SILTY CLAYSTONE:	10.2-11.9 ft. Silty Claystone with trace sand, olive yellow (2.5Y6/6), light brownish gray (2.5Y6/2), sand is fine-grained, well sorted, angular to sub-rounded, consisting of quartz, local iron oxide staining, carbonaceous material, less than 5% porosity, moderate friability, dry. 0% gravel, 1.4% sand, 29.6% silt, 69% clay.
	BH6023IWC				5956	12			:	11.9-12.1 ft. VOA sample obtained from this interval
									:	12.1-12.4 ft. No recovery for this interval.
									:	Total depth at 12.4 ft.
					5955	13				
					5954	14				
					5953	15				
					5952	16				
					5951	17				
					5950	18				
					5949	19				
						20				

DRAFT

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 12.4	GROUND ELEVATION (FT) 5971.00	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER	
NORTH 752403	AREA IHSS 166.1	CASING DIAMETER (IN)	GEOLOGIST BRIAN J. RUBY	68292	
EAST 2083903	LOCATOR NUMBER K10	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 12/08/92		
REMARKS SURFACE SEALED 12/16/92					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5971	0			CL	0.0-0.7 ft. Gravelly Clay with some sand and silt, dark brown (7.5YR3/2) gravel maximum size 0.1', average size 0.01', angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit moderate plasticity, abundant grass and plant roots at 0.0-0.2 ft. 30.6% gravel, 19% sand, 20.2% silt, 30.2% clay
	BH6007AC			0.90 /2.20	5970	1				0.7-0.9 ft. VOA sample obtained from this interval.
					5969	2				0.9-2.2 ft. No recovery for this interval.
	BH6005AC								SC	2.2-3.4 ft. Gravelly Sand with some clay, trace silt, white (10YR8/1), light yellowish brown (10YR6/4), yellowish brown (10YR5/8), strong brown (7.5YR4/6), gravel maximum size 0.2', average size 0.025', angular to sub-angular, consisting of quartzite sand is fine- to coarse-grained, well graded, angular to rounded, consisting of quartz and quartzite, fines exhibit low plasticity, extensive iron oxide staining, CaCO3 in voids, caliche at 2.2-3.6 ft., some manganese oxide present, wet
	BH6008AC			1.40 /2.00	5968	3				36.8% gravel, 49% sand, 0.7% silt, 13.5% clay
					5967	4				3.4-3.6 ft. VOA sample obtained from this interval
										3.6-4.2 ft. No recovery for this interval
					5966	5			SC	4.2-5.3 ft. Gravelly Sand as described above.
	BH6009AC			1.30 /2.00						5.3-5.5 ft. VOA sample obtained from this interval.
										5.5-6.2 ft. No recovery for this interval.
					5965	6				
									SC	6.2-7.0 ft. Gravelly Sand as described above.
					5964	7				7.0-7.2 ft. VOA sample obtained from this interval
	BH6010AC			1.00 /1.80						7.2-8.0 ft. No recovery for this interval
					5963	8			CL	8.0-8.2 ft. Sandy Clay with some silt and gravel, yellow (10YR7/6), brownish yellow (10YR7/8), light gray-gray (10YR6/1), pale red (10R6/4), weak red (10R5/4), gravel maximum size 0.075' (sandstone clast), sub-rounded, consisting of quartz, sand is fine-grained, well sorted, sub-angular, consisting of quartz, local iron oxide staining, appears to be reworked, dry
	BH6011AC									
				0.50 /1.90	5962	9				6.3% gravel, 31.3% sand, 15.6% silt, 46.8% clay
	BH6006AC									8.2-8.5 ft. VOA sample obtained from this interval
										8.5-9.9 ft. No recovery for this interval. Top of bedrock at 9.9 ft.
						10			SILTY CLAYSTONE	9.9-12.1 ft

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 12.4	GROUND ELEVATION (FT):	5971.00	PROJECT NUMBER:	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH:	752403	AREA: IHSS 166.1	CASING DIAMETER (IN):		GEOLOGIST:	BRIAN J. RUBY	68292
EAST:	2083903	LOCATOR NUMBER: K10	BOREHOLE DIAMETER (IN):	6.5	DATE DRILLED:	12/08/92	

REMARKS: SURFACE SEALED 12/16/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				2.20/2.50	5960	11				Silty Claystone with trace sand, reddish yellow (5YR6/8), gray (5YR5/1), sand is fine-grained, well sorted, sub-angular, consisting of quartz, fines exhibit moderate to high plasticity, less than 5% porosity, slightly friable, dry, 0-30 degree fractures at 10.2 ft., 10.3 ft., 10.8 ft., extensive and local iron oxide staining along fractures, carbonaceous material present, extensive iron oxide staining at 9.9 ft. 1.5% sand, 9.8% silt, 88.7% clay.
	B6U012C				5959	12				11.9-12.1 ft. VOA sample obtained from this interval.
										12.1-12.4 ft. No recovery for this interval.
										Total depth at 12.4 ft.
					5958	13				
					5957	14				
					5956	15				
					5955	16				
					5954	17				
					5953	18				
					5952	19				
						20				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 12.2	GROUND ELEVATION (FT) 5972.30	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	752201	AREA IHSS 166.2	CASING DIAMETER (IN)	GEOLOGIST J.P. GIRDO	67592
EAST	2083853	LOCATOR NUMBER K10	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 01/13/93	

REMARKS: SURFACE SEALED 01/14/93

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5972	0			SC	0.0-1.4 ft. Gravelly Sand with some silt and clay, brown-dark brown (10YR4/3), white (10YR8/2), very pale brown (10YR7/3), pale yellow (2.5Y7/4), gravel maximum size 0.2', average size 0.1', angular to sub-angular, consisting of quartzite and quartz, sand is fine- to coarse-grained, well-graded, angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate plasticity, abundant plant roots at 0.0-0.5 ft., voided, CaCO3 in voids, caliche zone at 0.5-1.6 ft., moist. 34.5% gravel, 35.2% sand, 6.1% silt, 24.2% clay
				1.60 /2.00	5971	1				
	BH6570UC									1.4-1.6 ft. VOA sample obtained from this interval
					5970	2				1.6-2.0 ft. No recovery for this interval
	BH6571UC								SC	2.0-2.8 ft. Gravelly Sand as described above.
	BH6572UC			1.30 /2.00	5969	3				2.9-3.1 ft. VOA sample obtained from this interval
	BH6573UC									3.1-3.3 ft. VOA sample obtained from this interval
										3.3-4.0 ft. No recovery for this interval.
					5968	4			SC	4.0-4.4 ft. Gravelly Sand as described above.
										4.4-4.6 ft. VOA sample obtained from this interval
										4.6-5.8 ft. No recovery for this interval.
				0.60 /1.80	5967	5				
					5966	6			SC	5.8-7.8 ft. Gravelly Sand with some clay and silt, pale red (10R6/3), weak red (10R4/3), dusky red (10R3/3), gravel maximum size 0.1', average size 0.025', angular to sub-rounded, consisting of quartzite and quartz, sand is fine- to coarse-grained, well graded, angular, to sub-rounded, consisting of quartz and quartzite, fines exhibit low plasticity, mottled texture, CaCO3 in voids, extensive iron oxide staining, material become finer at 7.1-7.3 ft. with no coarse sand or gravel, moist. 19.8% gravel, 66.3% sand, 5.6% silt, 8.3% clay
				2.20 /2.20	5965	7				
	BH6574UC									7.8-8.0 ft. VOA sample obtained from this interval. Top of bedrock at 8.0 ft
					5964	8			SILTY CLAYSTONE	8.0-10.1 ft. Silty Claystone with some sand, yellow brown (10YR5/8), olive gray (5Y5/2), olive brown (2.5Y4/4), sand is fine-grained, well sorted, sub-angular, consisting of quartz and quartzite, fines exhibit moderate plasticity, less than 5% porosity, slightly friable, carbonaceous material present, local and extensive iron oxide staining, plant roots at 10.6 ft., possible 0 degree fracture at 8.7 ft. healed with iron
	BH6575UC			1.30 /2.30	5963	9				
						10				

STATE PLANE COORDINATE	TOTAL DEPTH (FT): 12.2	GROUND ELEVATION (FT): 5972.30	PROJECT NUMBER: 006 RFI/RI	LOG OF BORING NUMBER
NORTH 752201	AREA: IHSS 166.2	CASING DIAMETER (IN):	GEOLOGIST: J.P. GIROD	67592
EAST 2083853	LOCATOR NUMBER: K10	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED: 01/13/93	

REMARKS: SURFACE SEALED 01/14/93

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
						10				oxide and manganese oxide, moist. 0% gravel, 14.3% sand, 21.4% silt, 64.3% clay.
										10.1-10.3 ft. VOA sample obtained from this interval.
									SILTY CLAYSTONE	10.3-12.0 ft. Silty Claystone as described above.
				1.90/1.90	5962	11				
					5961					
						12				12.0-12.2 ft. VOA sample obtained from this interval.
					5960					Total depth at 12.2 ft.
						13				
					5959					
						14				
					5958					
						15				
					5957					
						16				
					5956					
						17				
					5955					
						18				
					5954					
						19				
					5953					
						20				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 11.9	GROUND ELEVATION (FT): 5971.30	PROJECT NUMBER: 006 [illegible]	LOG OF BORING NUMBER
NORTH: 752207		AREA: IHSS 166.2	CASING DIAMETER (IN):	GEOLOGIST: J.P. GIROD	67692
EAST: 2083876		LOCATOR NUMBER: K10	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED: 01/13/93	
REMARKS: SURFACE SEALED 01/14/93					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5971	0			SC	0.0-1.3 ft Gravelly Sand with some clay and silt, reddish yellow (7.5YR 7/6), light gray (2.5Y7/2), yellow brown (10YR5/4), gravel maximum size 0.1', average size 0.02', angular to sub-rounded, consisting of quartzite and quartz, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit moderate plasticity, moist. 23.4% gravel, 52.8% sand, 6.0% silt, 17.8% clay
				1.50/2.00	5970	1				
	BH6579IC									1.3-1.5 ft VOA sample obtained from this interval.
					5969	2				1.5-2.0 ft No recovery for this interval.
									SC	2.0-3.4 ft Gravelly Sand as described above.
	BH6577IC			1.60/2.00	5968	3				
	BH6580IC									3.4-3.6 ft VOA sample obtained from this interval.
										3.6-4.0 ft No recovery for this interval.
					5967	4			SC	4.0-4.8 ft Gravelly Sand as described above.
				1.80/1.80	5966	5			SC	4.8-5.6 ft Clayey Sand with some silt and gravel, yellowish red (5YR 5/8), pale brown (10YR6/3), gravel maximum size 0.1', average size 0.02', angular to sub-rounded, consisting of quartzite and quartz, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit moderate plasticity, moist. 14.3% gravel, 30.3% sand, 15.2% silt, 22.7% clay
	BH6581IC									
					5965	6				5.6-5.8 ft VOA sample obtained from this interval.
	BH6582IC								SC	5.8-6.5 ft Clayey Sand as described above.
				2.40/2.40		7				6.5-6.7 ft VOA sample obtained from this interval.
					5964					6.7-8.2 ft No recovery for this interval.
					5963	8			CL	8.2-8.5 ft Gravelly Clay with some silt and sand, yellow-brown (10YR 5/8), brown (10YR5/3), gravel maximum size 0.05', average size 0.02', angular, consisting of quartzite and quartz, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate plasticity, $CaCO_3$ in voids, iron oxide staining and carbonaceous material present, moist. 29.4% gravel, 17.6% sand, 21.2% silt, 31.8% clay. Top of bedrock at 8.5 ft.
	BH6578IC			2.00/2.00	5962	9			CLAYEY SANDSTONE	8.5-10.0 ft Clayey Sandstone as described below
						10				

STATE PLANE COORDINATE	TOTAL DEPTH (FT): 11.9	GROUND ELEVATION (FT): 5971.30	PROJECT NUMBER	006 RFI/RI	LOG OF BORING NUMBER
NORTH: 752207	AREA: IHSS 166.2	CASING DIAMETER (IN):	GEOLOGIST:	J.P. GIROD	67692
EAST: 2083876	LOCATOR NUMBER: K10	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED	01/13/93	

REMARKS: SURFACE SEALED 01/14/93

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
						10				10.0-10.2 ft. VOA sample obtained from this interval.
					5961				CLAYEY SANDSTONE:	10.2-11.1 ft. Clayey Sandstone with some silt, reddish yellow (7.5YR6/8-7/8), light gray (10YR7/1), sand is fine-grained, well sorted with trace medium and coarse sand, angular to sub-rounded, consisting of quartz, fines exhibit low plasticity, less than 10% porosity, high friability, argillaceous and silica cementation, bedding at 20 degrees, moist. 41.5% sand, 17.6% silt, 40.9% clay.
				1.70 /1.70	5960	11				
					5959	12			CLAYSTONE:	11.1-11.7 ft. Claystone, light gray (10YR7/1), sand is fine-grained, well sorted, sub-rounded to rounded, consisting of quartz, fines exhibit moderate plasticity, less than 5% porosity, slightly friable, 50 degree fracture at 11.3 ft., healed with silt and sand, local iron oxide staining, moist. 2.5% sand, 14.6% silt, 82.9% clay.
					5958	13				11.7-11.9 ft. VOA sample obtained from this interval.
					5957	14				Total depth at 11.9 ft.
					5956	15				
					5955	16				
					5954	17				
					5953	18				
					5952	19				
						20				

DRAFT

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 12.1	GROUND ELEVATION (FT) 5970.40	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER	
NORTH 752212	AREA IHSS 166.2	CASING DIAMETER (IN)	GEOLOGIST J.P. GIROD	67792	
EAST 2083904	LOCATOR NUMBER K10	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 01/14/93		
REMARKS SURFACE SEALED 01/18/93					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5970	0			GC	0.0-1.4 ft. Clayey Sand with abundant gravel, trace silt, white (2/5YR8/2), light gray (2.5Y7/2), olive gray (5Y5/2), pinkish white (5YR8/2), gravel maximum size 0.15", average 0.05", angular to sub-angular, consisting of quartzite and quartz, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit low plasticity, CaCO3 in voids, mottled texture, dry 39.9% gravel, 37.5% sand, 9.2% silt, 13.9% clay
				1.60 /2.00		1				1.4-1.6 ft. VOA sample obtained from this interval.
	BH60588C				5969					1.6-2.0 ft. No recovery for this interval.
					5968	2			GC	2.0-2.9 ft. Clayey Sand as described above.
	BH60589C			1.30 /2.00		3				2.9-3.1 ft. VOA sample obtained from this interval.
					5967					3.1-3.3 ft. VOA sample obtained from this interval.
										3.3-4.0 ft. No recovery for this interval.
	BH60590C				5966	4			GC	4.0-4.2 ft. Clayey Sand as described above.
										4.2-4.4 ft. VOA sample obtained from this interval.
				0.40 /1.70						4.4-5.7 ft. No recovery for this interval. Top of bedrock at 5.7 ft.
					5965	5				
									SILTY CLAYSTONE	5.7-7.2 ft. Silty Claystone with some sand, reddish yellow (7.YR6/8), olive (5Y5/3), light olive brown (2.5Y5/4), sand is fine-grained, well sorted, sub-rounded, consisting of quartz, fines exhibit moderate to high plasticity, less than 5% porosity, moderate to slight friability, 45 degree fracture at 6.3 ft., local iron oxide staining, carbonaceous material present, moist. 12.2% sand, 26.3% silt, 61.5% clay
					5964	6				
				1.40 /2.30		7				
	BH60591C				5963					7.2-7.4 ft. VOA sample obtained from this interval.
										7.4-8.0 ft. No recovery for this interval.
						8			SILTY CLAYSTONE	8.0-9.9 ft. Silty Claystone as described above.
					5962					
	BH60587C			2.10 /2.10		9				
					5961					
	BH60592C					10				9.9-10.1 ft. VOA sample obtained from this interval

STATE PLANE COORDINATE	TOTAL DEPTH (FT): 12.1	GROUND ELEVATION (FT): 5970.40	PROJECT NUMBER: 006 RFI/RI	LOG OF BORING NUMBER:	
NORTH: 752212	AREA IHSS 166.2	CASING DIAMETER (IN)	GEOLOGIST: J.P. GIROD	67792	
EAST: 2083904	LOCATOR NUMBER: K10	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED: 01/14/93		
REMARKS: SURFACE SEALED 01/18/93					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH60592WC	0% 50% 100%	0% 100%			10				
					5960					SILTY CLAYSTONE: 10.1-11.9 ft. Silty Claystone as described above.
				2.00 /2.00		11				
					5959					
	BH60593WC					12				11.9-12.1 ft. VOA sample obtained from this interval.
					5958					Total depth at 12.1 ft.
						13				
					5957					
						14				
					5956					
						15				
					5955					
						16				
					5954					
						17				
					5953					
						18				
					5952					
						19				
					5951					
						20				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 12 0		GROUND ELEVATION (FT)	5970 40	PROJECT NUMBER	006 RFI/RI
NORTH	752216	AREA THSS 166 2		CASING DIAMETER (IN)		GEOLOGIST	J P GIRDO
EAST	2083928	LOCATOR NUMBER	K10	BOREHOLE DIAMETER (IN)	6 5	DATE DRILLED	01/14/93

REMARKS: SURFACE SEALED 01/18/93

LOG OF BORING NUMBER

67892

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%						SC	0.0-0.4 ft. Gravelly Sand with abundant clay, trace silt, white (5Y8/2), pale yellow (5Y7/3), light gray (5Y7/2), brown (10YR5/3), gravel maximum size 0.075', average size 0.01', angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartzite and quartz, fines exhibit moderate plasticity, abundant plant roots at 0.0-0.4', CaCO3 in voids dry. 25.6% gravel, 38.7% sand, 3.6% silt, 32.0% clay
	BH0597AC			1.30 /2.00	5970 / 5969	0 / 1			SC	0.4-1.1 ft. Gravelly Sand as described below.
										1.1-1.3 ft. VOA sample obtained from this interval.
										1.3-2.0 ft. No recovery for this interval.
	BH0595AC			1.70 /2.00	5968 / 5967	2 / 3			SC	2.0-3.5 ft. Gravelly Sand with some clay and silt, white (2.5Y8/2), pale yellow (5Y8/3), gravel maximum size 0.2', average size 0.05' angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-rounded consisting of quartz and quartzite, fines exhibit low plasticity, plant roots at 0.4-1.1 ft., caliche present. 32.7% gravel, 42.4% sand, 7.5% silt, 17.4% clay
	BH0598AC									
										3.5-3.7 ft. VOA sample obtained from this interval.
	BH0599AC			0.80 /1.60	5966	4				3.7-4.0 ft. No recovery for this interval
									SC	4.0-4.6 ft. Gravelly Sand as described above
					5965	5				4.6-4.8 ft. VOA sample obtained from this interval.
										4.8-5.6 ft. No recovery for this interval.
				1.90 /2.60	5964 / 5963	6 / 7			CL	5.6-5.8 ft. Silty Clay with some sand and gravel, light gray-gray (5Y6/1), pinkish white (5YR8/2), maximum and average size 0.02', angular, consisting of quartzite, sand is fine- to medium-grained, poorly graded with trace coarse-grained sand angular to sub-angular, consisting of quartz and quartzite, fines exhibit high plasticity, plant roots, CaCO3 in voids, appearance of reworked bedrock, dry. 6.2% gravel, 18.5% sand, 18.9% silt, 56.4% clay. Top of bedrock at 5.8 ft.
	BH0600AC									
									SILTY CLAYSTONE	5.8-7.3 ft. Silty Claystone as described below.
										7.3-7.5 ft. VOA sample obtained from this interval.
					5962	8				7.5-8.2 ft. No recovery for this interval
	BH0596AC			1.90 /1.90	5961	9			SILTY CLAYSTONE	8.2-9.9 ft. Silty Claystone with trace sand, reddish yellow (7.5YR6/8) to gray (7/5YRN6), sand is fine-grained, well sorted, sub-angular, consisting of quartz and quartzite, fines exhibit moderate to high plasticity, less than 5% porosity, slightly friable, 0-45 degree fractures at 6.5', 6.6', 8.4-8.6', 9.1-9.4', 10.3-11.0', healed with fine to coarse sand and silt, cob webs and plant roots present, CaCO3 in voids, moist
	BH0601AC					10				

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 12.0	GROUND ELEVATION (FT): 5970.40	PROJECT NUMBER: 006 RFI/RI	LOG OF BORING NUMBER:	
NORTH: 752216	AREA: THSS 166.2	CASING DIAMETER (IN):	GEOLOGIST: J.P. GIROD	67892	
EAST: 2083928	LOCATOR NUMBER: K10	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED: 01/14/93		
REMARKS: SURFACE SEALED 01/18/93					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH66601C	0% 50% 100%	0% 100%	1.50/1.90	5960 5959 5958 5957 5956 5955 5954 5953 5952 5951	10 11 12 13 14 15 16 17 18 19 20				9.9-10.1 ft. SILTY CLAYSTONE: 10.1-11.4 ft. Silty Claystone as described above.
	BH66602C									11.4-11.6 ft. VOA sample obtained from this interval. 11.6-12.0 ft. No recovery for this interval. Total depth at 12.0 ft.

DRAFT

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 10.2	GROUND ELEVATION (FT):	5970.40	PROJECT NUMBER:	006 RFI/RI
NORTH: 752220	AREA: IHSS 166.2	CASING DIAMETER (IN):		GEOLOGIST:	J.P. GIROD
EAST: 2083953	LOCATOR NUMBER: K10	BOREHOLE DIAMETER (IN):	6.5	DATE DRILLED:	01/15/93
REMARKS: SURFACE SEALED 01/18/93					

LOG OF BORING NUMBER: 67992

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH

SAMPLE NUMBER: BH60606WC, BH60604WC, BH60607WC, BH60607WCMS/MSD, BH60608WC, BH60609WC, BH60605WC, BH60610WC

SAMPLE GRAIN SIZE: 0% 50% 100%

PERCENT RECOVERY: 0% 100%

RECOVERY/INTERVAL: 1.30/2.00; 1.40/2.00; 1.50/2.00; 1.80/2.20; 1.70/2.00

DATUM (FT): 5970, 5969, 5968, 5967, 5966, 5965, 5964, 5963, 5962, 5961

DEPTH (FT): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

WELL OR PIEZOMETER CONSTRUCTION

LITHOLOGY

UNIFIED SOILS CLASSIFICATION OR ROCK TYPE

DESCRIPTION

SC: 0.0-1.1 ft.
Clayey Sand with some gravel and silt, white (5Y8/2), pale yellow (5Y7/3), light gray (5Y7/2), brown (10YR5/3), gravel maximum size 0.2', average size 0.05', angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz and quartzite, fines exhibit low plasticity, plant roots at 0.0-0.7 ft., caliche present, local iron oxide staining, dry.
20.4% gravel, 43% sand, 11% silt, 25.6% clay

1.1-1.3 ft. VOA sample obtained from this interval.

1.3-2.0 ft. No recovery for this interval.

SC: 2.0-3.0 ft. Clayey Sand as described above.

3.0-3.2 ft. VOA sample obtained from this interval.

3.2-3.4 ft. VOA sample obtained from this interval.

3.4-4.0 ft. No recovery for this interval.

SC: 4.0-4.8 ft. Clayey Sand as described above.

CL: 4.8-5.3 ft.
Sandy Clay with some silt and trace gravel, strong brown (7.5YR4/6-5/8), reddish-yellow (7.5YR6/8), gravel maximum size and average size 0.01', sub-angular, consisting of quartz and quartzite, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit low plasticity, extensive iron oxide staining, weathered, appears to be reworked, dry.
5.9% gravel, 37.1% sand, 14.3% silt, 42.7% clay

5.3-5.5 ft. VOA sample obtained from this interval.

5.5-6.0 ft. No recovery for this interval.
Top of bedrock at 6.0 ft.

SANDY CLAYSTONE: 6.0-7.6 ft. Sandy Claystone as described below.

7.6-7.8 ft. VOA sample obtained from this interval.

7.8-8.2 ft. No recovery for this interval.

SANDY CLAYSTONE: 8.2-9.7 ft.
Sandy Claystone with trace silt, light gray to gray (7.5YRN5), reddish yellow (7.5YR5/8), sand is fine-grained, well sorted, sub-rounded, consisting of quartz, fines exhibit moderate to high plasticity, less than 5% porosity, slightly friable, iron oxide staining local, $CaCO_3$ in voids and fractures, 0 degree fracture at 8.4', 9.6', 9.8' healed with fine- to medium-grained sand and silt, 60 degree fractures faint, dry 6.0-8.2 ft., moist 8.2-9.9 ft.
16.7% sand, 4.2% silt, 79.1% clay

9.7-9.9 ft. VOA sample obtained from this interval.

9.9-10.2 ft. No recovery for this interval.

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 10 2	GROUND ELEVATION (FT)	5970.40	PROJECT NUMBER	006 RFI/RI
NORTH 752220	AREA: IHSS 166 2	CASING DIAMETER (IN)		GEOLOGIST	J P GIROD
EAST: 2083953	LOCATOR NUMBER: K10	BOREHOLE DIAMETER (IN)	6 5	DATE DRILLED	01/15/93

REMARKS: SURFACE SEALED 01/18/93

LOG OF BORING NUMBER

67992

DRAFT

CHEMICAL SAMPLE / GRADATIONAL SAMPLE	DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/ INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
			0% 50% 100%	0% 100%		5960	10				Total depth at 10.2 Ft
						5959	11				
						5958	12				
						5957	13				
						5956	14				
						5955	15				
						5954	16				
						5953	17				
						5952	18				
						5951	19				
							20				

DRAFT

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 12.1	GROUND ELEVATION (FT) 5969.80	PROJECT NUMBER 006 RI/RI	LOG OF BORING NUMBER	
NORTH 752225	AREA IHSS 166.2	CASING DIAMETER (IN)	GEOLOGIST J.P. GIROD	68092	
EAST 2083979	LOCATOR NUMBER K10	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 01/15/93		
REMARKS SURFACE SEALED 1/18/93					

DRAFT

CHEMICAL SAMPLE / GRADATIONAL SAMPLE	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				1.70/2.00	5969	0			SC	0.0-1.5 ft. Gravelly Sand with some clay and trace silt, white (5Y8/2), light gray (5Y7/2), pale yellow (5Y7/3), gravel maximum size 0.15', average size 0.05', angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit low plasticity, iron oxide staining local, plant roots at 0.0-0.4 ft., CaCO3 present, manganese oxide present, damp. 30.2% gravel, 55.3% sand, 1.4% silt, 13% clay
	IH66613C				5968	1				1.5-1.7 ft. VOA sample obtained from this interval.
						2				1.7-2.0 ft. No recovery for this interval.
	IH66611C			1.40/2.00	5967	3			SC	2.0-3.2 ft. Gravelly Sand as described above.
	IH66614C									3.2-3.4 ft. VOA sample obtained from this interval.
										3.4-4.0 ft. No recovery for this interval.
					5966	4			CH	4.0-4.5 ft. Silty Clay with trace sand, light gray-gray (10YR6/1-5/1), yellow brown (10YR5/8), sand is fine-grained, well sorted, sub-rounded, consisting of quartz, fines exhibit moderate to high plasticity, carbonaceous material present, local iron oxide staining, damp. 3.4% sand, 9.7% silt, 86.9% clay
				1.10/1.60	5965					
	IH66615C					5			SC	4.5-4.9 ft. Gravelly Sand with some clay, trace silt, yellow brown (10YR5/8), brownish yellow (10YR6/8), gravel maximum size 0.1', average size 0.02', angular to sub-angular, consisting of quartzite, fines exhibit low plasticity, iron oxide staining, caliche at 4.5 ft., CaCO3 present, damp. 29% gravel, 52.8% sand, 2.7% silt, 15.5% clay
					5964	6				
	IH66616C									4.9-5.1 ft. VOA sample obtained from this interval.
	IH66620C									5.1-5.6 ft. No recovery for this interval.
				1.10/2.60	5963	7			SC	5.6-5.8 ft. Gravelly Sand as described above. Top of bedrock at 5.8 ft.
									SILTY CLAYSTONE	5.8-6.3 ft. Silty Claystone as described below
					5962	8				6.3-6.5 ft. VOA sample obtained from this interval.
										6.5-6.7 ft. VOA sample obtained from this interval.
										6.7-8.2 ft. No recovery for this interval.
	IH66612C			2.00/2.00	5961	9			SILTY CLAYSTONE	8.2-10.0 ft. Silty Claystone with trace sand, brownish yellow (10YR6/8), light gray-gray (10YR6/1), sand is fine- to medium-grained, poorly graded, sub-rounded, consisting of quartz, fines exhibit high plasticity, less than 5% porosity, slightly friable, iron oxide and manganese oxide staining, 0° degree fracture at 11.6 ft healed with CaCO3, 70 degree fracture at 10.9 ft., CaCO3 in voids, carbonaceous material present,
					5960	10				

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 12.1	GROUND ELEVATION (FT) 5969.80	PROJECT NUMBER OU6 RFI/RI	LOG OF BORING NUMBER	
NORTH 752225	AREA IHSS 166.2	CASING DIAMETER (IN)	GEOLOGIST J.P. GIROD	68092	
EAST 2083979	LOCATOR NUMBER K10	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 01/15/93		
REMARKS SURFACE SEALED 1/18/93					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
BH60617WC	0% 50%	100% 0% 100%			10				Faint horizontal bedding, damp. 2.8% sand, 14.6% silt, 82.6% clay.
									10.0-10.2 ft. VOA sample obtained from this interval.
			1.90 /1.90	5959	11			SILTY CLAYSTONE	10.2-11.9 ft. Silty Claystone as described above.
BH60618WC				5958	12				11.9-12.1 ft. VOA sample obtained from this interval.
									Total depth at 12.1 ft.
				5957	13				
				5956	14				
				5955	15				
				5954	16				
				5953	17				
				5952	18				
				5951	19				
				5950	20				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 13.0	GROUND ELEVATION (FT) 5971.40	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	752228	AREA IHSS 166.2	CASING DIAMETER (IN)	GEOLOGIST MICHAEL MAY	68192
EAST	2084001	LOCATOR NUMBER K11	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 01/11/93	

REMARKS: SURFACE SEALED 01/12/93

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5971	0			GC	0.0-0.8 ft. Sandy Gravel with some clay and trace silt, very dark brown (10YR2/2), very pale brown (10YR7/3), pale olive (5Y6/3), light yellowish brown (10YR6/4), gravel maximum size 0.2', average size 0.075', angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to rounded, consisting of quartz and quartzite, fines exhibit moderate plasticity, plant roots 1/8"-1/4", 0.0-0.8 ft., caliche at 2.0-3.0 ft., local iron oxide staining, moist. 47.3% gravel, 38.6% sand, 2.8% silt, 11.3% clay
	BH6057AC			1.10 /2.00	5970	1				0.8-1.1 ft. VOA sample obtained from this interval.
										1.1-2.0 ft. No recovery for this interval.
					5969	2			GC	2.0-3.1 ft. Sandy Gravel as described above.
	BH6054AC			1.40 /2.00						
	BH6058AC				5968	3				3.1-3.4 ft. VOA sample obtained from this interval.
										3.4-4.0 ft. No recovery for this interval.
					5967	4			GC	4.0-5.7 ft. Sandy Gravel as described above.
				1.70 /2.00		5				
					5966	6				
	BH6059AC									5.7-6.0 ft. VOA sample obtained from this interval.
					5965	6			CL	6.0-6.7 ft. Sandy Clay with some silt, trace gravel, pale brown (10YR6/3), gravel maximum size 0.1', average 0.02', angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit moderate plasticity, moist. 5.8% gravel, 34.3% sand, 18% silt, 41.9% clay
	BH6060AC			1.00 /2.00		7				
					5964					6.7-7.0 ft. VOA sample obtained from this interval.
										7.0-8.0 ft. No recovery for this interval.
					5963	8			CH	8.0-9.9 ft. Silty Clay with trace sand, gray (10YR5/1-6/1), brown (10YR5/3), light olive brown (2.5Y5/4-6/1), brownish yellow (10YR6/8), sand is fine-grained, well sorted, with trace medium to coarse sand, angular to sub-rounded, consisting of quartz, fines exhibit high plasticity, iron oxide staining at 10.2-11.3 ft., $CaCO_3$ in voids, mottled texture, carbonaceous material present, grass stems at 12.1-13.0 ft., moist. 8.8% sand, 18.2% silt, 73% clay
				2.20 /2.20		9				
	BH6055AC				5962					
	BH6056AC					10				

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 13.0	GROUND ELEVATION (FT): 5971.40	PROJECT NUMBER: 006 RFI/RI	LOG OF BORING NUMBER:	
NORTH: 752228	AREA: IHSS 166.2	CASING DIAMETER (IN):	GEOLOGIST: MICHAEL MAY	68192	
EAST: 2084001	LOCATOR NUMBER: K11	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED: 01/11/93		
REMARKS: SURFACE SEALED 01/12/93					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH60561UC	0% 50% 100%	0% 100%			10				9.9-10.2 ft. VOA sample obtained from this interval.
					5961				CH	10.2-11.8 ft. Silty Clay as described above.
				1.90 /2.80	5960	11				
	BH60562UC					12				11.8-12.1 ft. VOA sample obtained from this interval.
					5959					12.1-13.0 ft. No recovery for this interval.
					5958	13				Total depth at 13.0 ft.
					5957	14				
					5956	15				
					5955	16				
					5954	17				
					5953	18				
					5952	19				
						20				

DRAFT

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 12.3	GROUND ELEVATION (FT):	5972.80	PROJECT NUMBER:	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH:	752302	AREA: IHSS 166.3	CASING DIAMETER (IN):		GEOLOGIST:	BRIAN J. RUBY	68392
EAST:	2083872	LOCATOR NUMBER: K10	BOREHOLE DIAMETER (IN):	6.5	DATE DRILLED:	12/10/92	
REMARKS:	SURFACE SEALED 12/18/92						

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH / SAMPLE NUMBER / SAMPLE GRAIN SIZE (0% 50% 100%) / PERCENT RECOVERY (0% 100%) / RECOVERY/INTERVAL / DATUM (FT) / DEPTH (FT) / WELL OR PIEZOMETER CONSTRUCTION / LITHOLOGY / UNIFIED SOILS CLASSIFICATION OR ROCK TYPE / DESCRIPTION

Sample Number	Recovery/Interval	Unified Soils Classification or Rock Type	Description
		CL	0.0-0.4 ft. Sandy Clay as described below.
BH60334WCMS/MSD			0.4-0.6 ft. VOA sample obtained from this interval.
BH60334WC			0.6-0.8 ft. VOA sample obtained from this interval.
	0.80/2.10		0.8-2.1 ft. No recovery for this interval.
		CL	2.1-3.3 ft. Sandy Clay with some silt and gravel, white (N9), very pale brown (10YR8/3), very dark brown (10YR2/2), pale yellow (5Y7/3), gravel maximum size 0.2', average size 0.05', angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-rounded consisting of quartzite and quartz, fines exhibit moderate plasticity, abundant plant roots at 0.0-0.2 ft., caliche zone at 2.1-3.5 ft., CaCO3 in voids, iron oxide staining at 4.8-5.3 ft., wet to damp at 0.0-0.8 ft., dry at 2.1-3.5 ft., 4.3-5.5 ft., damp to wet at 6.0-7.2 ft. 17% gravel, 24.1% sand, 17.8% silt, 41.2% clay
BH60331WC	1.20/2.20		
BH60335WC			3.3-3.5 ft. VOA sample obtained from this interval.
			3.5-4.3 ft. No recovery for this interval.
		CL	4.3-5.1 ft. Sandy Clay as described above
BH60274WC	1.20/1.70		5.1-5.3 ft. VOA sample obtained from this interval.
BH60336WC			5.3-5.5 ft. VOA sample obtained from this interval.
			5.5-6.0 ft. No recovery for this interval.
		CL	6.0-7.2 ft. Sandy Clay as described above
		SC	7.2-7.7 ft. Clayey Sand with some gravel, trace silt, yellowish red (5YR5/8), brownish yellow (10YR6/8), very pale brown (10YR7/4), gravel maximum size 0.1', average size 0.02', angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit moderate plasticity, extensive iron oxide staining, manganese oxide present, CaCO3 in voids, clasts of red sandstone, slump bedrock at 7.3-7.8 ft., claystone with fine to coarse sand and caliche. 20% gravel, 37.5% sand, 4.3% silt, 38.2% clay
	1.90/1.90		
BH60337WC			
			7.7-7.9 ft. VOA sample obtained from this interval
BH60338WC		SC	7.9-8.6 ft. Clayey Sand as described above
[illegible]WC	0.90/2.30		8.6-8.8 ft. VOA sample obtained from this interval
			8.8-10.2 ft. No recovery for this interval. Top of bedrock at 10.2 ft.

DRAFT

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 12.3	GROUND ELEVATION (FT): 5972.80	PROJECT NUMBER: OU6 RFI/RI	LOG OF BORING NUMBER	
NORTH: 752302	AREA: IHSS 166.3	CASING DIAMETER (IN):	GEOLOGIST: BRIAN J. RUBY	68392	
EAST: 2083872	LOCATOR NUMBER: K10	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED: 12/10/92		
REMARKS: SURFACE SEALED 12/18/92					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
						10			CLAYSTONE:	10.2-12.1 ft. Claystone with some silt, trace sand, sand is fine-grained, well sorted, sub-angular, consisting of quartz, exhibits moderate to high plasticity, less than 5% porosity, slightly friable, moist, carbonaceous material present, 0.1' piece of gravel pushed through core by auger to 10.7 ft. 2% sand, 9.8% silt, 88.2% clay.
				2.10 /2.10	5962	11				
					5961	12				12.1-12.3 ft. VOA sample obtained from this interval.
	BH6033WC									Total depth at 12.3 ft.
					5960	13				
					5959	14				
					5958	15				
					5957	16				
					5956	17				
					5955	18				
					5954	19				
					5953	20				

DRAFT

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 12.1	GROUND ELEVATION (FT)	5971.50	PROJECT NUMBER	006 RFI/RI	LOG OF BORING NUMBER
NORTH 752308	AREA IHSS 166.3	CASING DIAMETER (IN)		GEOLOGIST	BRIAN J. RUBY	68492
EAST 2083898	LOCATOR NUMBER K10	BOREHOLE DIAMETER (IN)	6.5	DATE DRILLED	12/10/92	

REMARKS: SURFACE SEALED 12/18/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6039AC			1.10 /2.10	5971	0			GC	0.0-0.9 ft Clayey Gravel with some sand and silt, grayish brown (10YR5/2), white (10YR8/2), gravel maximum size 0.1', average size 0.01', angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate plasticity, wet, grass and plant roots at 0.0-0.5 ft., caliche at 0.5-1.1 ft. 28.8% gravel, 23.6% sand, 11.9% silt, 35.7% clay
					5970	1				0.9-1.1 ft. VOA sample obtained from this interval.
										1.1-2.1 ft. No recovery for this interval.
				0.50 /0.90	5969	2			SC	2.1-2.5 ft. Gravelly Sand as described below.
										2.5-3.0 ft. No recovery for this interval.
	BH6040AC					3				
	BH6041AC			0.70 /0.70	5968				SC	3.0-3.5 ft Gravelly Sand with some clay, some silt, very pale brown (10YR7/3), white (10YR8/2), light yellowish brown (2.5Y6/4), gravel maximum size 0.15', average size 0.05', angular to sub-angular, consisting of quartzite and quartz, sand is fine- to coarse-grained, well graded, angular to sub-rounded consisting of quartz and quartzite, fines exhibit high plasticity, caliche cementation, iron oxide staining, dry. 31.1% gravel, 47.1% sand, 6.5% silt, 15.3% clay
					5967	4				
				1.60 /2.30		5				3.5-3.7 ft. VOA sample obtained from this interval.
	BH6042AC								SC	3.7-4.3 ft. Gravelly Sand as described above.
					5966				CL	4.3-5.1 ft. Sandy Clay as described below.
										5.1-5.3 ft. VOA sample obtained from this interval.
						6				5.3-6.0 ft. No recovery for this interval.
					5965				CL	6.0-7.0 ft Sandy Clay with some gravel and silt, light yellowish brown (2.5Y6/4), pale olive (5Y6/3), white (5Y8/1), gravel maximum size 0.15', average size 0.05', angular to sub-angular, consisting of quartzite and quartz, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit moderate plasticity. 17.9% gravel, 25.4% sand, 11.3% silt, 45.4% clay
	BH6043AC			1.20 /2.40		7				
					5964					7.0-7.2 ft. VOA sample obtained from this interval.
						8				7.2-8.0 ft. No recovery for this interval.
					5963				CL	8.0-8.4 ft. Sandy Clay as described above. Top of bedrock at 8.4 ft.
									SILTY CLAYSTONE	8.4-9.7 ft. Silty Claystone as described below.
	BH6044AC			1.90 /2.20		9				
					5962					9.7-9.9 ft. VOA sample obtained from this interval.
	BH6045AC									9.9-10.2 ft. No recovery for this interval.
						10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 12.1	GROUND ELEVATION (FT) 5971.50	PROJECT NUMBER OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	752308	AREA IHSS 166.3	CASING DIAMETER (IN)	GEOLOGIST BRIAN J. RUBY	68492
EAST	2083898	LOCATOR NUMBER K10	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 12/10/92	

REMARKS SURFACE SEALED 12/18/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				1.90/1.90	5961	10			SILTY CLAYSTONE	10.2-11.9 ft. Silty Claystone with some sand, gray (10YR5/1), dark grayish brown (10YR4/2), sand is fine-grained, well sorted, angular, consisting of quartz, fines exhibit moderate to high plasticity, less than 5% porosity, 8.4-9.9 ft. slightly friable, 9.9-12.1 ft. moderately friable, iron oxide staining along faint horizontal bedding at 11.7 ft., CaCO3 in voids, carbonaceous material present, dry. 22.1% sand, 23.4% silt, 54.5% clay
					5960	11				
					5959	12				11.9-12.1 ft. VOA sample obtained from this interval.
					5958	13				Total depth at 12.1 ft.
					5957	14				
					5956	15				
					5955	16				
					5954	17				
					5953	18				
					5952	19				
						20				

DRAFT

STATE PLANE COORDINATE	TOTAL DEPTH (FT): 12.0	GROUND ELEVATION (FT): 5970.60	PROJECT NUMBER: 006 RFI/RI	LOG OF BORING NUMBER	
NORTH: 752315	AREA: IHSS 166.3	CASING DIAMETER (IN):	GEOLOGIST: BRIAN J. RUBY		
EAST: 2083924	LOCATOR NUMBER: K10	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED: 12/11/92	68592	
REMARKS: SURFACE SEALED 12/18/92					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
6.2	0% 50% 100%	0% 100%			0			CL	0.0-0.8 ft. Gravelly Clay with some sand and silt, very dark brown (10YR2/2), white (10YR8/1-8/2), gravel maximum size 0.1', average size 0.025', angular, consisting of quartz, sand is fine- to coarse-grained, well graded, angular to sub-angular consisting of quartz and quartzite, fines exhibit moderate plasticity, caliche present, grass and plant roots, dry. 19.2% gravel, 18% sand, 6.3% silt, 56.5% clay
BH60352WC			1.00 /2.10	5970	1				0.8-1.0 ft. VOA sample obtained from this interval.
				5969	2				1.0-2.1 ft. No recovery for this interval.
BH60353WC BH60349WC			0.90 /2.20	5968	3			SC	2.1-2.8 ft. Clayey Sand with some gravel and silt, very pale brown (10YR7/3-8/3), gravel maximum size 0.1', average size 0.02', angular to sub-angular, consisting of quartzite, sand is fine- to medium-grained, poorly graded, angular to rounded, consisting of quartz and quartzite, fines exhibit moderate plasticity, caliche is present in matrix and as a cement, iron oxide staining, dry. 15.1% gravel, 55.2% sand, 7.4% silt, 22.3% clay
				5967	4				2.8-3.0 ft. VOA sample obtained from this interval.
									3.0-4.3 ft. No recovery for this interval.
			1.50 /1.90	5966	5			GC	4.3-5.6 ft. Sandy Gravel with some clay, trace silt, strong brown (7.5YR5/6-5/8), light yellowish brown (2.5Y6/4), gravel maximum size 0.2', average size 0.1', angular to sub-angular
BH60354WC				5965	6				5.6-5.8 ft. VOA sample obtained from this interval. 5.8-6.2 ft. Gravel, well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit low plasticity, extensive iron oxide staining, dry. 47% gravel, 37.2% sand, 1.1% silt, 20.7% clay
BH60355WC			0.60 /2.10	5964	7			GC	6.2-6.6 ft. Sandy Gravel as described above.
				5963	8				6.6-6.8 ft. VOA sample obtained from this interval
									6.8-8.3 ft. No recovery for this interval. Top of bedrock at 8.3 ft.
BH60350WC			1.70 /1.80	5962	9			CLAYSTONE	8.3-9.7 ft. Claystone with trace silt and sand, gray (10YR5/1), brownish yellow (10YR5/8), sand is fine-grained, well sorted, sub-rounded, consisting of quartz, fines exhibit high plasticity less than 5% porosity, slightly friable, CaCO3 in voids, local iron oxide staining, moist. 1.2% sand, 4.9% silt, 93.9% clay
BH60356WC				5961	10			SANDY CLAYSTONE	9.7-9.8 ft. Sandy Claystone as described below
									9.8-10.0 ft. VOA sample obtained from this interval

DRAFT

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 12.0	GROUND ELEVATION (FT): 5970.60	PROJECT NUMBER: 006 RFI/RI	LOG OF BORING NUMBER:	
NORTH: 752315	AREA: IHSS 166.3	CASING DIAMETER (IN):	GEOLOGIST: BRIAN J. RUBY	68592	
EAST: 2083924	LOCATOR NUMBER: K10	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED: 12/11/92		
REMARKS: SURFACE SEALED 12/18/92					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
						10				10.0-10.1 ft. No recovery for this interval.
				1.90 /1.90	5960	11			SANDY CLAYSTONE	10.1-11.8 ft. Sandy Claystone with some silt, gray (10YR5/1), very pale brown (10YR7/4), sand is fine-grained, well sorted, sub-rounded, consisting of quartz, fines exhibit moderate plasticity, less than 10% porosity, slightly friable, CaCO3 present, local iron oxide with extensive iron oxide staining along horizontal fractures at 11.2 ft., 30 degree fracture at 10.4 ft., moist. 30% sand, 14% silt, 56% clay
	BH60357WC				5959	12				11.8-12.0 ft. VOA sample obtained from this interval.
					5958	13				Total depth at 12.0 ft.
					5957	14				
					5956	15				
					5955	16				
					5954	17				
					5953	18				
					5952	19				
					5951	20				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 12.0	GROUND ELEVATION (FT) 5970.40	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	752319	AREA THSS 166.3	CASING DIAMETER (IN)	GEOLOGIST BRIAN J. RUBY	68692
EAST	2083946	LOCATOR NUMBER K12	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 12/14/92	
REMARKS	SURFACE SEALED 12/18/92				

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5970	0			SC	0.0-1.1 ft Clayey Sand with abundant gravel, trace silt, light gray (10YR7/2), very pale brown (10YR7/3), pale olive (10YR6/3-6/4), gravel maximum size 0.2", average size 0.05", angular to sub-angular, consisting of quartzite and quartz, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz, quartzite and mica, fines exhibit moderate to high plasticity, grass roots at 0.0-0.9 ft, caliche at 2.1-2.9 ft, some iron oxide staining on gravel, damp to moist at 0.0-1.3 ft, dry to damp at 2.1-3.4 ft, damp at 4.1-5.8 ft 27.8% gravel, 41% sand, 3.1% silt, 28.1% clay
	BH6066AC			1.30/2.10	5969	1				
					5968	2				
										1.1-1.3 ft VOA sample obtained from this interval
										1.3-2.1 ft No recovery for this interval
	BH6064AC			1.30/2.00		3			SC	2.1-3.2 ft Clayey Sand as described above
	BH6067AC				5967					3.2-3.4 ft VOA sample obtained from this interval
										3.4-4.1 ft No recovery for this interval
					5966	4			SC	4.1-5.4 ft Clayey Sand as described above
				1.70/1.70		5				
	BH6072AC				5965					5.4-5.6 ft VOA sample obtained from this interval
	BH6068AC									5.6-5.8 ft VOA sample obtained from this interval
										5.8-8.0 ft No recovery for this interval Top of bedrock at 8.0 ft
					5964	6				
				0.00/2.20		7				
					5963					
					5962	8			CLAYSTONE	8.0-9.7 ft Claystone with some sand and trace silt, grayish brown (2.5Y5/2), gray (10YR5/1), sand is fine-grained, well sorted angular to sub-rounded, consisting of quartz and quartzite, fines exhibit moderate to high plasticity, less than 5% porosity, slightly friable, some iron oxide staining, dry, 0.2' piece of cobble caught by auger and pushed to 8.2' 7.4% sand, 4.6% silt, 88% clay
	BH6065AC			1.90/2.20		9				
					5961					9.7-9.9 ft VOA sample obtained from this interval
	BH6069AC									9.9-10.2 ft No recovery for this interval
						10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 12 0		GROUND ELEVATION (FT)	5970 40	PROJECT NUMBER	OU6 RFI/RI
NORTH	752319	AREA IHSS 166 3		CASING DIAMETER (IN)		GEOLOGIST	BRIAN J RUBY
EAST	2083946	LOCATOR NUMBER	K12	BOREHOLE DIAMETER (IN)	6 5	DATE DRILLED	12/14/92

LOG OF BORING NUMBER 68692

REMARKS SURFACE SEALED 12/18/92

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6037OWC			1 80 /1 80	5960 5959 5958 5957 5956 5955 5954 5953 5952 5951	10 11 12 13 14 15 16 17 18 19 20			SANDY SILTSTONE	10 2-11 8 ft Sandy Siltstone with some clay, grayish brown (2 5Y5/2), gray (10YR5/1), yellowish brown (10YR5/8), sand is fine-grained, well sorted, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit low plasticity, less than 10% porosity, argillaceous and silica cement, moderately friable, small horizontal fractures at 11 3 ft healed with silt, dry 35% sand, 42 3% silt, 22 7% clay 11 8-12 0 ft VOA sample obtained from this interval Total depth at 12 0 ft

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 12 3	GROUND ELEVATION (FT)	5970 80	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	752324	AREA IHSS 166 3	CASING DIAMETER (IN)		GEOLOGIST	BRIAN J RUBY	68792
EAST	2083973	LOCATOR NUMBER K12	BOREHOLE DIAMETER (IN)	6 5	DATE DRILLED	12/14/92	
REMARKS	SURFACE SEALED 12/18/92						

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION

Samples: BH60386WC, BH60384WC, BH60387WC, BH60388WC, BH60389WC, BH60385WC, BH60392WC, BH60390WC

Recovery/Interval: 1 10 /2 10; 1 50 /1 90; 0 80 /1 40; 0 00 /0 60; 0 90 /2 00; 2 00 /2 00

Datum (FT): 5970, 5969, 5968, 5967, 5966, 5965, 5964, 5963, 5962, 5961

Depth (FT): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

CL 0 0-0 9 ft
Gravelly Clay with some sand and silt, dark brown (10YR3/3), gravel maximum size 0 1', average size 0 05', angular to sub-angular, consisting of quartzite and quartz, fines exhibit moderate plasticity, abundant plant roots at 0.0-0 3 ft, caliche at 0 9 ft, CaCO3 in voids, moist
23 8% gravel, 21 1% sand, 22 0% silt, 33 1% clay

0.9-1 1 ft VOA sample obtained from this interval

1.1-2 1 ft No recovery for this interval

GC 2.1-3 4 ft
Sandy Gravel with some clay, trace silt, white (10YR8/2), very pale brown (10YR8/3), pale olive (5Y6/4), white (5Y8/2) grayish olive green (5Y3/2), gravel maximum size 0 15', average size 0 075', angular to sub-angular, consisting of quartzite and quartz, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit low plasticity, dry at 2.1-4.8 ft, damp at 6 0-6 9 ft
77% gravel, 12 3% sand, 1 1% silt, 9 6% clay

3.4-3 6 ft VOA sample obtained from this interval

3.6-4 0 ft No recovery for this interval

GC 4.0-4 6 ft Sandy Gravel as described above

4.6-4 8 ft VOA sample obtained from this interval

4.8-6 0 ft No recovery for this interval

GC 6 0-6 7 ft Sandy Gravel as described above

6 7-6 9 ft VOA sample obtained from this interval

6 9-8 0 ft No recovery for this interval
Top of bedrock at 8 0 ft

SANDY CLAYSTONE 8 0-9 7 ft
Sandy Claystone with some silt, light gray (10YR7/1), brownish yellow (10YR6/8), sand is fine-grained, well sorted sub-angular, consisting of quartzite and quartz, fines exhibit moderate plasticity, less than 5% porosity, slightly friable, 90 degree fracture at 9 5-9 7 ft healed with CaCO3 local iron oxide staining, CaCO3 nodules, damp
13 1% sand, 8 7% silt, 78 2% clay

SANDY SILTSTONE 9 7-9 8 ft Sandy Siltstone as described below

9 8-10 0 ft VOA sample obtained from this interval

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 12 3	GROUND ELEVATION (FT) 5970 80	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	752324	AREA THSS 166 3	CASING DIAMETER (IN)	GEOLOGIST BRIAN J RUBY	68792
EAST	2083973	LOCATOR NUMBER K12	BOREHOLE DIAMETER (IN) 6 5	DATE DRILLED 12/14/92	

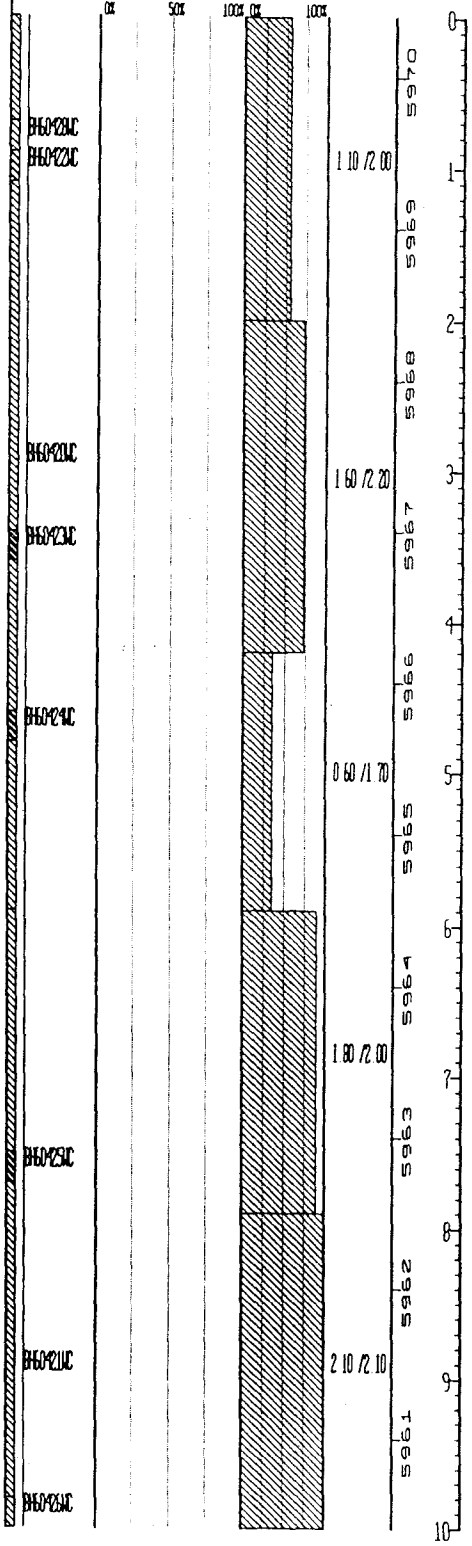
REMARKS SURFACE SEALED 12/18/92

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRADN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6C091WC	0% 50% 100%	0% 100%	2 20/2 30	5960 5959 5958 5957 5956 5955 5954 5953 5952 5951	10 11 12 13 14 15 16 17 18 19 20			SANDY SILTSTONE	10 0-12 0 ft Sandy Siltstone with some clay, light gray-gray (10YR6/1) at 10 1-11 3', yellow (10YR7/8-8/8) at 11 3-12 3', sand is fine-grained, well sorted, angular, consisting of quartz, fines exhibit low plasticity, less than 20% porosity, argillaceous cement, moderately friable, extensive iron oxide staining along horizontal bedding and fractures, 0-30 degree fractures at 11 3-12 3 ft healed with iron oxide, CaCO3 in voids at 10 1-11 3 ft, carbonaceous material present, large 0 2' gravel pushed through section by auger at 10 1-10 3'ft, damp 38 7% sand 49% silt 12 3% clay 12 0-12 2 ft VOA sample obtained from this interval 12 2-12 3 ft No recovery for this interval Total depth at 12 3 ft

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 12.0	GROUND ELEVATION (FT)	5970.40	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	752327	AREA IHSS 166.3	CASING DIAMETER (IN)		GEOLOGIST	BRIAN J. RUBY	68892
EAST	2083999	LOCATOR NUMBER K12	BOREHOLE DIAMETER (IN)	6.5	DATE DRILLED	12/15/92	
REMARKS	SURFACE SEALED 12/18/92						

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH / SAMPLE NUMBER / SAMPLE GRAIN SIZE / PERCENT RECOVERY / RECOVERY/INTERVAL / DATUM (FT) / DEPTH (FT) / WELL OR PIEZOMETER CONSTRUCTION / LITHOLOGY / UNIFIED SOILS CLASSIFICATION OR ROCK TYPE / DESCRIPTION

0% 50% 100% 0% 100%



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
SC	0.0-0.7 ft Clayey Sand with some silt and gravel, very dark grayish brown (10YR3/2), gravel maximum size 0.15', average size 0.02', angular to sub-rounded, consisting of quartz and quartzite, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit moderate plasticity, abundant plant roots and stems at 0.0-0.4 ft., CaCO3 in voids, moist. 11.9% gravel, 41.4% sand, 18.7% silt, 28% clay
	0.7-0.9 ft VOA sample obtained from this interval
	0.9-1.1 ft VOA sample obtained from this interval
	1.1-2.0 ft No recovery for this interval
GW	2.0-3.4 ft Sandy Gravel with trace silt and clay, pale yellow (5Y7/4), very pale brown (10YR8/4), gravel maximum size 0.2', average size 0.05', angular to sub-angular, consisting of quartzite, sand is medium-grained, poorly graded, with trace fine and coarse sand, angular to sub-rounded, consisting of quartz and quartzite, caliche at 2.0-2.2 ft., CaCO3 in matrix and as a cement as well as argillaceous cement, dry. 77.6% gravel, 18.9% sand, 1% silt, 0.7% clay
	3.4-3.6 ft VOA sample obtained from this interval
	3.6-4.2 ft No recovery for this interval
GW	4.2-4.6 ft Sandy Gravel as described above
	4.6-4.8 ft VOA sample obtained from this interval
	4.8-5.9 ft No recovery for this interval
GW	5.9-6.9 ft Sandy Gravel as described above
GM	6.9-7.5 ft Sandy Gravel as described below
	7.5-7.7 ft VOA sample obtained from this interval
	7.7-7.9 ft No recovery for this interval
GM	7.9-8.3 ft Sandy Gravel with some silt, trace clay, very pale brown (10YR7/4), yellow (10YR7/6), strong brown (7.5YR4/6), gravel maximum size 0.1', average size 0.05', angular to sub-angular, consisting of quartzite and quartz, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz and quartzite, fines exhibit low plasticity, extensive iron oxide staining on grains (especially at 7.9-8.3 ft.), gravel coated with caliche, damp at 6.9-7.7 ft., saturated at 7.9-8.3 ft. 45.8% gravel 41.7% sand, 8.8% silt, 3.7% clay. Top of bedrock at 8.3 ft.
CLAYSTONE	8.3-9.8 ft Claystone with some sand and silt, grayish brown to dark grayish brown (2.5Y4/2-5/2), yellowish brown (10YR5/8), sand is fine-grained, well sorted, sub-angular to sub-rounded, consisting of quartz and quartzite, fines exhibit high plasticity, less than 5% porosity, slightly friable, iron oxide staining, carbonaceous material present, moist. 9.5% sand, 9% silt, 81.5% clay

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 12 0	GROUND ELEVATION (FT) 5970 40	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER	
NORTH 752327	AREA IHSS 166 3	CASING DIAMETER (IN)	GEOLOGIST BRIAN J RUBY		
EAST 2083999	LOCATOR NUMBER K12	BOREHOLE DIAMETER (IN) 6 5	DATE DRILLED 12/15/92	68892	
REMARKS SURFACE SEALED 12/18/92					

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
						10				9 8-10 0 ft VOA sample obtained from this interval
				2 00 /2 00	5960				SANDY SILTSTONE	10 0-11 8 ft Sandy Siltstone with some clay, yellow (10YR7/8), light gray (10YR7/1), sand is fine-grained, well sorted, sub-angular to sub-rounded, consisting of quartz and quartzite, moderate to high plasticity, extensive iron oxide staining, less than 10% porosity, argillaceous cement, moderately friable, iron oxide and manganese oxide staining, carbonaceous material present, damp 24 7% sand, 52 7% silt, 22 6% clay
					5959	11				
	BH60427WC					12				11 8-12 0 ft VOA sample obtained from this interval
					5958					Total depth at 12 0 ft
					5957	13				
					5956	14				
					5955	15				
					5954	16				
					5953	17				
					5952	18				
					5951	19				
						20				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 12 1	GROUND ELEVATION (FT)	5964 90	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	752532	AREA THSS 166 3	CASING DIAMETER (IN)		GEOLOGIST	BRIAN J RUBY	68992
EAST	2084328	LOCATOR NUMBER L12	BOREHOLE DIAMETER (IN)	6 5	DATE DRILLED	12/16/92	

REMARKS SURFACE SEALED 12/18/92

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
						0			GM	0 0-0 3 ft Sandy Gravel as described below
	BH0041UC									0 3-0 5 ft VOA sample obtained from this interval
										0 5-2 1 ft No recovery for this interval
				0 50 /2.10	5964	1				
									GM	2 1-2 9 ft Sandy Gravel with some silt, trace clay, very dark brown (10YR2/2), white (10YR2/8), gravel maximum and average size 0 15', sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz and quartzite and schist, fines exhibit low plasticity, CaCO3/caliche zone at 0 5-4 7 ft, gravel coated with CaCO3, plant stems and roots at 0 0-0 3 ft, damp 66 7% gravel, 22 7% sand, 7 4% silt, 3 2% clay
					5963	2				
	BH0039UC									
	BH0038UC			1 20 /1 90	5962	3				
	BH0040UC									2 9-3 1 ft VOA sample obtained from this interval
										3 1-3 3 ft VOA sample obtained from this interval
										3 3-4 0 ft No recovery for this interval
					5961	4				
									GM	4 0-4 5 ft Sandy Gravel as described above
	BH0043UC									
										4 5-4 7 ft VOA sample obtained from this interval
										4 7-6 2 ft No recovery for this interval Top of bedrock at 6 2 ft
				0 70 /2.20	5960	5				
					5959	6				
									SILTY CLAYSTONE	6 2-8 5 ft Silty Claystone with some sand, gray (5Y5/1), pale olive (5Y6/3), dark gray (5Y4/1), yellowish brown (10YR5/8), reddish yellow (7 5YR6/8), sand is fine-grained, well sorted sub-rounded, consisting of quartz, less than 5% porosity, slightly friable, 0 degree fractures at 10 4 ft, 10 7 ft, 11.3 ft, filled with iron oxide and CaCO3, extensive iron oxide staining at 10 0-11 6 ft, manganese oxide staining, nodules of CaCO3, damp 13 8% sand, 17 2% silt, 69% clay
					5958	7				
				2 50 /2 50						
					5957	8				
	BH0044UC									8 5-8 7 ft VOA sample obtained from this interval
									SILTY CLAYSTONE	8 7-9 8 ft Silty Claystone as described above
	BH0047UC				5956	9				
	BH0046UC			1 30 /1.30						
	BH0045UC				5955	10				9 8-10 0 ft VOA sample obtained from this interval

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 12 1	GROUND ELEVATION (FT) 5964 90	PROJECT NUMBER OU6 RFI/RI	LOG OF BORING NUMBER	
NORTH 752532	AREA IHSS 166 3	CASING DIAMETER (IN)	GEOLOGIST BRIAN J RUBY		
EAST 2084328	LOCATOR NUMBER L12	BOREHOLE DIAMETER (IN) 6 5	DATE DRILLED 12/16/92	68992	
REMARKS SURFACE SEALED 12/18/92					

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6046WC			1 60 /2 10	5954	10			SILTY CLAYSTONE	10 0-11 4 ft Silty Claystone as described above
						11				
										11 4-11 6 ft VOA sample obtained from this interval
					5953	12				11 6-12 1 ft No recovery for this interval
										Total depth at 12 1 ft
					5952	13				
					5951	14				
					5950	15				
					5949	16				
					5948	17				
					5947	18				
					5946	19				
					5945	20				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 12 2	GROUND ELEVATION (FT)	5964 40	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	752533	AREA IHSS 166 3	CASING DIAMETER (IN)		GEOLOGIST	J P GIROD	69092
EAST	2084352	LOCATOR NUMBER L12	BOREHOLE DIAMETER (IN)	6 5	DATE DRILLED	12/17/92	
REMARKS	SURFACE SEALED 12/21/92						

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION

Sample Number	Recovery/Interval	Datum (ft)	Unified Soils Classification or Rock Type	Description
BH60480UC	0 70 /2 00	5964	GM	0 0-0 5 ft Sandy Gravel with some silt and clay, very dark brown (10YR2/2), white (10YR8/2), pink (7 5YR7/4), gravel maximum size 0 1', average size 0 05', angular to sub-rounded, consisting of quartz and quartzite, fines exhibit low plasticity, plant roots at 0 0-0 2 ft., caliche at 2 0-2 7 ft., iron oxide staining, dry 59 5% gravel, 18% sand, 13 5% silt, 9% clay
		5963		0 5-0 7 ft VOA sample obtained from this interval
				0 7-2 0 ft No recovery for this interval
BH60481UC		5962	GM	2 0-2 5 ft Sandy Gravel as described above
				2 5-2 7 ft VOA sample obtained from this interval
BH60478UC	0 70 /2 00			2 7-4 0 ft No recovery for this interval
		5961	GC	4 0-4 5 ft Sandy Gravel with some clay and silt, yellowish red (5YR5/6) light gray (2 5Y7/2), gravel maximum size 0 1', average size 0 02', angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit moderate plasticity, extensive iron oxide staining, 0 degree fractures/bedding at 4 0-4 7 ft., healed with CaCO3, dry 49 4% gravel, 25 9% sand, 9 9% silt, 14 8% clay
BH60482UC		5960		4 5-4 7 ft VOA sample obtained from this interval
	0 70 /2 10	5959		4 7-6 1 ft No recovery for this interval
			GC	6 1-6 2 ft Sandy Gravel as described above Top of bedrock at 6 2 ft
		5958	SILTY CLAYSTONE	6 2-7 1 ft Silty Claystone as described above
	1 20 /1 90			7 1-7 3 ft VOA sample obtained from this interval
BH60485UC		5957		7 3-8 0 ft No recovery for this interval
		5956	SILTY CLAYSTONE	8 0-9 3 ft Silty Claystone with trace sand, light gray-gray (10YR6/1), brownish yellow (10YR6/8), gravel maximum and average size 0 075 ft., sub-angular, consisting of quartz, sand is fine-grained, well sorted, angular to sub-angular, consisting of quartz, fines exhibit high plasticity, less than 5% porosity slightly friable, 30 degree fracture at 6 6 ft., healed with CaCO3 and 0 1 ft gravel, CaCO3 nodules, local iron oxide staining, caliche at 8 1 ft., dry 5 8% sand, 18 6% silt, 74 6% clay
BH60479UC	1 50 /2 10			
BH60483UC		5955		9 3-9 5 ft VOA sample obtained from this interval
				9 5-10 1 ft No recovery for this interval

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 12 2		GROUND ELEVATION (FT)	5964 40	PROJECT NUMBER	006 RFI/RI
NORTH	752533	AREA IHSS 166 3		CASING DIAMETER (IN)		GEOLOGIST	J P GIROD
EAST	2084352	LOCATOR NUMBER	L12	BOREHOLE DIAMETER (IN)	6.5	DATE DRILLED	12/17/92
REMARKS	SURFACE SEALED 12/21/92						

LOG OF BORING NUMBER

69092

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH604B4C			1 70 /2 10	5954 5953 5952 5951 5950 5949 5948 5947 5946 5945	10 11 12 13 14 15 16 17 18 19 20			SILTY CLAYSTONE	10 1-11 6 ft Silty Claystone with some sand, light gray-gray (10YR6/1-7/1), white (10YR8/1), sand is fine-grained, well sorted, angular to sub-angular, consisting of quartz, fines exhibit moderate plasticity, less than 10% porosity, moderately friable, local iron oxide staining, some caliche, dry 13 1% sand, 34 8% silt, 52 1% clay
										11 6-11 8 ft VOA sample obtained from this interval
										11 8-12 2 ft No recovery for this interval
										Total depth at 12 2 ft

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 12 1	GROUND ELEVATION (FT)	5963 60	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	752536	AREA IHSS 166 3	CASING DIAMETER (IN)		GEOLOGIST	BRIAN J RUBY	69192
EAST	2084380	LOCATOR NUMBER L12	BOREHOLE DIAMETER (IN)	6 5	DATE DRILLED	12/18/92	

REMARKS SURFACE SEALED 12/21/92

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6091UC				5963	0			GM	0 0-0 3 ft Sandy Gravel as described above
										0 3-0 5 ft VOA sample obtained from this interval
										0 5-2 3 ft No recovery for this interval
				0 50 /2 30	5962	1			GM	2 3-3 6 ft Sandy Gravel with some silt, trace clay, very dark brown (10YR2/2), light yellowish brown (10YR6/4), dark yellowish brown (10YR4/4), yellowish brown (10YR5/8), pale yellow (2 5Y7/4), gravel maximum size 0 2', average size 0 1', angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-rounded consisting of quartz and quartzite, fines exhibit low plasticity, top soil with plan roots at 0 0-0 5 ft, clay lenses at 2 7-3 0 ft, 3 0-3 5 ft, iron oxide staining on grains, caliche at 2 3-4 0 ft, damp at 0 0-5 2 ft, wet at 8 2-8 6 ft, moist at 8 6-9 0 ft. 44 9% gravel, 44% sand, 7 8% silt, 3 3% clay
	BH6093UC				5961	2				
				1 70 /1 90	5960	3				
	BH6094UC									3 6-3 8 ft VOA sample obtained from this interval
	BH6092UC									3 8-4 0 ft VOA sample obtained from this interval
						4				4 0-4 2 ft No recovery for this interval
					5959				GM	4 2-5 0 ft Sandy Gravel as described above
	BH6090UC			1 00 /2 00	5958	5				5 0-5 2 ft VOA sample obtained from this interval
										5 2-8 2 ft No recovery for this interval
					5957	6				
				0 00 /2 00	5956	7				
					5955	8			GM	8 2-8 8 ft Sandy Gravel as described above
	BH6095UC									8 8-9 0 ft VOA sample obtained from this interval
	BH6097UC									
	BH6091UC			0 80 /1 90	5954	9				9 0-10 1 ft No recovery for this interval Top of bedrock at 10 1 ft
						10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 12 1	GROUND ELEVATION (FT)	5963 60	PROJECT NUMBER	006 RFI/RI	LOG OF BORING NUMBER
NORTH	752536	AREA IHSS 166 3	CASING DIAMETER (IN)		GEOLOGIST	BRIAN J RUBY	69192
EAST	2084380	LOCATOR NUMBER L12	BOREHOLE DIAMETER (IN)	6 5	DATE DRILLED	12/18/92	
REMARKS	SURFACE SEALED 12/21/92						

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH60495WC			2 00 /2 00	5953, 5952, 5951, 5950, 5949, 5948, 5947, 5946, 5945, 5944	10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20			SANDY CLAYSTONE	10 1-11 9 ft Sandy Claystone with some silt, olive gray (5Y5/2), dark gray (5Y4/1), reddish-yellow (7 5YR6/8-7/8), sand is fine-grained, well sorted, sub-angular, consisting of quartz, fines exhibit moderate plasticity, less than 10% porosity, slightly friable, nodules of CaCO3, 0-30 degree fractures at 10 7 ft., healed with CaCO3, extensive iron oxide staining at 11 4-11.6 ft., clayey at 10 1-10 6 ft coarsens upward, silty clay with depth, moist 25 7% sand, 22 3% silt, 52% clay
										11 9-12 1 ft VOA sample obtained from this interval
										Total depth at 12.1 ft

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 12.1	GROUND ELEVATION (FT)	5962.80	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	752537	AREA IHSS 166.3	CASING DIAMETER (IN)		GEOLOGIST	BRIAN J. RUBY	69292
EAST	2084402	LOCATOR NUMBER L12	BOREHOLE DIAMETER (IN)	6.5	DATE DRILLED	12/21/92	
REMARKS	SURFACE SEALED 12/22/92						

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION

Sample Number	Recovery/Interval	Depth (ft)	Unified Soils Classification or Rock Type	Description
		0	GW	0.0-0.6 ft. Sandy Gravel as described below
BH6508WC				0.6-0.8 ft. VOA sample obtained from this interval
	0.80/2.20	1		0.8-2.2 ft. No recovery for this interval
			GW	2.2-3.3 ft. Sandy Gravel with trace clay and silt, very dark brown (10YR2/2), pale red (10YR6/4), light red (10R6/6), pink (5YR7/4), light reddish brown (5YR6/4), gravel maximum size 0.15', average size 0.05', angular to sub-angular, consisting quartzite, sand is fine- to coarse-grained, well graded, angulat to sub-rounded, consisting of quartz and quartzite, fines exhibit low plasticity, grass and grass roots at 0.0-0.3 ft., caliche at 2.2-3.5 ft. and 6.4 ft., iron oxide staining on grains, dry. 52.1% gravel, 42.1% sand, 2.3% silt, 3.5% clay
BH6506WC		2		
	1.30/1.90	3		
BH6509WC				3.3-3.5 ft. VOA sample obtained from this interval
				3.5-4.1 ft. No recovery for this interval
		4	GW	4.1-4.7 ft. Sandy Gravel as described above
BH6510WC				4.7-4.9 ft. VOA sample obtained from this interval
	0.80/2.00	5		4.9-6.1 ft. No recovery for this interval
		6	GW	6.1-6.4 ft. Sandy Gravel as described above. Top of bedrock at 6.4 ft.
			CLAYSTONE	6.4-7.0 ft. Claystone as described below.
BH6511WCMS/MSD		7		7.0-7.2 ft. VOA sample obtained from this interval
BH6511WC	1.30/2.20			7.2-7.4 ft. VOA sample obtained from this interval
				7.4-8.3 ft. No recovery for this interval.
		8	SILTY CLAYSTONE	8.3-9.8 ft. Silty Claystone, gray (2.5YN6), light brownish gray (2.5Y6/2), grayish brown (2.5Y5/2), brownish yellow (2.5Y6/8), sand is fine-grained, well sorted, sub-angular to sub-rounded, consisting of quartz, fines exhibit moderate plasticity, less than 10% porosity, slightly friable, CaCO3 nodules, local iron oxide staining, slight carbonaceous material, dry at 6.4-6.6 ft., damp at 6.6-11.9 ft. 16.7% sand, 25% silt, 58.3% clay
BH6507WC	1.70/1.90	9		
BH6512WC		10		9.8-10.0 ft. VOA sample obtained from this interval

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 12 1	GROUND ELEVATION (FT) 5962 80	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	752537	AREA IHSS 166 3	CASING DIAMETER (IN)	GEOLOGIST BRIAN J RUBY	69292
EAST	2084402	LOCATOR NUMBER L12	BOREHOLE DIAMETER (IN) 6 5	DATE DRILLED 12/21/92	
REMARKS	SURFACE SEALED 12/22/92				

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
						10				10 0-10 2 ft No recovery for this interval
				1 70 /1 90	5952	11			CLAYSTONE	10 2-11 7 ft Claystone as described above
	H6D513C				5951	12				11 7-11 9 ft VOA sample obtained from this interval
										11 9-12 1 ft No recovery for this interval
										Total depth at 12 1 ft
					5950	13				
					5949	14				
					5948	15				
					5947	16				
					5946	17				
					5945	18				
					5944	19				
					5943	20				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 12 2	GROUND ELEVATION (FT) 5962 40	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	752540	AREA THSS 166 3	CASING DIAMETER (IN)	GEOLOGIST	J P GIRDD	69392
EAST	2084427	LOCATOR NUMBER L12	BOREHOLE DIAMETER (IN) 6 5	DATE DRILLED	01/04/93	

REMARKS SURFACE SEALED 01/08/93

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%			0			GM	0 0-0 6 ft Sandy Gravel as described below
					5962					0 6-0 8 ft VOA sample obtained from this interval
	BH6518AC									0 8-2 2 ft No recovery for this interval
				0 80 /2 20	5961	1			GM	2 2-3 2 ft Sandy Gravel with some silt and clay, very dark brown (10YR2/2), white (10YR8/1-8/2), light gray (10YR7/2), pale yellow (5Y7/4), pinkish white (5YR8/2), gravel maximum size 0 2', average size 0 1', angular to sub-rounded, consisting of quartz and quartzite, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit low to moderate plasticity, grass and roots at 0 0-0 5 ft (top soil), caliche at 0 5-0 8 ft, 2 2-3 2 ft, 3 7-5 2 ft, local iron oxide staining on some grains and gravel, dry 48 3% gravel, 36% sand, 9 4% silt, 6 3% clay
	BH6519AC			1 20 /1 50	5960	2				
	BH6519AC				5959	3				
										3 2-3 4 ft VOA sample obtained from this interval
										3 4-3 7 ft No recovery for this interval
				1 50 /1 50	5958	4			GM	3 7-5 0 ft Sandy Gravel as described above
	BH6520AC					5				5 0-5 2 ft VOA sample obtained from this interval
				0 80 /0 80	5957				GM	5 2-5 8 ft Sandy Gravel as described above
	BH6521AC									5 8-6 0 ft VOA sample obtained from this interval
					5956	6			GM	6 0-7 2 ft Sandy Gravel as described above
				1 40 /2 10		7				
	BH6522AC				5955					7 2-7 4 ft VOA sample obtained from this interval
										7 4-8 1 ft No recovery for this interval
	BH6523AC					8			GM	8 1-8 2 ft Sandy Gravel as described above
	BH6524AC				5954					8 2-8 4 ft VOA sample obtained from this interval
	BH6516AC									8 4-8 6 ft VOA sample obtained from this interval
										8 6-10 1 ft No recovery for this interval
				0 50 /2 00	5953	9				
						10				

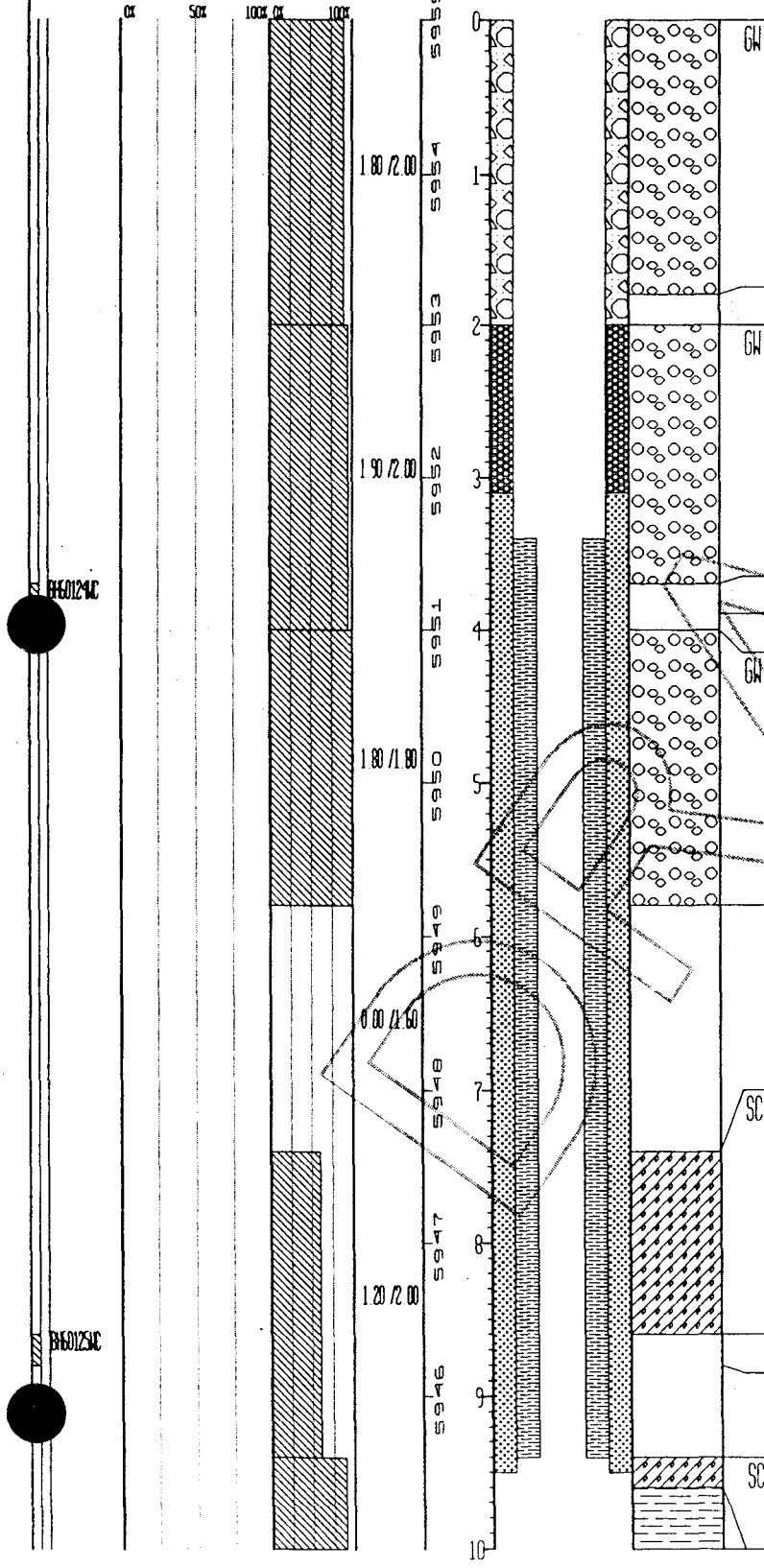
STATE PLANE COORDINATE		TOTAL DEPTH (FT) 12 2	GROUND ELEVATION (FT)	5962 40	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	752540	AREA IHSS 166 3	CASING DIAMETER (IN)		GEOLOGIST	J P GIROD	69392
EAST	2084427	LOCATOR NUMBER L12	BOREHOLE DIAMETER (IN)	6 5	DATE DRILLED	01/04/93	
REMARKS	SURFACE SEALED 01/08/93						

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6052SUC			2.10 /2.10	5952, 5951, 5950, 5949, 5948, 5947, 5946, 5945, 5944, 5943	10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20			GM	10 1-10 3 ft Sandy Gravel as described above Top of bedrock at 10 3 ft
									SILTY CLAYSTONE	10 3-12 0 ft Silty Claystone with abundant sand, light gray-gray (10YR7/1-6/1), light brownish gray (10YR6/2), brownish yellow (10YR6/8), sand is fine-grained, well sorted, sub-angular to sub-rounded, consisting of quartz, fines exhibit moderate plasticity, less than 10% porosity, slightly friable, CaCO3 nodules, 35 degree fracture at 11 0 ft, healed with CaCO3, extensive iron oxide staining at 11 0-11 6 ft, gravel at very top of run 10 1-10 2 ft appears to have been pushed through section by auger, dry 25% sand, 30% silt, 45% clay
										12 0-12 2 ft VOA sample obtained from this interval
										Total depth at 12 2 ft

STATE PLANE COORDINATE	TOTAL DEPTH (FT): 15.4	GROUND ELEVATION (FT)	5955.00	PROJECT NUMBER:	OU6 RFI/RI
NORTH 752561	AREA: IHSS 166.3	CASING DIAMETER (IN)	2.0	GEOLOGIST	KERRY MIYOSHI
EAST 2084500	LOCATOR NUMBER: 611	BOREHOLE DIAMETER (IN)	10.0	DATE DRILLED	11/19/92
REMARKS: WELL SET 12/03/92					

LOG OF BORING NUMBER 76992

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION



GW — 0.0-1.8 ft
Well graded gravel, dark reddish brown (2YR3/4) to yellowish red (5YR5/6) with thin, dark reddish brown (5YR3/2) topsoil, gravel is well graded, sub-angular and broken quartzite and sandstone clasts, sand is well graded but predominantly medium-grained, angular to sub-angular quartz and feldspar clasts, fines show medium plasticity, dry
72% gravel, 25% sand, 1.6% silt, 1.6% clay

1.8-2.0 ft No recovery for this interval

GW — 2.0-3.7 ft Well graded gravel as described above

3.7-3.9 ft VOA sample obtained from this interval

3.9-4.0 ft No recovery for this interval

GW — 4.0-5.8 ft Well graded gravel as described above

5.8-7.4 ft No recovery for this interval

SC — 7.4-8.6 ft
Clayey Sand with abundant gravel and some silt, light yellow brown (2.5Y6/4) to strong brown (7.5YR5/6), gravel is sub-angular quartzite to 1.3", sand is well graded, fine- to coarse-grained, coarse material is angular, fine and medium fraction is angular to sub-rounded, clasts consist of quartz quartzite, and feldspars, dry, fines show medium plasticity
37% gravel, 37% sand, 10% silt, 16% clay

8.6-8.8 ft VOA sample obtained from this interval

8.8-9.4 ft No recovery for this interval

SC — 9.4-9.6 ft Clayey Sand as described above
Top of bedrock at 9.6 ft

DRAFT

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 15.4	GROUND ELEVATION (FT) 5955.00	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH 752561	AREA IHSS 166.3	CASING DIAMETER (IN) 2.0	GEOLOGIST KERRY MIYOSHI	76992
EAST 2084500	LOCATOR NUMBER 611	BOREHOLE DIAMETER (IN) 10.0	DATE DRILLED 11/19/92	
REMARKS WELL SET 12/03/92				

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6012SAC	0% 50% 100%	0% 100%	1.80/2.00	5945	10			CLAYSTONE	9.6-11.0 ft Claystone, pale yellow to light brownish gray (2.5Y7/4-6/2), local iron oxide staining along bedding planes and pervading possible reworked clasts, thin lignitic layer at 10.5 ft, trace caliche on fractures, manganese oxides on some bedding planes and disseminated, medium to high plasticity, dry, unconformity between alluvium and bedrock at 9.4-9.6 ft 2% silt, 98% clay
					5944	11				11.0-11.2 ft VOA sample obtained from this interval
										11.2-11.4 ft No recovery for this interval
				1.80/1.80	5943	12			SANDY CLAYSTONE	11.4-13.2 ft Sandy Claystone as described above
					5942	13				13.2-13.4 ft No recovery for this interval
				2.20/2.20	5941	14			SANDY CLAYSTONE	13.4-15.4 ft Sandy Claystone with some silt, pale yellow to light brownish gray (2.5Y7/4-6/2), sand is well sorted, very fine-grained, sub-rounded to rounded quartz, 15% porosity, argillaceous cement, very friable, dry, distinct clean clay lenses noted from 13.6-15.4 ft, lenses range from 0.1-0.25' thick with trace silt (2%), color is light olive brown (2.5Y5/4), manganese and iron oxides occur locally on fractures, no CaCO3, dry 0% gravel, 34% sand, 13% silt, 53% clay
					5940	15				
					5939	16				Total depth at 15.4 ft
					5938	17				
					5937	18				
					5936	19				
						20				

DRAFT

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 4.0	GROUND ELEVATION (FT) 5965.90	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER	
NORTH 753838	AREA IHSS 167.1	CASING DIAMETER (IN)	GEOLOGIST BRIAN J. RUBY	61192	
EAST 2083890	LOCATOR NUMBER L10	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 10/27/92		
REMARKS SURFACE SEALED 10/27/92					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH60001C	0% 50% 100%	0% 100%	1.60 /2.00	5965	0–1.6			GC	0.0-1.6 ft. Clayey Gravel with some sand and silt, brown to dark brown (10YR4/3) to dark reddish brown (2.5YR3/4) top soil 0-0.7', gravel maximum 0.2', average 0.15', sand is fine- to coarse-grained well-graded gravel sub-angular to sub-rounded, sand grains sub-rounded, gravel quartzite, schist, sand grains quartz, rock fragments quartzite, moderate to low plasticity of clay, sequence is coarser in run 1 (0-1.6') than run 2 (2.0-3.3'), dry. 50% gravel, 20.6% sand, 8.5% silt, 20.9% clay
					5964	2				1.6-2.0 ft. No recovery for this interval
									GC	2.0-3.0 ft. Clayey Gravel as described above
	BH60002C			1.30 /2.00	5963	3			CL	3.0-3.3 ft. Silty Clay with some sand and caliche and trace gravel, light olive gray (5Y6/2) to white (5Y8/1), sand fine to medium grained, poorly graded sub-rounded quartz grains, carbonaceous material with interbedded caliche zones, moderate plasticity of clay, reworked bedrock and mottled texture from 3.0-3.3', dry. 1% gravel, 10% sand, 21% silt, 48% clay, 20% CaCO3
					5962	4				3.3-4.0 ft. No recovery for this interval
					5961	5				Total depth at 4.0 ft
					5960	6				
					5959	7				
					5958	8				
					5957	9				
					5956	10				

DRAFT

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 4.0	GROUND ELEVATION (FT):	5964.40	PROJECT NUMBER:	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH:	753780	AREA: IHSS 167.1	CASING DIAMETER (IN):		GEOLOGIST:	BRIAN J. RUBY	61292
EAST:	2083779	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN):	6.5	DATE DRILLED:	10/28/92	

REMARKS: HOLE TWINNED TO GET SUFFICIENT SAMPLE.
SURFACE SEALDE 10/28/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6003WC			1.50 /2.00	5964, 5963	0–2			GC:	0.0-1.5 ft. Sandy Gravel with some clay and silt, very dark gray (10YR 3/1) to dark red brown (10YR3/4) to red (10YR4/8), mottled texture, gravel maximum size 0.15', average size 0.05', sand consists of fine to coarse grains, well graded, gravel is sub-angular to sub-rounded, gravel consists of quartzite and schist, sand grains consist of schist and quartz with red (10YR4/8) iron-oxide staining, clay exhibits moderate plasticity, dry. 50% gravel, 23.8% sand, 7.9% silt, 18.3% clay
						2				1.5-2.0 ft. No recovery for this interval.
	BH6004WC			0.80 /2.00	5962, 5961, 5960, 5959, 5958, 5957, 5956, 5955	2–4			GC:	2.0-2.8 ft. Sandy Gravel with some clay and trace silt, yellow (10YR7/6) to brownish yellow (10YR6/6) to yellowish-brown (10YR5/6), mottled texture, gravel maximum size 0.15', average size 0.1', sand is fine- to coarse-grained, well-graded, gravel is sub-angular to sub-rounded, sand grains are sub-angular to sub-rounded, clay exhibits low to moderate plasticity, gravel consists of quartzite and schist, sand grains consist of schist, feldspar and quartz with red-yellow (5YR6/8) staining of iron-oxide, dry. 65% gravel, 21.7% sand, 4% silt, 9.3% clay
						4				2.8-4.0 ft. No recovery for this interval.
						4				Total depth at 4.0 ft

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 4.0	GROUND ELEVATION (FT)	5961.80	PROJECT NUMBER	006 RFI/RI	LOG OF BORING NUMBER
NORTH	753784	AREA IHSS 167.1	CASING DIAMETER (IN)		GEOLOGIST	BRIAN J. RUBY	61392
EAST	2083892	LOCATOR NUMBER L10	BOREHOLE DIAMETER (IN)	6.5	DATE DRILLED	10/29/92	

REMARKS HOLE TWINNED TO GET SUFFICIENT SAMPLE.
SURFACE SEALED 10/29/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH60006C			1.00 /2.00	5961	1			GC	0.0-1.0 ft. Clayey Gravel with some sand and silt, dark brown (10YR3/8), gravel maximum size 0.15', average size 0.1', sand is fine- to coarse-grained, well graded, gravel is sub-angular to sub-rounded, sand consists of sub-angular to sub-rounded grains, clay exhibits moderate to high plasticity, gravel consists of quartzite, schist, sand grains consist of quartzite and schist, dry. 40% gravel, 11.7% sand, 9.7% silt, 38.6% clay
					5960	2				1.0-2.0 ft. No recovery for this interval.
	BH60007C			2.00 /2.00	5959	3			GC	2.0-4.0 ft. Sandy Gravel with some clay and trace silt, olive (5Y5/6) to pale olive (5Y6/4) to pink (5YR8/4) to weak red (10R5/4), gravel maximum size 0.15', average size 0.1', sand is fine- to coarse-grained, well graded, gravel is sub-angular to sub-rounded, sand consists of sub-angular to sub-rounded grains, clay exhibits moderate to high plasticity, gravel consists of quartzite, schist and remnants of disintegrated gravel (pink 5Y8/4) within 4.0' section a clay layer is present at 2.25-2.9', gravel interbedded with this clay suggests a slump bedrock feature, carbonaceous material is present in trace amounts, dry. 50% gravel, 30.8% sand, 3.6% silt, 15.4% clay
					5958	4				Total depth at 4.0 ft.
					5957	5				
					5956	6				
					5955	7				
					5954	8				
					5953	9				
					5952	10				

STATE PLANE COORDINATE	TOTAL DEPTH (FT): 4.0	GROUND ELEVATION (FT): 5958.90	PROJECT NUMBER: OU6 RFI/RI	LOG OF BORING NUMBER	
NORTH: 753789	AREA IHSS 167.1	CASING DIAMETER (IN):	GEOLOGIST: BRIAN J. RUBY	61492	
EAST: 2083996	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED: 10/29/92		

REMARKS: HOLE TWINNED TO GET SUFFICIENT SAMPLE.
SURFACE SEALED 10/29/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6000BC BH6004BC			1.20 /2.00	5958	0–1.2			GW	0.0-1.2 ft Sandy Gravel with trace silt and clay, dark-brown (7.5YR3/2) gravel size maximum 0.15', average 0.1', gravel sub-angular to sub-rounded, sand fine to coarse, well-graded sand, angular to sub-angular grains, gravel consists of quartzite, sand grains consist of quartz, rock fragments, dry. 60% gravel, 36.8% sand, 2.6% silt, 0.6% clay
						1.2–2.0				1.2-2.0 ft. No recovery for this interval.
	BH6000BC			1.20 /2.00	5957 / 5956	2–3.2			GW	2.0-3.2 ft. Sandy Gravel with trace silt and clay, strong brown (7.5YR5/6), gravel size 0.1' maximum and 0.05' average, sand is fine- to coarse-grained, well-graded, gravel is sub-angular to sub-rounded, sand is sub-angular, gravel is quartzite, sand consists primarily of iron stained quartz, rock fragments and granite grains, moist. 52.4% gravel, 45.1% sand, 1.6% silt, 0.9% clay
						3.2–4.0				3.2-4.0 ft. No recovery for this interval.
					5955	4				Total depth at 4.0 ft.
					5954	5				
					5953	6				
					5952	7				
					5951	8				
					5950	9				
					5949	10				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 4.0	GROUND ELEVATION (FT)	5966.50	PROJECT NUMBER	006 RFI/RI	LOG OF BORING NUMBER
NORTH	753681	AREA IHSS 167.1	CASING DIAMETER (IN)		GEOLOGIST	BRIAN J. RUBY	61692
EAST	2083891	LOCATOR NUMBER L10	BOREHOLE DIAMETER (IN)	6.5	DATE DRILLED	11/02/92	

REMARKS: HOLE TWINNED TO GET SUFFICIENT SAMPLE
SURFACE SEALED 11/02/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH60012C			1.00 /2.00	5966	0			GW	0.0-1.0 ft. Sandy Gravel with some clay and trace silt - very dark grayish brown (10YR3/2), maximum gravel diameter 0.2', average diameter 0.1', sand is fine- to coarse-grained, poorly graded, gravel is angular, sand is sub-angular, clay exhibits moderate plasticity, gravel is primarily quartzite, sand is composed of quartz and some rock fragments, dry. 49.5% gravel, 41.6% sand, 0.9% silt, 8% clay
					5965	1				1.0-2.0 ft. No recovery for this interval.
	BH60013C			0.50 /2.00	5964	2			GW	2.0-2.5 ft. Sandy Gravel with some caliche and trace clay and silt, pale brown (10YR6/3), white (10YR8/2) to dark yellowish brown (10YR4/6), maximum gravel size 0.15', average 0.1', fine to coarse sand, well-graded gravel is angular, sand grains are angular, clay exhibits moderate to low plasticity, gravel consists of quartzite, sand is composed of rock fragments, quartzite, quartz, dry. 54.3% gravel, 41.1% sand, 2% silt, 2.6% clay
					5963	3				2.5-4.0 ft. No recovery for this interval.
					5962	4				Total depth at 4.0 ft
					5961	5				
					5960	6				
					5959	7				
					5958	8				
					5957	9				
						10				

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 4.0	GROUND ELEVATION (FT) 5961.10	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER	
NORTH 753678	AREA IHSS 167.1	CASING DIAMETER (IN)	GEOLOGIST BRIAN J. RUBY	61792	
EAST 2083996	LOCATOR NUMBER L10	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 11/02/92		

REMARKS: HOLE TWINNED TO GET SUFFICIENT SAMPLE.
SURFACE SEALED 11/02/92

DRAFT

CHEMICAL SAMPLE / GRADATIONAL SAMPLE	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5961	0			GW	0.0-0.4 ft. Sandy Gravel with trace clay and silt, dark brown (7.5YR3/2) to brownish-yellow (10YR6/8), maximum gravel diameter up to 2.0", average gravel size .15', fine to coarse grained sand, well graded gravel, to moderately graded gravel is angular, sand grains are sub-angular, low plasticity, gravel consists of quartzite, sand grains are primarily quartz with some lithic rock fragments, dry. 78% gravel, 21% sand, 0.5% silt, 0.5% clay
	BH6001 4C			0.40 /2.00	5960	1				0.4-2.0 ft. No recovery for this interval.
					5959	2			GW	2.0-2.5 ft. Sandy gravel as described above.
										2.5-4.0 ft. No recovery for this interval.
	BH6001 5C			0.50 /2.00	5958	3				
					5957	4				Total depth at 4.0 ft.
					5956	5				
					5955	6				
					5954	7				
					5953	8				
					5952	9				
						10				

DRAFT

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 4.0	GROUND ELEVATION (FT) 5949.90	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER	
NORTH 753666	AREA IHSS 167.1	CASING DIAMETER (IN)	GEOLOGIST BRIAN J. RUBY	61892	
EAST 2084116	LOCATOR NUMBER L11	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 11/03/92		

REMARKS: HOLE TWINNED TO GET SUFFICIENT SAMPLE.

DRAFT

CHEMICAL SAMPLE / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH60016WC			0.80 /2.00	5949	0–1			GC	0.0-0.8 ft. Sandy Gravel with some clay and trace silt, very dark grayish brown (10YR3/2), gravel size maximum 0.15', average 0.1', sand is fine- to coarse-grained, well-graded, gravel is sub-angular to sub-rounded, moderately to highly plastic clay, gravel consists of schist and quartzite, sand consists of quartz grains, dry. 50% gravel, 39.7% sand, 2.1% silt, 8.2% clay
										0.8-2.0 ft. No recovery for this interval.
	BH60017WC			1.40 /2.00	5948, 5947	2–3			GW	2.0-2.6 ft. Sandy Gravel with trace silt and clay, brownish-yellow (10YR6/8) to yellowish-brown (10YR5/6), gravel size maximum 0.1', average 0.1', sand fine- to coarse-grained, well graded, gravel is sub-angular to sub-rounded, sand grains are sub-angular to sub-rounded, gravel and sand consist of quartzite and schist and quartz, dry. 60% gravel, 38.4% sand, 1.3% silt, 0.3% clay
										2.6-3.0 ft. No recovery for this interval.
					5946	3–4			GW	3.0-3.3 ft. Sandy Gravel as described above.
					5945	4–5			CL	3.3-3.8 ft. Sandy Clay with some silt and caliche and trace gravel, gray (5Y5/1), gravel maximum and average size 0.02', sand is fine- to medium-grained, poorly graded, gravel is sub-rounded, sand grains angular to sub-angular, moderately plastic clay, gravel consists of quartzite, sand consists of quartz, iron-oxide staining along bedding planes, moist. 0.6% gravel, 48% sand, 15.4% silt, 36% clay
					5944	5–6				3.8-4.0 ft. No recovery for this interval.
					5943	6–7				Total depth at 4.0 ft.
					5942	7–8				
					5941	8–9				
					5940	9–10				

DRAFT

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 4.0	GROUND ELEVATION (FT):	5944.30	PROJECT NUMBER:	006 RFI/RI
NORTH: 753653	AREA: THSS 167.1	CASING DIAMETER (IN):		GEOLOGIST:	BRIAN J. RUBY
EAST: 2084192	LOCATOR NUMBER: L11	BOREHOLE DIAMETER (IN):	6.5	DATE DRILLED:	11/12/92
REMARKS: SURFACE SEALED 12/04/92					

LOG OF BORING NUMBER 61992

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6001BC BH6001SC			1.80 /1.80	5944 5943	0 1			GC:	0.0-1.8 ft. Sandy Gravel with some clay and trace silt, dark yellow brown (10YR4/2), gravel maximum size 0.2', average size 0.075', angular to sub-angular, consisting of quartz and quartzite, sand is fine- to coarse-grained, well graded, angular to sub-rounded grains, consisting of schist, quartz, and quartzite, clay exhibits moderate to high plasticity, dry. 60% gravel, 30% sand, 2% silt, 8% clay. Top of bedrock at 1.8 ft.
	BH6001SC			1.80 /2.20	5942 5941	2 3			CLAYSTONE:	1.8-3.6 ft. Silty Claystone with some sand, grayish orange (10YR7/4) to dark yellowish orange (10YR6/6) at 1.8-2.3', yellowish gray (5Y7/2) to light olive gray (5Y5/2) at 2.3-3.6', sand fraction is fine-grained, sub-rounded, consisting quartzite and feldspar, slightly friable, iron oxide staining and abundant plant roots and weathered bedrock at 1.8-2.3', CaCO3 present and bedrock is fractured with zones of iron oxide staining at 2.3-3.6', dry. 0% gravel, 15.7% sand, 29.5% silt, 54.8% clay. 3.6-4.0 ft. No recovery for this interval. Total depth at 4.0 ft.
					5940 5939 5938 5937 5936 5935	4 5 6 7 8 9 10				

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 4.1	GROUND ELEVATION (FT):	5926.70	PROJECT NUMBER:	016 RFI/RI	LOG OF BORING NUMBER
NORTH	753636	AREA: IHSS 167.1	CASING DIAMETER (IN):		GEOLOGIST:	BRIAN J. RUBY	62092
EAST	2084280	LOCATOR NUMBER: L11	BOREHOLE DIAMETER (IN):	6.5	DATE DRILLED:	11/12/92	

REMARKS: SURFACE SEALED 12/23/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6020NC			0.60 /2.00	5926	0			SILTY CLAYSTONE	0.0-0.6 ft. Silty Claystone with trace sand, light olive gray (5Y5/2) to olive gray (5Y3/2) to dark yellowish orange (10YR6/6), sand is fine-grained, sub-rounded, consisting of quartz with iron oxide staining, possibly reworked bedrock, slightly friable, mottled texture with no apparent bedding, plant roots abundant at 0.0-0.4', CaCO3 present, clay exhibits moderate plasticity, dry. 5% sand, 20% silt, 75% clay. Top of bedrock at 0.0 ft.
					5925	1				
						2				0.6-2.0 ft. No recovery for this interval.
	BH6021NC			2.10 /2.10	5924	3			SILTY CLAYSTONE	2.0-2.6 ft. Silty Claystone with some sand and carbonaceous material, black (N1), olive gray (5Y4/1), white (N9), sand is fine-grained, sub-rounded and consists of quartz with iron oxide staining, moderately friable, black carbonized zone at 2.4-2.6', CaCO3 present, dry. 8.9% sand, 11% silt, 80% clay.
					5923	4			SILTY CLAYSTONE	2.6-4.1 ft. Silty Claystone with some fine sand, moderate brown (5YR3/4) to dusky brown (5YR2/2), sand is fine-grained, sub-rounded, consisting of feldspar grains, highly friable, CaCO3 and carbonaceous material along fractures, no apparent bedding, dry. 8.9% sand, 11% silt, 80% clay.
					5922	5				Total depth at 4.1 ft.
					5921	6				
					5920	7				
					5919	8				
					5918	9				
					5917	10				

DRAFT

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 4.0	GROUND ELEVATION (FT): 5968.00	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH: 753577	AREA: IHSS 167.1	CASING DIAMETER (IN):	GEOLOGIST	BRIAN J. RUBY	62192
EAST: 2083782	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED	11/09/92	
REMARKS: SURFACE SEALED 12/04/92					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5968	0			GW	0.0-0.4 ft. Sandy Gravel with trace silt and clay, dark brown (10YR2/2), gravel maximum size 0.1', average size 0.05', sub-angular to sub-rounded, consisting of quartzite and schist, sand is fine to coarse, well graded, angular to sub-angular, consisting of quartzite, schist and quartz, moist. 75% gravel, 22.5% sand, 1% silt, 1.5% clay
	BH6022C			0.40/2.00	5967	1				0.4-2.0 ft. No recovery for this interval.
					5966	2			GW	2.0-2.75 ft. Sandy Gravel with trace silt and clay, very dusky red (10R2/2), gravel maximum size 0.075', average size 0.05', sub-angular and consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartzite, quartz, and schist, with iron oxide staining, moist. 85% gravel, 12.9% sand, 1% silt, 1.1% clay
				0.75/1.00						
	BH6023C				5965	3				2.75-3.0 ft. No recovery for this interval.
				0.40/1.00						
					5964	4			GW	3.0-3.4 ft. Sandy Gravel with trace silt and clay, very pale orange (10YR8/2) to white (N9), gravel maximum size 0.15', average size 0.025', angular to sub-angular, consisting of quartzite sand is fine- to coarse-grained, angular to sub-angular, consisting of quartzite, quartz and schist with iron oxide staining and cemented with CaCO3, decomposing rock fragments present, dry. 85% gravel, 13.2% sand, 1.5% silt, 0.3% clay
					5963	5				3.4-4.0 ft. No recovery for this interval.
					5962	6				Total depth at 4.0 ft.
					5961	7				
					5960	8				
					5959	9				
						10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 4.0		GROUND ELEVATION (FT)	5970.20	PROJECT NUMBER	006 RFI/RI
NORTH	753691	AREA THSS 167.1		CASING DIAMETER (IN)		GEOLOGIST	BRIAN J. RUBY
EAST	2083593	LOCATOR NUMBER	L10	BOREHOLE DIAMETER (IN)	6.5	DATE DRILLED	10/30/92

LOG OF BORING NUMBER 62292

REMARKS: HOLE TWINNED TO GET SUFFICIENT SAMPLE.
SURFACE SEALED 10/30/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6002AC			0.80 /2.00	5970	0			GW	0.0-0.8 ft Sandy Gravel with some clay and trace silt, dark-brown (10YR3/3), gravel maximum size 0.2', average size 0.1', sand is fine- to coarse-grained, well graded, gravel is sub-angular to sub-rounded, sand grains are sub-angular to sub-rounded, clay exhibits low to moderate plasticity, gravel consists of quartzite, sand grains consist of quartz and schist and iron oxide stained. 65% gravel, 26.8% sand, 2.5% silt, 5.7% clay
					5969	1				0.8-2.0 ft. No recovery for this interval.
					5968	2			GW	2.0-2.5 ft. Sandy Gravel with trace silt and clay, red (10R4/6-5/6) to light red (10R6/6), gravel maximum size 0.025', average size 0.25', sand is fine- to coarse-grained, well graded, gravel is sub-angular to sub-rounded, sand is sub-angular to sub-rounded, clay exhibits high plasticity, gravel consists of quartzite, sand consists of quartz and schist grains with iron oxide staining. 65% gravel, 30.4% sand, 3.6% silt, 1% clay
	BH6002SAC			0.70 /2.00	5967	3				
					5966	4			GW	2.5-2.7 ft Sandy Gravel with trace clay and caliche, white (10YR8/2), gravel maximum size 0.15', average size 0.1', sand is fine- to coarse grained, well graded, gravel is sub-angular, sand is sub-angular to sub-rounded, gravel consists of quartzite, sand grains consist of quartz and K-spar, with iron oxide staining. 80% gravel, 15.6% sand, 2.4% caliche, 2.0% clay
					5965	5				2.7-4.0 ft. No recovery for this interval.
					5964	6				Total depth at 4.0 ft.
					5963	7				
					5962	8				
					5961	9				
						10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 4.0	GROUND ELEVATION (FT)	5968.80	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	753690	AREA IHSS 167.1	CASING DIAMETER (IN)		GEOLOGIST	BRIAN J RUBY	62392
EAST	2083671	LOCATOR NUMBER L10	BOREHOLE DIAMETER (IN)	6.5	DATE DRILLED	10/30/92	

REMARKS HOLE TWINNED TO GET SUFFICIENT SAMPLE

SURFACE SEALED 10/30/92

DRAFT

CHEMICAL SAMPLE / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH60026WC			1.00 /2.00	5968	0			GC:	0.0-1.0 ft Sandy gravel with some clay and trace silt, dark red (10R3/6) to dusky red (10R3/4) to darkish reddish gray (10R3/1), mottled texture, gravel maximum size 0.2', average size 0.15', sand is fine- to coarse-grained, well-graded, gravel is sub-rounded, sand grains are sub-rounded to rounded, gravel consists of quartzite and schist, sand grains consist of quartz and schist with iron oxide staining dry. 60% gravel, 23.5% sand, 4.9% silt, 11.6% clay
					5967	1				
						2				1.0-2.0 ft. No recovery for this interval.
	BH60027WC			0.60 /2.00	5966	2			GW:	2.0-2.6 ft. Well-graded gravel with trace silt and clay, reddish-yellow (7.5YR7/6-7/8) to pinkish white (7.5YR8/2), mottled texture, gravel size maximum 0.15', average 0.05', sand is fine- to coarse-grained, well-graded, gravel is sub-rounded, sand grains are sub-angular to sub-rounded, gravel consists of schist and quartzite, sand grains are schist and quartz, sequence coarsens downward, dry 70% gravel, 26% sand, 3% silt, 1% clay
					5965	3				
						4				2.6-4.0 ft No recovery for this interval
										Total depth at 4.0 ft
					5964	5				
					5963	6				
					5962	7				
					5961	8				
					5960	9				
					5959	10				

DRAFT

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 4.0	GROUND ELEVATION (FT):	5967.80	PROJECT NUMBER	OU6 RFI/RI
NORTH 753686	AREA: IHSS 167.1	CASING DIAMETER (IN):		GEOLOGIST	BRIAN J. RUBY
EAST 2083781	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN):	6.5	DATE DRILLED	11/02/92

LOG OF BORING NUMBER: 62492

REMARKS: HOLE TWINNED TO GET SUFFICIENT SAMPLE
SURFACE SEALED 11/02/92

DRAFT

CHEMICAL SAMPLE / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6028AC BH6029AC	0% 50% 100%	0% 100%	0.70 /2.00	5967	0			GW	0.0-0.7 ft. Sandy Gravel with trace silt and clay, very dark brown (10YR2/2), maximum gravel diameter .2', average size 0.1', sand is fine- to coarse-grained, well-graded gravel is sub-rounded to sub-angular, sand is sub-rounded to sub-angular, low plasticity, gravel is primarily quartzite, sand is quartz, dry. 65% gravel, 31% sand, 2.8% silt, 1.2% clay
					5966	1				0.7-2.0 ft. No recovery for this interval.
	BH6054AC			0.70 /2.00	5965	2			GW	2.0-2.7 ft. Sandy Gravel with trace silt and clay, yellowish red (5YR5/8), maximum gravel size .2', average gravel size .2', fine to coarse sand, well-graded gravel is sub-angular to sub-rounded, sand is sub-angular to sub-rounded, low plasticity, gravel is quartzite, sand consists of quartz, dry. 80% gravel, 18.9% sand, 1.5% silt, 2.1% clay
					5964	3				
					5963	4				Total depth at 4.0 ft
					5962	5				
					5961	6				
					5960	7				
					5959	8				
					5958	9				
						10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 4.0		GROUND ELEVATION (FT)	5967.10	PROJECT NUMBER	OU6 RFI/RI
NORTH	752574	AREA IHSS 167.1		CASING DIAMETER (IN)		GEOLOGIST	BRIAN J. RUBY
EAST	2083892	LOCATOR NUMBER	L10	BOREHOLE DIAMETER (IN)	6.5	DATE DRILLED	11/09/92
REMARKS: SURFACE SEALED 12/04/92							

LOG OF BORING NUMBER 62592

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50%	100% 0%	100%	5967	0			GW:	0.0-0.5 ft. Sandy Gravel with trace silt and clay, dark yellowish orange (10YR6/6) to moderate brown (5YR4/4), gravel maximum size 0.2', average size 0.1', sub-angular to sub-rounded, consisting of quartzite, sand is fine- to coarse-grained, angular to sub-rounded, consisting of quartz, feldspar and schist with iron oxide staining and magnesium oxide along gravel fractures, dry, abundant roots 0.0-0.2'. 50% gravel, 44% sand, 5% silt, 1% clay
	B6C030AC			0.50 /2.00	5966	1				0.5-2.0 ft. No recovery for this interval.
					5965	2			GC:	2.0-2.7 ft. Sandy Gravel with some clay and trace silt, dark reddish brown (10R3/4) to moderate brown (5YR4/4), gravel maximum size 0.1', average size 0.05', angular to sub-angular, consisting of quartzite, sand is fine- to coarse grained, well graded, angular to sub-rounded, consisting of quartzite and quartz with iron oxide staining, dry. 55% gravel, 36% sand, 3% silt, 6% clay
	B6C031AC			0.70 /2.00	5964	3				2.7-4.0 ft. No recovery for this interval
					5963	4				Total depth at 4.0 ft
					5962	5				
					5961	6				
					5960	7				
					5959	8				
					5958	9				
						10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 4.0	GROUND ELEVATION (FT)	5963.90	PROJECT NUMBER	006 RFI/RI	LOG OF BORING NUMBER
NORTH	753568	AREA IHSS 167.1	CASING DIAMETER (IN)		GEOLOGIST	BRIAN J. RUBY	62692
EAST	2083997	LOCATOR NUMBER L10	BOREHOLE DIAMETER (IN)	6.5	DATE DRILLED	11/04/92	

REMARKS: HOLE TWINNED TO GET SUFFICIENT SAMPLE
SURFACE SEALED 12/04/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH60032C BH60051C			1.20 /2.00	5963 5962	0 1 2			GC	0.0-1.2 ft. Sandy Gravel with some clay and trace silt, moderate brown (5YR3/4-4/4), gravel maximum size 0.15', average size 0.05', sub-angular to sub-rounded, consisting of quartzite, quartz and schist, sand is fine- to coarse- grained, well graded, angular to sub-rounded, consisting of quartzite, quartz, and schist, upper 0.5' of section consists of more silt in matrix with dark reddish brown (10R3/4) clay in matrix at 0.5-1.2', moist and very hard. 60% gravel, 32.7% sand, 2.2% silt, 5.1% clay
										1.2-2.0 ft. No recovery for this interval.
	BH60033C			2.00 /2.00	5961 5960	3 4			GW	2.0-4.0 ft. Sandy Gravel with trace silt and clay, gravel maximum size 0.15', average size 0.05', angular to sub-rounded, consisting of quartzite and quartz, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartzite, quartz, and schist, with iron oxide staining, CaCO3 cement at 2.0-2.6', yellowish gray (5Y7/2), dry. 70% gravel, 28% sand, 1% silt, 1% clay
					5959 5958 5957 5956 5955 5954	5 6 7 8 9 10				Total depth at 4.0 ft.

DRAFT

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 4.4	GROUND ELEVATION (FT):	5953.20	PROJECT NUMBER:	006 RFI/RI	LOG OF BORING NUMBER:
NORTH:	753564	AREA: IHSS 167.1	CASING DIAMETER (IN):		GEOLOGIST:	BRIAN J. RUBY	62792
EAST:	2084103	LOCATOR NUMBER: L11	BOREHOLE DIAMETER (IN):	6.5	DATE DRILLED:	11/11/92	

REMARKS: HOLE TWINNED TO GET SUFFICIENT SAMPLE.
SURFACE SEALED 12/04/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%		5953	0			GW:	0.0-0.6 ft. Sandy Gravel with trace silt and clay, dusky brown (5Y2/2), gravel is sub-angular to sub-rounded, sand is fine to coarse well graded, gravel maximum size 0.15', average size 0.1', sand grains are sub-angular to sub-rounded, gravel consists of quartzite and schist, sand consists of quartz, quartzite and feldspar with iron staining, moist. 75% gravel, 24.1% sand, 0.6% silt, 0.3% clay. 0.6-2.4 ft. No recovery for this interval.
	BH60034C			0.60 /2.40	5952	1				
					5951	2			GW:	2.4-3.1 ft. Sandy Gravel with trace silt and clay, light olive gray (5Y5/2) at 2.4-2.9' to dark yellowish orange (10YR6/6) at 2.9-3.1', gravel maximum size 0.15', average size 0.1', sand is fine- to coarse-grained, with finer sand at 2.9-3.1', gravel is sub-angular, sand grains are angular to sub-angular, clay exhibits moderate plasticity, gravel consists of quartzite and schist, sand grains consists of quartzite and quartz with iron oxide staining, saturated. 50% gravel, 47% sand, 1.3% silt, 1.7% clay. Top of bedrock at 3.1 ft.
	BH60035C			2.00 /2.00	5950	3				
					5949	4			CLAYSTONE:	3.1-4.4 ft. Silty Claystone with trace sand, light gray (N7) to dark yellowish orange (10YR6/6) to white (N9), sand is fine-grained, sub-rounded, and consists of quartz, abundant iron oxide staining with some carbonaceous material, caliche is present also, bedrock is weathered throughout section, but more evident in the upper 3.1-3.3', slightly moist. 2% sand, 18% silt, 80% clay. Total depth at 4.4 ft.
					5948	5				
					5947	6				
					5946	7				
					5945	8				
					5944	9				
						10				

STATE PLANE COORDINATE	TOTAL DEPTH (FT): 3.8	GROUND ELEVATION (FT): 5940.40	PROJECT NUMBER: 006 RFI/RI	LOG OF BORING NUMBER	
NORTH: 753565	AREA: IHSS 167.1	CASING DIAMETER (IN):	GEOLOGIST: BRIAN J. RUBY	62892	
EAST: 2084201	LOCATOR NUMBER: L11	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED: 11/11/92		
REMARKS: SURFACE SEALED 12/04/92					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH60036WC			0.80 /2.00	5940, 5939	0–1			GW	0.0-0.8 ft. Sandy Gravel with trace clay and silt, very dark grayish brown (10YR3/2), gravel maximum and average size 0.1", sand is fine- to coarse-grained, well graded, gravel is sub-angular, sand grains are angular to sub-angular, gravel consists of quartzite, sand consists of quartzite, quartz and schist. 70% gravel, 28.2% sand, 1% silt, 0.8% clay.
										0.8-2.0 ft. No recovery for this interval.
						2			GW	2.0-2.4 ft. Sandy Gravel as described above.
	BH60037WC			0.80 /2.00	5938, 5937	2–3			CL	2.4-2.8 ft. Silty Clay with trace sand, light olive gray (5Y6/1) to dark yellowish orange (10YR6/6) to grayish orange (10YR7/4), sand is fine-grained, sub-rounded and consists of quartz and feldspar, localized CaCO3 and iron oxide and magnesium oxide staining, dry, has appearance of bedrock but clasts of fine sand suggest reworking. 2% sand, 28% silt, 70% clay.
										2.8-3.8 ft. No recovery for this interval.
						4				Total depth at 3.8 ft.
					5936, 5935, 5934, 5933, 5932, 5931	5–10				

DRAFT

STATE PLANE COORDINATE	TOTAL DEPTH (FT): 4.0	GROUND ELEVATION (FT): 5967.00	PROJECT NUMBER: OU6 RFI/RI	LOG OF BORING NUMBER:	
NORTH: 753519	AREA: IHSS 167.1	CASING DIAMETER (IN):	GEOLOGIST: BRIAN J. RUBY		
EAST: 2083890	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED: 11/10/92	62992	

REMARKS: HOLE TWINNED TO GET SUFFICIENT SAMPLE.
SURFACE SEALED 12/04/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6003BC			0.90 /2.00	5967, 5966, 5965	0, 1, 2			GC	0.0-0.9 ft. Sandy Gravel with some clay and silt, dark brown (7.5YR3/2) to dark red (2.5YR2.5/4), gravel maximum size 0.15', average size 0.1', sand is fine to coarse, well graded, gravel is angular to sub-angular, sand is angular to sub-angular, gravel consists of quartzite, schist, sand grains consist of quartz and quartzite with red-yellow iron staining, clay shows moderate plasticity, dry. 60% gravel, 21.5% sand, 10% clay, 8.5% silt
										0.9-2.0 ft. No recovery for this interval.
	BH6003SC			0.70 /2.00	5964, 5963, 5962, 5961, 5960, 5959, 5958	3, 4, 5, 6, 7, 8, 9, 10			GC	2.0-2.7 ft. Clayey Gravel with some sand silt, reddish yellow (5YR6/8) to red (2.5YR4/8), gravel maximum 0.2', average 0.1', sand is fine- to coarse-grained, well-graded, gravel is sub-angular to sub-rounded, sand grains sub-angular to sub-rounded with yellow-red iron staining, fines show moderate to high plasticity, gravel quartzite, sand grains quartz and quartzite, dry. 65% gravel, 17.2% sand, 7.8% silt, 10% clay
										2.7-4.0 ft. No recovery for this interval.
										Total depth at 4.0 ft

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 4.0		GROUND ELEVATION (FT)	5969.70	PROJECT NUMBER	OU6 RFI/RI
NORTH	753626	AREA IHSS 167.1		CASING DIAMETER (IN)		GEOLOGIST	BRIAN J. RUBY
EAST	2083673	LOCATOR NUMBER	L10	BOREHOLE DIAMETER (IN)	6.5	DATE DRILLED	11/04/92

LOG OF BORING NUMBER **63092**

REMARKS: HOLE TWINNED TO GET SUFFICIENT SAMPLE.
SURFACE SEALED 12/04/92

DRAFT

CHEMICAL SAMPLE / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% / 50% / 100%)	PERCENT RECOVERY (0% / 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6004UC			1.00 /2.00	5969, 5968	0–1			GW	0.0-1.0 ft. Sandy Gravel with trace silt and clay, dark yellow brown (10YR4/2), gravel maximum size 0.15', average size 0.1', angular to sub-rounded, consisting of quartzite and schist, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartzite, quartz and schist, with iron oxide staining, moist. 80% gravel, 15.4% sand, 3.7% silt, 0.9% clay
						1–2				1.0-2.0 ft. No recovery for this interval.
	BH6004UC			0.80 /2.00	5967, 5966	2–3			GW	2.0-2.8 ft. Sandy Gravel with trace clay and silt, moderate reddish brown (10R4/6) to moderate brown (5YR3/4), gravel maximum size 0.1', average size 0.025', angular to sub-angular, consisting of quartzite and schist, sand is fine- to coarse-grained, well graded, sub-angular to angular, consisting of quartz, schist and quartzite with iron oxide staining, moist. 75% gravel, 22.3% sand, 0.9% silt, 1.6% clay
						3–4				2.8-4.0 ft. No recovery for this interval.
						4				Total depth at 4.0 ft.
					5965, 5964, 5963, 5962, 5961, 5960	5–10				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 4.0		GROUND ELEVATION (FT)	5968.30	PROJECT NUMBER	006 RFI/RI	LOG OF BORING NUMBER
NORTH	753626	AREA THSS 167.1		CASING DIAMETER (IN)		GEOLOGIST	BRIAN J. RUBY	63192
EAST	2083776	LOCATOR NUMBER	L10	BOREHOLE DIAMETER (IN)	6.5	DATE DRILLED	11/09/92	

REMARKS: SURFACE SEALED 12/04/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH0012C			0.80/2.00	5968	0			GC	0.0-0.8 ft Sandy Gravel with trace silt and clay, moderate brown (5YR3/4), gravel maximum size 0.1', average size 0.1', angular to sub-angular, consisting of quartzite and granitics, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz and quartzite, clay exhibits moderate plasticity, abundant roots in top 0.2', slightly moist to dry 60% gravel, 35.8% sand, 2.0% silt, 2.2% clay
					5967	1				
										0.8-2.0 ft No recovery for this interval
	BH0013C			0.80/2.00	5966	2			GW	2.0-2.8 ft Sandy Gravel with trace calcareous silt and clay, very pale orange (10YR8/2) to yellowish gray (5Y7/2) to white (N9), gravel maximum size 0.1', average size 0.05', sub-angular to angular, consisting of quartz and quartzite, sand is fine- to coarse-grained, well graded, sub-angular to sub-rounded, consisting of quartz and quartzite, fines are predominantly calcium carbonate with trace amounts of silt and clay, moist 70% gravel, 25.6% sand, 3.4% CaCO3, 0.5% silt, 0.5% clay
					5965	3				
					5964	4				2.8-4.0 ft No recovery for this interval
					5963	5				Total depth at 4.0 ft
					5962	6				
					5961	7				
					5960	8				
					5959	9				
						10				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 4.3	GROUND ELEVATION (FT) 5951.20	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH: 753519		AREA IHSS 167.1	CASING DIAMETER (IN)	GEOLOGIST BRIAN J. RUBY	63292
EAST: 2084098		LOCATOR NUMBER L11	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 11/10/92	

REMARKS: HOLE TWINNED TO GET SUFFICIENT SAMPLE
SURFACE SEALED 12/07/92

DRAFT

CHEMICAL SAMPLE OR GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5951	0			SC	0.0-0.7 ft Clayey Sand with abundant gravel, brownish black (5YR2/1), gravel maximum size 0.1', average 0.05', angular to sub-angular, consisting of granitics with iron oxide staining, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of granitics and quartz, clay exhibits moderate plasticity, dry and stiff, abundant roots. 30% gravel, 37.3% sand, 13.1% silt, 19.6% clay
	BH6014IC			0.70 /2.40	5950	1				0.7-2.4 ft No recovery for this interval.
					5949	2			CL	2.4-3.1 ft Silty clay with some sand, light gray (N7) to dark yellowish orange (10YR6/6), sand is fine-grained, sub-angular and consists of plagioclase and quartz with iron oxide staining, clay exhibits moderate plasticity, wet. 16.2% sand, 33.5% silt, 50.3% clay
	BH6015IC			0.70 /1.90	5948	3				3.1-4.3 ft No recovery for this interval.
					5947	4				Total depth at 4.3 ft
					5946	5				
					5945	6				
					5944	7				
					5943	8				
					5942	9				
						10				

STATE PLANE COORDINATE	TOTAL DEPTH (FT): 4.5	GROUND ELEVATION (FT)	5960.70	PROJECT NUMBER:	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH: 753464	AREA IHSS 167.1	CASING DIAMETER (IN)		GEOLOGIST	BRIAN J. RUBY	63392
EAST: 2083998	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN)	6.5	DATE DRILLED:	11/11/92	
REMARKS: SURFACE SEALED 12/07/92						

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
						0				0.0-0.7 ft. No recovery for this interval.
	BH6046UC			0.70 /2.00	5960	1			GW	0.7-2.0 ft. Sandy Gravel with trace silt and clay, dusky yellow brown (10YR2/2), gravel maximum size 0.15", average size 0.5", angular to sub-angular, consisting of schist and quartzite, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of schist, quartz, and quartzite with iron oxide staining, dry. 95% gravel, 3.4% sand, 0.6% silt, 1% clay
					5959	2				
	BH6047UC			2.50 /2.50	5958	3			GW	2.0-4.5 ft. Sandy Gravel with trace silt and clay, very dark red (5R2/6) to blackish red (5R2/2) to dark yellowish orange (10YR6/6), gravel maximum size 0.15", average size 0.05", sub-angular to sub-rounded, consisting of quartzite and schist, sand is fine- to coarse-grained, well graded, angular to sub-rounded consisting of quartz, schist and quartzite with iron staining, moist. 65% gravel, 30.5% sand, 1.1% silt, 3.4% clay
					5957	4				
					5956	5				Total depth at 4.5 ft.
					5955	6				
					5954	7				
					5953	8				
					5952	9				
					5951	10				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 12 0	GROUND ELEVATION (FT) 5913 90	PROJECT NUMBER OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	753646	AREA IHSS 167 1	CASING DIAMETER (IN) 2 0	GEOLOGIST BRIAN J RUBY	77192
EAST	2084381	LOCATOR NUMBER F11	BOREHOLE DIAMETER (IN) 10 0	DATE DRILLED 11/19/92	
REMARKS WELL SET 12/21/92					

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH60119UC			1 40 /2.00	5913	0			SC	0 0-1.2 ft Sandy Clay with abundant gravel, dark grayish brown (10YR4/2) to yellow brown (10YR5/4), gravel is angular to sub-angular, up to 1" diameter, quartzite feldspar and sandstone clasts, sand is well graded quartz clasts, fine- to coarse-grained with medium size primarily rounded, remainder is sub-angular-angular, fines exhibit medium plasticity
					5912	1				30% gravel 23% sand, 1 4% silt, 45 6% clay
						2				1 2-1 4 ft VOA sample obtained from this interval
										1 4-4 0 ft No recovery for this interval
				0 00 /2.00	5911	3				
					5910	4			CH	4 0-4.9 ft Clay colluvium, grayish brown (10YR5/2) with trace silt, fines are highly plastic, upper 2' is fractured and appears reworked, trace of carbonized vegitation, trace iron oxides on fractures, local caliche filling voids and on some fractures, zone at 8.9-9.5 ft looks broken up and rehealed, trace vegetation in bottom of run within broken and reworked claystone indicates colluvial origin
	BH60120UC				5909	5				4 1-5 2 ft 99% VOA sample obtained from this interval
					5908	6			CH	6 0-7 3 ft Clay colluvium as described above
					5907	7				
	BH60011UC									7 3-7 5 ft VOA sample obtained from this interval
										7 5-8 0 ft No recovery for this interval
					5906	8			CH	8 0-10 1 ft Clay colluvium as described above
					5905	9				
					5904	10				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 12.0	GROUND ELEVATION (FT) 5913.90	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	753646	AREA IHSS 167.1	CASING DIAMETER (IN) 2.0	GEOLOGIST BRIAN J. RUBY	77192
EAST	2084381	LOCATOR NUMBER F11	BOREHOLE DIAMETER (IN) 10.0	DATE DRILLED 11/19/92	
REMARKS WELL SET 12/21/92					

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5903	10				10.1-12.0 ft. No recovery for this interval. Boring reamed for well installation.
					5902	11				
					5901	12				Total depth at 12.0 ft
					5900	13				
					5899	14				
					5898	15				
					5897	16				
					5896	17				
					5895	18				
					5894	19				
						20				

DRAFT

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 4.1	GROUND ELEVATION (FT):	5930.70	PROJECT NUMBER:	006 RFI/RI
NORTH:	752800	AREA: IHSS 167.2	CASING DIAMETER (IN):		GEOLOGIST:	BRIAN J. RUBY
EAST:	2084079	LOCATOR NUMBER: K11	BOREHOLE DIAMETER (IN):	6.5	DATE DRILLED:	11/18/92

REMARKS: SURFACE SEALED 12/23/92

LOG OF BORING NUMBER

64792

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6062C			2.00 /2.00	5930	0–1			SILTY CLAYSTONE	0.0-1.0 ft. Silty Claystone with fine sand, light olive gray (5Y5/2) to yellowish gray (5Y7/2) with dark yellowish orange (10YR6/6) staining, slightly friable, consisting of fine-grained plagioclase and quartz grains, dry, with localized CaCO3 and abundant plant roots at 0.0-0.1', faint horizontal bedding. 2% sand, 18% silt, 18% clay, 80% clay. Top of bedrock at 0.0 ft.
	BH6063C			2.10 /2.10	5929–5928	1–3			CLAYEY SILTSTONE	1.0-4.7 ft. Clayey Siltstone with trace fine sand, light olive gray (5Y5/2) to yellowish gray (5Y7/2) with dark yellowish orange (10YR6/6) staining, highly friable, sand is fine-grained, sub-rounded, and consists of quartz, dry, with iron oxide staining along horizontal bedding planes. 1% sand, 68% silt, 31% clay
					5927–5921	4–10				Total depth at 4.1 ft.

DRAFT

STATE PLANE COORDINATE	TOTAL DEPTH (FT): 4.2	GROUND ELEVATION (FT): 5930.40	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH: 752795	AREA: IHSS 167.2	CASING DIAMETER (IN):	GEOLOGIST	BRIAN J. RUBY	64892
EAST: 2084181	LOCATOR NUMBER: K11	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED	11/18/92	
REMARKS: SURFACE SEALED 12/23/92					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5930	0			CL:	0.0-0.9 ft. Silty Clay with some sand, moderate brown (5YR3/4) to dark yellowish brown (10YR4/2), gravel maximum size of 0.05', average 0.025', angular to sub-angular, consisting of quartzite and quartz, sand is predominantly medium-grained with trace fine and coarse sand, poorly graded, angular to sub-angular, consisting of quartz and quartzite, clay exhibits moderate plasticity, extensive plant roots at 0.0-0.3', dry. 7% gravel, 12.2% sand, 25.7% silt, 60.1% clay
	BH6064C			1.50 /2.00	5929	1				
					5928	2			CL:	0.9-1.5 ft. Silty Clay with trace sand, pale yellowish brown (10YR6/2) to dark yellowish brown (10YR4/2), sand is predominantly medium-grained with trace amounts of fine to coarse sand, angular to sub-angular, consisting of quartz, clay exhibits moderate plasticity with a mottled texture, plant roots and leaves, localized deposits of CaCO3 and stringers of fine sand with iron oxide staining, dry. 1.4% sand, 4.9% silt, 93.7% clay
	BH6065C			0.90 /2.20	5927	3				
										1.5-2.0 ft. No recovery for this interval
					5926	4			CL:	2.0-2.2 ft. Silty Clay as described above. Top of bedrock at 2.2 ft.
					5925	5			SILTY CLAYSTONE:	2.2-2.9 ft. Silty Claystone with trace sand, light gray (N7) to white (N9) to dark yellow orange (10YR6/6), sand is fine-grained, angular and consists of quartz, clay exhibits moderate plasticity with localized CaCO3 and iron oxide staining and sparse plant roots, dry. 3.1% sand, 4.8% silt, 92.1% clay
					5924	6				2.9-4.2 ft. No recovery for this interval
					5923	7				Total depth at 4.2 ft
					5922	8				
					5921	9				
						10				

DRAFT

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 4.0	GROUND ELEVATION (FT)	5932.30	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH 752803	AREA THSS 167.2	CASING DIAMETER (IN)		GEOLOGIST	MICHAEL MAY	64992
EAST 2084281	LOCATOR NUMBER K11	BOREHOLE DIAMETER (IN)	4.0	DATE DRILLED	11/17/92	

REMARKS: SURFACE SEALED 12/18/92

DRAFT

CHEMICAL SAMPLE / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH60066C			1.00 /1.70	5932	0			GW	0.0-1.0 ft. Well graded gravel with some sand, some silt and trace clay, occurring as matrix within cobbles and gravel dark yellow brown to yellow brown (10YR3/4 - 5/4), clasts to 2.5" of quartzite and granite, sub-angular to sub-rounded, abundant roots, sand is fine- to coarse-grained sub-angular to angular grains of quartz and feldspar, fines are silt rich with medium plasticity, dry. 66% gravel, 23% sand, 10% silt, 1% clay.
					5931	1				1.0-1.7 ft. No recovery for this interval. Top of bedrock at 1.7 ft.
	BH60067C			1.00 /2.30	5930	2			SILTSTONE	1.7-2.7 ft. Siltstone with trace sand, dark yellow brown (10YR4/2) to light brownish gray (10YR6/2), poorly graded, angular silt, sand is fine- to medium-grained, rounded to sub-rounded quartz grains, local iron oxide staining on fractures and apparent clasts of reworked siltstone (light orange-greenish orange), some white caliche coating fractures in lower 0.2', moist. 1% gravel, 4% sand, 86% silt, 9% clay.
					5929	3				2.7-4.0 ft. No recovery for this interval.
					5928	4				Total depth at 4.0 ft.
					5927	5				
					5926	6				
					5925	7				
					5924	8				
					5923	9				
						10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 4.0	GROUND ELEVATION (FT)	5934.00	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	752780	AREA IHSS 167.2	CASING DIAMETER (IN)		GEOLOGIST	BRIAN J. RUBY	65092
EAST	2084133	LOCATOR NUMBER K11	BOREHOLE DIAMETER (IN)	6.5	DATE DRILLED	11/18/92	

REMARKS: SURFACE SEALED 12/23/92

DRAFT

CHEMICAL SAMPLE / GRADATIONAL SAMPLE / DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5934	0			GC	0.0-0.5 ft. Sandy gravel with some clay and trace silt, very yellowish brown (10YR4/2) to grayish orange (10YR7/4), gravel maximum size 0.15', average 0.1', angular to sub-angular, consisting of quartzite and granites, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartzite granitics and quartz with iron oxide staining, clay exhibits moderate plasticity, dry. 50% gravel, 38.8% sand, 2.2% silt, 9% clay
	BH6005BC			1.00 /2.00	5933	1				
					5932	2				0.5-1.0 ft. No recovery for this interval.
									GC	1.0-1.5 ft. Sandy gravel as described above.
										1.5-2.0 ft. No recovery for this interval.
									GC	2.0-2.6 ft. Sandy gravel as described above.
	BH6006BC			0.90 /2.00	5931	3				2.6-3.5 ft. No recovery for this interval.
									GC	3.5-3.8 ft. Sandy gravel as described above.
					5930	4				3.8-4.0 ft. No recovery for this interval.
										Total depth at 4.0 ft
					5929	5				
					5928	6				
					5927	7				
					5926	8				
					5925	9				
						10				

DRAFT

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 4.0	GROUND ELEVATION (FT) 5935.80	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER	
NORTH 752776	AREA IHSS 167.2	CASING DIAMETER (IN)	GEOLOGIST MICHAEL MAY	65192	
EAST 2084231	LOCATOR NUMBER K11	BOREHOLE DIAMETER (IN) 4.0	DATE DRILLED 11/17/92		
REMARKS SURFACE SEALED 12/18/92					

DRAFT

CHEMICAL SAMPLE / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/ INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH60070WC			1.00 /1.80	5935	0			GC:	0.0-1.0 ft. Clayey Gravel, dark yellow brown (10YR4/2) to pale yellow brown (10YR6/2), well graded, cobbles and gravel to 2.5', trace coarse sand of quartzite clasts, angular to sub-angular, fines exhibit moderate plasticity, local beds of dark yellow brown (10YR4/2) fines to 2" thick within the gravels, trace CaCO3 coatings on fractures and void filling, dry in upper 1.0', moist in lower section, weathered bedrock in cuttings at 4.0'. 50% gravel, 2% sand, 17% silt, 31% clay
					5934	1				
						2				1.0-1.8 ft. No recovery for this interval.
									GC:	1.8-2.8 ft. Clayey Gravel as described above.
	BH60071WC BH60088WC			1.00 /2.20	5933	3				2.8-4.0 ft. No recovery for this interval.
					5932	4				Total depth at 4.0 ft
					5931	5				
					5930	6				
					5929	7				
					5928	8				
					5927	9				
					5926	10				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 4 0	GROUND ELEVATION (FT)	5935 90	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	752741	AREA IHSS 167 2	CASING DIAMETER (IN)		GEOLOGIST	BRIAN J RUBY	65292
EAST	2084082	LOCATOR NUMBER L12	BOREHOLE DIAMETER (IN)	6 5	DATE DRILLED	11/16/92	
REMARKS	SURFACE SEALED 12/22/92						

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH60072WC			2 00 /2 00	5935	0			CL	0 0-0 7 ft Clay with some sand and trace gravel, brown (10YR5/3) sand is well graded, very fine-coarse, well rounded to angular, quartz and feldspar clasts, trace mafics and magnetite, fines have medium to high plasticity, trace carbonized vegetation, dry, appears reworked 4% gravel, 17% sand, 4% silt, 75% clay
					5934	1			CL	0 7-1 0 ft Clay with some sand and trace silt, dark gray-brown (10YR4 2), sand is very fine- to medium-coarse, rounded to angular, quartz with trace feldspar Top of bedrock at 1 0 ft
	BH60073WC			1 00 /2 00	5933	2			CLAYSTONE	1 0-3 0 ft Claystone with trace silt, gray to grayish brown (10YR6/2-5/2), local magnesium oxide and iron oxide on fractures, dry 5% silt, 95% clay
					5932	3				3 0-4 0 ft No recovery for this interval
					5931	4				Total depth at 4 0 ft
					5930	5				
					5929	6				
					5928	7				
					5927	8				
					5926	9				
						10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 4.0	GROUND ELEVATION (FT) 5938.60	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	752747	AREA THSS 167.2	CASING DIAMETER (IN)	GEOLOGIST BRIAN J. RUBY	65392
EAST	2084181	LOCATOR NUMBER K11	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 11/16/92	
REMARKS SURFACE SEALED 12/23/92					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH60074C			2.00 /2.00	5938	0			CL:	0.0-0.8 ft. Sandy Clay with abundant sand and some gravel to 1.25", dark yellow brown (10YR4/2); gravel is sub-rounded to sub-angular sand is medium size, angular quartz and feldspar with trace well-rounded, fine, clear, quartz grains, clay and silt highly plastic, dry. 17% gravel, 28% sand, 6% silt, 49% clay. Top of bedrock at 0.8 ft.
	BH60075C			1.60 /2.00	5937	1			CLAYSTONE:	0.8-3.6 ft. Claystone with some silt and trace fine sand, light olive brown to moderate olive gray (5Y5/6-5Y5/2), dense damp clay at 0.8-1.1' with iron oxide staining grades to a dry, fractured claystone with local iron oxide staining, white caliche on fractures and as void filling, claystone clasts with some healing at 2.7-3.6' (possible block of colluvium), highly plastic. 3% sand, 10% silt, 87% clay.
					5936	2				
					5935	3				
					5934	4				3.6-4.0 ft. No recovery for this interval.
					5933	5				Total depth at 4.0 ft.
					5932	6				
					5931	7				
					5930	8				
					5929	9				
						10				

DRAFT

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 4.0	GROUND ELEVATION (FT): 5937.70	PROJECT NUMBER: OU6 RFI/RI	LOG OF BORING NUMBER:	
NORTH: 752754	AREA: IHSS 167.2	CASING DIAMETER (IN):	GEOLOGIST: MICHAEL MAY	65492	
EAST: 2084281	LOCATOR NUMBER: K11	BOREHOLE DIAMETER (IN): 4.0	DATE DRILLED: 11/17/92		
REMARKS: SURFACE SEALED 12/18/92					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6077GC			1.00 /2.00	5937	0–1			GC:	0.0-1.0 ft. Clayey Gravel, dark brown to dark yellow brown (10YR3/3-3/6) gravel is angular to sub-rounded quartz and quartzite to 2" diameter, sand is very fine- to coarse-grained, angular to sub-rounded grains, fines have low to medium plasticity, dry, roots. 78% gravel, 13% sand, 3% silt, 6% clay. 1.0-2.0 ft. No recovery for this interval.
	BH6077AC			1.00 /2.00	5936, 5935	2–3			CL:	2.0-3.0 ft. Clay with some sand, trace of gravel and silt, gravel is sub-angular quartzite clasts, sand is sub-angular to angular quartz and quartzite clasts, clay shows medium plasticity, moist. 3% gravel, 7% sand, 5% silt, 85% clay. 3.0-4.0 ft. No recovery for this interval.
					5934, 5933, 5932, 5931, 5930, 5929, 5928	4–10				Total depth at 4.0 ft.

DRAFT

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 4.0	GROUND ELEVATION (FT): 5938.50	PROJECT NUMBER: 006 RFI/RI	LOG OF BORING NUMBER	
NORTH: 752728	AREA: IHSS 167.2	CASING DIAMETER (IN):	GEOLOGIST: BRIAN J. RUBY	65592	
EAST: 2084131	LOCATOR NUMBER: K11	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED: 11/16/92		
REMARKS: SURFACE SEALED 12/22/92					

DRAFT

CHEMICAL SAMPLE / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6007SUC			2.00 /2.00	5938	0			CL:	0.0-0.4 ft. Clay with some gravel and sand, dark yellow brown (10YR4/4), gravel is sub-angular to 0.1' diameter, sand is very fine- to fine-grained with trace coarse, grains are sub-rounded to rounded quartz with some sub-angular feldspars, fines exhibit medium to high plasticity, dry. 20% gravel, 19% sand, 6% silt, 55% clay. Top of bedrock at 0.4 ft.
	BH6007SUC			1.00 /2.00	5936	3			CLAYSTONE:	0.4-3.0 ft. Claystone, light brownish gray to pale brown (10YR6/2 - 6/3) and light yellow brown (2.5YR6/4), orange-yellow iron oxide and manganese oxide on fractures, gravel is highly fractured and appears brecciated at 2.2-3.0', breccia has abundant yellow orange iron oxide on fractures and pervading rock, fresh material is grayish brown (2.5YR5/2), damp, upper section to 2.2' is dry. 5-10% silt, 90-95% clay. 3.0-4.0 ft. No recovery for this interval.
					5935	4				
					5934	5				Total depth at 4.0 ft.
					5933	6				
					5932	7				
					5931	8				
					5930	9				
					5929	10				

DRAFT

STATE PLANE COORDINATE	TOTAL DEPTH (FT): 4.0	GROUND ELEVATION (FT): 5942.20	PROJECT NUMBER:	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH: 752727	AREA: IHSS 167.2	CASING DIAMETER (IN):	GEOLOGIST	MICHAEL MAY	65692
EAST: 2084234	LOCATOR NUMBER: K11	BOREHOLE DIAMETER (IN): 4.0	DATE DRILLED	11/18/92	
REMARKS: SURFACE SEALED 12/18/92					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5942	0			GM:	0.0-1.1 ft. Sandy Gravel with some silt and trace clay, brown (10YR3/3 - 3/4), gravel is well graded, angular to sub-angular quartzite to 2.5", some granitics also, sand is well graded, angular to round quartz and feldspar clasts, fines are rich in quartz silt with low plasticity, moist, roots in upper 0.3". 43% gravel, 43% sand, 11% silt, 3% clay
	IH6008DC			1.10 /2.00	5941	1				1.1-2.0 ft. No recovery for this interval.
					5940	2			GM:	2.0-2.1 ft. Sandy Gravel as described above. Top of bedrock at 2.1 ft.
	IH6008DC			1.20 /2.00	5939	3			CLAYSTONE:	2.1-3.2 ft. Weathered Claystone, yellow brown to gray brown (10YR5/4 - 5/2), dense clay forms sharp contact with alluvium in upper 0.3", then darker gray material with local zones of iron oxide staining on fractures and porous material, trace caliche as void filling and coating fractures, 10% porosity, moist. 5% silt, 95% clay
					5938	4				3.2-4.0 ft. No recovery for this interval. Total depth at 4.0 ft
					5937	5				
					5936	6				
					5935	7				
					5934	8				
					5933	9				
						10				

DRAFT

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 4.0	GROUND ELEVATION (FT) 5937.80	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER	
NORTH 752695	AREA THSS 167.2	CASING DIAMETER (IN)	GEOLOGIST BRIAN J. RUBY	65792	
EAST 2084082	LOCATOR NUMBER K11	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 11/16/92		
REMARKS: SURFACE SEALED 12/22/92					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6083C			1.50/2.00	5937	0–1			CLAYSTONE	0.0-0.3 ft. Weathered Claystone, grayish brown to yellow (2.5YR5/2 & 7/6 very friable, approximately 5% quartz and feldspar sand, dry. 5% silt, 95% clay. Top of bedrock at 0.0 ft. Competent bedrock at 0.3 ft.
					5936	2			CLAYSTONE	0.3-1.5 ft. Claystone with some silt, grayish brown to yellow (2.5YR5/2 & 7/6), highly fractured with caliche as void filling, light iron oxide on caliche and at bottom of run, dry. 7% silt, 93% clay.
										1.5-2.0 ft. No recovery for this interval.
	BH6083C			1.50/2.00	5935	3			CLAYSTONE	2.0-3.5 ft. Claystone with some silt, grayish brown (2.5YR5/2), dry, extensively fractured with iron oxide staining on high angle fractures, pale yellow caliche fills occasional voids. 15% silt, 85% clay.
					5934	4				3.5-4.0 ft. No recovery for this interval.
										Total depth at 4.0 ft.
					5933	5				
					5932	6				
					5931	7				
					5930	8				
					5929	9				
					5928	10				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 4.0	GROUND ELEVATION (FT) 5941.90	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	752701	AREA IHSS 167.2	CASING DIAMETER (IN)	GEOLOGIST BRIAN J. RUBY	65892
EAST	2084182	LOCATOR NUMBER 611	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED 11/16/92	

REMARKS SURFACE SEALED 12/23/92

CHEMICAL SAMPLE / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERED (0% – 100%)	RECOVERY / INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6084C BH6089C			2.00 /2.00	5941 5940	0 1 2			SILTY CLAYSTONE	0.0-1.5 ft Silty Claystone, olive yellow to light brownish gray (2.5YR 6/6-5/2), siltier zone at 0.5-1.0 ft, all is weathered with pervasive iron oxide staining, trace of fresh material, dry, fines exhibit low to medium plasticity 0% gravel, 0% sand, 40% silt, 60% clay
	BH6085C			1.00 /2.00	5939 5938	3 4			CLAYSTONE	1.5-3.1 ft Claystone with some silt, light olive brown to grayish brown (2.5YR5/6-5/2), distinct caliche coated fracture at 1.5 ft with fresher looking material below, fines have medium to high plasticity, caliche coated fractures show iron oxide halos, dry 0% gravel, 0% sand, 10% silt, 90% clay
										3.1-4.0 ft No recovery for this interval
					5937 5936 5935 5934 5933 5932	5 6 7 8 9 10				Total depth at 4.0 ft

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 4.0	GROUND ELEVATION (FT)	5944.80	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	752705	AREA: IHSS 167.2	CASING DIAMETER (IN)		GEOLOGIST	MICHAEL MAY	65992
EAST	2084282	LOCATOR NUMBER 611	BOREHOLE DIAMETER (IN)	4.0	DATE DRILLED	11/18/92	
REMARKS	SURFACE SEALED 12/18/92						

CHEMICAL SAMPLE / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH60086WC			1.00 /2.00	5944	0–1			GC	0.0-1.0 ft Clayey Gravel with some sand, trace silt, dark yellow brown (10YR3/4), gravel is sub-angular to angular to 0.14', predominantly quartzite, sand is well graded, very fine to coarse, angular to sub-angular with some well rounded clear quartz clasts, fines exhibit medium to high plasticity, some caliche coatings on clasts, abundant roots, dry 60% gravel, 13% sand, 4% silt, 23% clay
					5943	1–2				1.0-2.0 ft No recovery for this interval
						2			GC	2.0-2.3 ft Clayey Gravel as described above
	BH60087WC			0.80 /2.00	5942	2–3			CL	2.3-2.8 ft Clay with some gravel, sand and silt, dark yellow brown (10YR3/4), gravel is sub-angular quartzite to 1.5", sand is poorly graded, sub-angular to angular, fine-coarse quartz clasts, fines show medium plasticity, moist 25% gravel, 17% sand, 20% silt, 31% clay
					5941	3–4				2.8-4.0 ft No recovery for this interval
						4				Total depth at 4.0 ft
					5940	5				
					5939	6				
					5938	7				
					5937	8				
					5936	9				
					5935	10				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 4.0	GROUND ELEVATION (FT)	5960.20	PROJECT NUMBER	006 RFI/RI	LOG OF BORING NUMBER
NORTH	752482	AREA IHSS 167.3	CASING DIAMETER (IN)		GEOLOGIST	MICHAEL MAY	66092
EAST	2084470	LOCATOR NUMBER 611	BOREHOLE DIAMETER (IN)	4.0	DATE DRILLED	11/18/92	
REMARKS	SURFACE SEALED 12/16/92						

CHEMICAL SAMPLE / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6093C	0% 50% 100%	0% 100%	1.10/2.00	5960 5959	0 1			SC	0.0-1.1 ft Clayey Sand with abundant gravel, very dark brown (10YR2/2), gravel is sub-angular to 1"5", sand is well graded, very fine to coarse, with angular to sub-angular grains, and occasionally some very round grains, fines show medium plasticity, local zones of caliche throughout and gravel heavily coated below 0.5', dry 40% gravel, 35% sand, 5% silt, 20% clay 1.1-2.0 ft No recovery for this interval
	BH6094C			1.80/2.00	5958 5957	2 3			GW	2.0-3.8 ft Well graded gravel, grayish brown (10YR5/2), gravel is sub-rounded to angular, quartzite and granite clasts, coated heavily with caliche, sand is well graded, angular to sub-angular with similar lithology as the gravel, fines are rich in CaCO3 and exhibit medium plasticity, dry, note, nearly all fines taken for sample 70% gravel, 23% sand, 1% silt, 6% clay
					5956	4				3.8-4.0 ft No recovery for this interval
					5955	5				Total depth at 4.0 ft
					5954	6				
					5953	7				
					5952	8				
					5951	9				
						10				

DRAFT

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 4.0	GROUND ELEVATION (FT) 5958.90	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER	
NORTH 752455	AREA IHSS 167.3	CASING DIAMETER (IN)	GEOLOGIST LYS	66192	
EAST 2084618	LOCATOR NUMBER 611	BOREHOLE DIAMETER (IN) 4.0	DATE DRILLED 11/19/92		
REMARKS: SURFACE SEALED 12/07/92					

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH60956C			1.20 /2.00	5958	0–1			GW	0.0-1.2 ft Well graded gravel, brown (10YR4/3), to white matrix in vari-colored cobbles and gravel of quartzite and meta-sediments, maximum size greater than 2.5" shown by abundant rock broken during drive sampling, heavy caliche coating clasts at 2.0-3.1 ft, sand is well graded, very fine to very coarse grains, angular, fines exhibit low to medium plasticity. 78% gravel, 18% sand, <1% silt, 4% clay
					5957	2				1.2-2.0 ft No recovery for this interval
	BH60956C			1.10 /2.00	5956	3			GW	2.0-3.1 ft Well graded gravel as described above
										3.1-4.0 ft No recovery for this interval
					5955	4				Total depth at 4.0 ft
					5954	5				
					5953	6				
					5952	7				
					5951	8				
					5950	9				
					5949	10				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 4.0		GROUND ELEVATION (FT)	5961.20	PROJECT NUMBER	006 RFI/RI
NORTH	752409	AREA IHSS 167.3		CASING DIAMETER (IN)		GEOLOGIST	LVS
EAST	2084538	LOCATOR NUMBER	611	BOREHOLE DIAMETER (IN)	4.0	DATE DRILLED	11/19/92
REMARKS	SURFACE SEALED 12/07/92						

LOG OF BORING NUMBER

66292

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	B6009NC			1.20 /2.00	5961	0			GC	0.0-1.2 ft Clayey Gravel with some sand, pinkish gray (7.5YR7/2), caliche rich matrix within coarse gravel and cobbles to .22' diameter, gravel is rounded to angular, quartzite and granite, sand is well graded, fine- to coarse-grained, angular to sub-rounded, quartzite and feldspar clasts, fines exhibit low plasticity 70% gravel, 18% sand, 3% silt, 9% clay
					5960	1				1.2-2.0 ft. No recovery for this interval
	B6009NC			1.50 /2.00	5959	2			GC	2.0-3.5 ft Clayey Gravel as described above
					5958	3				3.5-4.0 ft. No recovery for this interval
					5957	4				Total depth at 4.0 ft
					5956	5				
					5955	6				
					5954	7				
					5953	8				
					5952	9				
						10				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 4.0	GROUND ELEVATION (FT) 5958.50	PROJECT NUMBER OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	752434	AREA IHSS 167.3	CASING DIAMETER (IN)	GEOLOGIST LVS	66392
EAST	2084671	LOCATOR NUMBER 611	BOREHOLE DIAMETER (IN) 4.0	DATE DRILLED 11/19/92	

REMARKS SURFACE SEALED 12/07/92

CHEMICAL SAMPLE / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%			0			GC	0.0-0.8 ft Sandy Gravel with some clay, dark yellow brown (10YR3/4), gravel is sub-rounded to sub-angular quartzite clasts to 0.2", sand is poorly graded, medium graded, angular to sub-angular, fines exhibit medium plasticity 58% gravel, 25% sand, 2% silt, 15% clay
	B60099C			1.40 /2.00	5958	1			GM	0.8-1.4 ft Sandy Gravel with some silt, yellow brown (10YR5/4), gravel is sub-angular, up to 0.18" diameter, sand is well graded, fine to very coarse, angular to sub-angular quartz, quartzite and feldspar, fines show medium to high plasticity 50% gravel, 39% sand, 10% silt, 1% clay
					5957	2				1.4-2.0 ft No recovery for this interval
					5956				GM	2.0-3.0 ft Sandy Gravel as described above
	B60100C			1.50 /2.00		3			SW	3.0-3.5 ft Well graded sand with abundant gravel, yellow brown (10YR5/4), gravel is sub-rounded to sub-angular quartzite and sedimentary clasts to 1.25", sand is well graded, angular to sub-angular, very fine- to coarse-grained, fines have low plasticity 35% gravel, 59% sand, 5% silt, 1% clay
					5955	4				3.5-4.0 ft No recovery for this interval
					5954	5				Total depth at 4.0 ft
					5953	6				
					5952	7				
					5951	8				
					5950	9				
					5949	10				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 4.0	GROUND ELEVATION (FT)	5963.20	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	752364	AREA IHSS 167.3	CASING DIAMETER (IN)		GEOLOGIST	LVS	66492
EAST	2084467	LOCATOR NUMBER 611	BOREHOLE DIAMETER (IN)	4.0	DATE DRILLED	11/19/92	
REMARKS	SURFACE SEALED 12/16/92						

CHEMICAL SAMPLE / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH60101WC BH60109WC			2.00 /1.40	5963	0			GM	0.0-1.1 ft Silty gravel/poorly graded gravel, very dark brown (10YR2/2) gravel average size 1-2", angular to sub-angular and broken, sand is well graded, angular and broken, fine- to coarse-grained, fines exhibit low to medium plasticity 80% gravel, 12% sand, 6% silt, 2% clay
				1.10 /0.60	5962	1				1.1-2.0 ft No recovery for this interval
	BH60102WC BH60102WCMS/MSD			1.40 /2.00	5961	2			SC	2.0-3.4 ft Well graded sand, light yellow brown (10YR6/4) to very pale brown (10YR8/3), gravel is rounded to sub-rounded, sand is very fine- to coarse-grained, angular to sub-rounded with 40% CaCO3 as cement, fines show medium plasticity, entire interval is caliche as matrix 4% gravel, 73% sand, 8% silt, 12% clay
					5960	3				3.4-4.0 ft No recovery for this interval
					5959	4				Total depth at 4.0 ft
					5958	5				
					5957	6				
					5956	7				
					5955	8				
					5954	9				
						10				

DRAFT

STATE PLANE COORDINATE	TOTAL DEPTH (FT): 4.0	GROUND ELEVATION (FT): 5961.60	PROJECT NUMBER: 006 RFI/RI	LOG OF BORING NUMBER	
NORTH: 752366	AREA: IHSS 167.3	CASING DIAMETER (IN):	GEOLOGIST: MICHAEL MAY	66592	
EAST: 2084603	LOCATOR NUMBER: K11	BOREHOLE DIAMETER (IN): 4.0	DATE DRILLED: 11/20/92		
REMARKS: SURFACE SEALED 12/16/92					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH60103WC			1.30/2.00	5961	0			GM:	0.0-1.3 ft. Sandy Gravel with some silt and trace clay and CaCO3, dusky yellow brown (10YR2/2) to white (N9), gravel maximum size is 0.15', average size 0.1', angular to sub-angular, consisting of quartzite, sand is medium- to fine-grained, poorly graded angular to sub-angular, consisting of quartz, clay exhibits low plasticity, extensive roots at 0.0-0.1', top soil, moist 65% gravel, 23.7% sand, 5.7% silt, 5.6% clay
					5960	1				1.3-2.0 ft. No recovery for this interval.
	BH60104WC			1.30/2.00	5959	2			SP:	2.0-3.3 ft. Gravelly Sand with trace silt and CaCO3, moderate yellowish brown (10YR5/4) to dark yellowish orange (10 6/6) to white (N9), gravel maximum size 0.15', average size 0.05', angular to sub-angular, consisting of quartzite and quartz, sand is fine- to coarse-grained (predominantly medium- to coarse-grained), poorly graded, angular to sub-rounded, consisting of quartz and quartzite, with localized iron oxide and manganese oxide staining, CaCO3 and carbonaceous material is present, moist. 40% gravel, 57.7% sand, 0.9% silt, 1.4% CaCO3
					5958	3				3.3-4.0 ft. No recovery for this interval
					5957	4				Total depth at 4.0 ft.
					5956	5				
					5955	6				
					5954	7				
					5953	8				
					5952	9				
						10				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 4.0	GROUND ELEVATION (FT)	5962.90	PROJECT NUMBER	006 RFI/RI	LOG OF BORING NUMBER
NORTH	752323	AREA IHSS 167.3	CASING DIAMETER (IN)		GEOLOGIST	MICHAEL MAY	66692
EAST	2084536	LOCATOR NUMBER 611	BOREHOLE DIAMETER (IN)	4.0	DATE DRILLED	11/20/92	
REMARKS	SURFACE SEALED 12/16/92						

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERED (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6010SAC			0.90/2.00	5962	0–1			GW	0.0-0.9 ft Well graded gravel, brown (10YR4/3) with very pale brown (10YR8/4) caliche blebs and clast like bodies within the fine matrix, gravel is various sizes from 0.25" to 1.25", sub-angular and broken, sand is well graded, fine- to coarse angular, with abundant caliche coating, fines are predominantly CaCO3 with a trace of clay, low plasticity, moist 81.6% gravel, 14.6% sand, 1% silt, 3% clay
					5961	2				0.9-2.0 ft No recovery for this interval
									GW	2.0-2.2 ft Well graded gravel as described above
	BH6010GAC			1.00/2.00	5960	3			SP	2.2-3.0 ft Poorly graded sand with some gravel, yellow brown to pale yellow (10YR5/8-2.5Y7/4), gravel and fines show heavy caliche coating, sand is predominantly very fine to medium, angular to sub-angular grains, fines are CaCO3 rich and show medium to high plasticity 20% gravel, 70% sand, 4% silt, 6% clay
					5959	4				3.0-4.0 ft No recovery for this interval
					5958	5				Total depth at 4.0 ft
					5957	6				
					5956	7				
					5955	8				
					5954	9				
					5953	10				

DRAFT

STATE PLANE COORDINATE	TOTAL DEPTH (FT): 4.0	GROUND ELEVATION (FT): 5961.20	PROJECT NUMBER: 006 RFI/RI	LOG OF BORING NUMBER:	
NORTH 752333	AREA IHSS 167.3	CASING DIAMETER (IN):	GEOLOGIST: MICHAEL MAY		
EAST 2084674	LOCATOR NUMBER K11	BOREHOLE DIAMETER (IN): 4.0	DATE DRILLED: 11/20/92	66792	
REMARKS: SURFACE SEALED 12/16/92					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6107AC BH6110AC			1.00 /2.00	5961 5960	0 1			GC:	0.0-1.0 ft. Sandy Gravel with trace silt, clay and CaCO3, dusky yellow brown (10YR2/2), gravel maximum size 0.2', average size 0.05', sub-angular, consisting of quartzite and quartz and granitics, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz and quartzite, with localized iron oxide staining, fines consist of silt, clay, and CaCO3 with inclusion of CaCO3 in silt and clay, clay exhibits moderate to high plasticity, top soil 0.0-0.2' extensive plant roots, moist. 70% gravel, 18.9% sand, 2.2% silt, 8.9% clay
					5959	2				1.0-2.0 ft. No recovery for this interval.
	BH6108AC			1.00 /2.00	5958	3			GW:	2.0-3.0 ft. Sandy Gravel with trace silt, clay, and CaCO3, white (N9) to gray (N5), gravel maximum size 0.1', average size 0.025', angular to sub-angular, consisting of quartz and quartzite, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, with localized iron oxide, clay exhibits very low plasticity, staining, build up of CaCO3 (caliche) around gravel, moist. 50% gravel, 47% sand, 1.5% silt, 1.6% clay
					5957	4				3.0-4.0 ft. No recovery for this interval.
					5956	5				Total depth at 4.0 ft.
					5955	6				
					5954	7				
					5953	8				
					5952	9				
						10				

DRAFT

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 12.2	GROUND ELEVATION (FT) 5943.50	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER	
NORTH 752546	AREA IHSS 167.3	CASING DIAMETER (IN) 2.0	GEOLOGIST KERRY MIYOSHI	76792	
EAST 2084618	LOCATOR NUMBER 611	BOREHOLE DIAMETER (IN) 10.0	DATE DRILLED 11/18/92		
REMARKS WELL SET 12/07/92					

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH

SAMPLE NUMBER

SAMPLE GRAIN SIZE (0% 50% 100%)

PERCENT RECOVERY (0% 100%)

RECOVERY/INTERVAL

DATUM (FT)

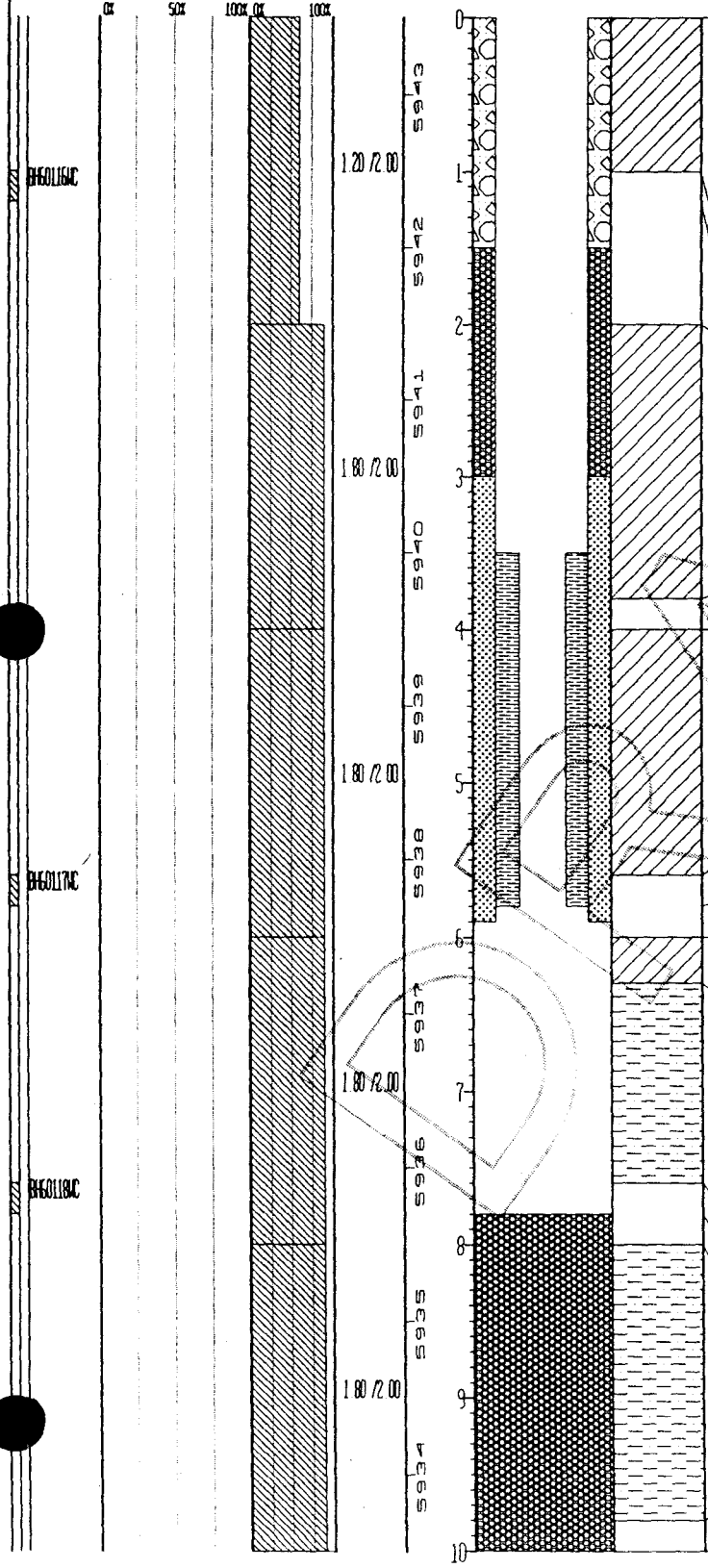
DEPTH (FT)

WELL OR PIEZOMETER CONSTRUCTION

LITHOLOGY

UNIFIED SOILS CLASSIFICATION OR ROCK TYPE

DESCRIPTION



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CL	0.0-1.2 ft Clay with abundant sand and some gravel, very dark brown (10YR2/2), scattered gravel is angular to sub-angular quartzite and granitics, sand is well graded, fine to coarse quartz grains, angular to sub-rounded, with trace round in medium at fine fraction, moist, fines exhibit medium to high plasticity 17% gravel, 32% sand, 2% silt, 50% clay
	1.0-1.2 ft VOA sample obtained from this interval
	1.2-2.0 ft No recovery for this interval
CL	2.0-3.8 ft Clay with trace gravel and silt, yellow brown (10YR5/4), gravel size to 0.2' scattered throughout, sand is well graded, fine to coarse, predominantly angular with some sub-rounded, fines have medium plasticity, moist <2% gravel, 28% sand, 3% silt, 67% clay
	3.8-4.0 ft No recovery for this interval
CL	4.0-5.6 ft Clay with some sand and silt, light yellow brown (10YR6/4) to grayish brown (10YR5/2), trace gravel (less than 1%), sand is poorly graded, very fine, angular to sub-angular quartz with some feldspar, CaCO3 coating voids and cementing sandy lens at 4.4-4.7 ft, fines show medium plasticity <1% gravel, 20% sand, 8% silt, 72% clay
	5.6-5.8 ft VOA sample obtained from this interval
	5.8-6.0 ft No recovery for this interval
CL	6.0-6.3 ft Clay as described above Top of bedrock at 6.3 ft
SANDY CLAYSTONE	6.3-7.6 ft Sandy Claystone with some silt, yellow to light gray (10YR7/8-7/1), sand is well sorted, very fine, sub-rounded to angular quartz grains, very friable, trace CaCO3 cement, primary cement is clay, 0-5% porosity, fines have low to moderate plasticity 37% sand, 11% silt, 52% clay
	7.6-7.8 ft VOA sample obtained from this interval
	7.8-8.0 ft No recovery for this interval
SANDY CLAYSTONE	8.0-9.8 ft Sandy Claystone as described above
	9.8-10.0 ft No recovery for this interval

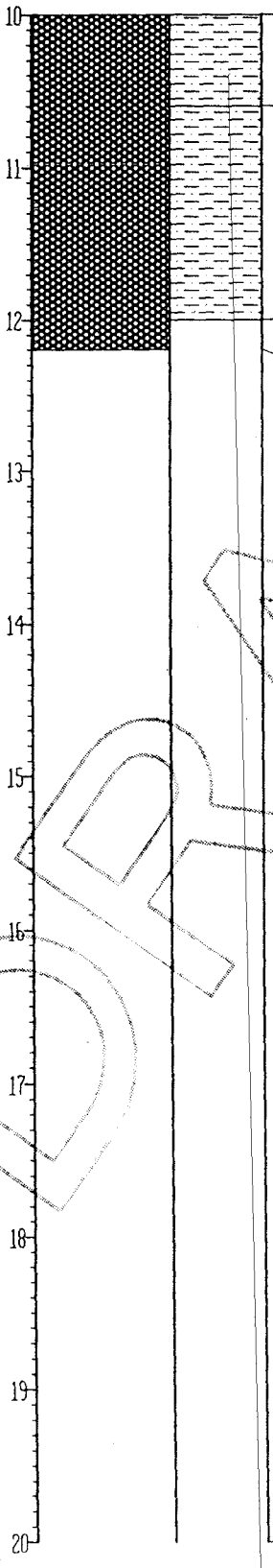
DRAFT

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 12.2	GROUND ELEVATION (FT):	5943.50	PROJECT NUMBER:	006 RFI/RI
NORTH: 752546	AREA: IHSS 167.3	CASING DIAMETER (IN):	2.0	GEOLOGIST:	KERRY MIYOSHI
EAST: 2089618	LOCATOR NUMBER: 611	BOREHOLE DIAMETER (IN):	10.0	DATE DRILLED:	11/18/92
REMARKS: WELL SET 12/07/92					

LOG OF BORING NUMBER

76792

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



SANDY CLAYSTONE: 10.0-10.6 ft Sandy Claystone as described above

SANDY CLAYSTONE: 10.6-12.0 ft
Sandy Claystone with abundant silt, white (10YR8/1), very friable, very fine, angular to sub-rounded quartz grains, less than 2% porosity, argilloceous cement, fines exhibit low plasticity
37% sand, 25% silt, 38% clay

12.0-12.2 ft No recovery for this interval

Total depth at 12.2 ft

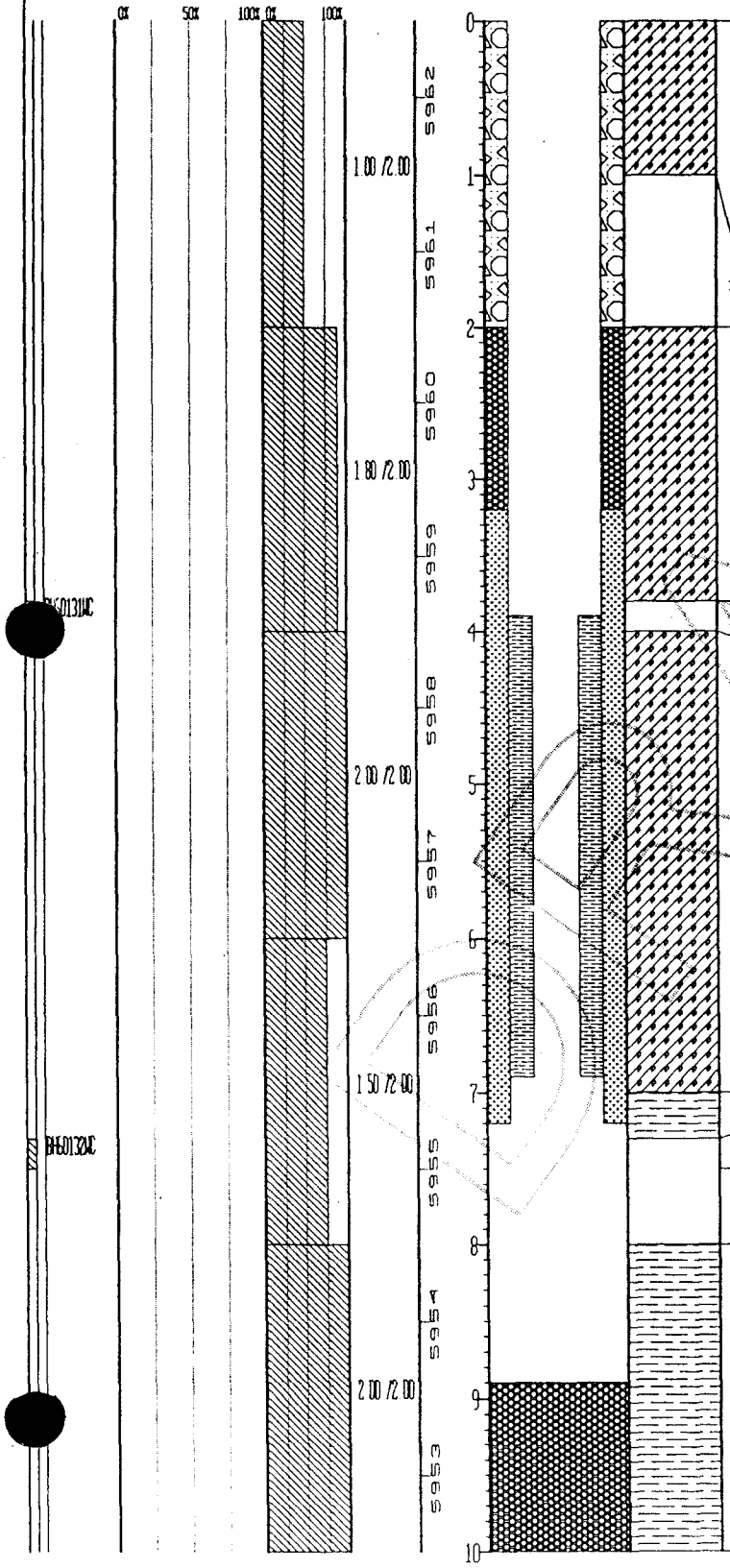
DRAFT

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 14.0	GROUND ELEVATION (FT) 5962.50	PROJECT NUMBER OU6 RFI/RI	LOG OF BORING NUMBER
NORTH 752243	AREA THSS 167.3	CASING DIAMETER (IN) 2.0	GEOLOGIST BRIAN J. RUBY	77392
EAST 2084299	LOCATOR NUMBER K11	BOREHOLE DIAMETER (IN) 10.0	DATE DRILLED 11/20/92	

REMARKS: WELL SET 12/02/92

DRAFT

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



SC: 0.0-1.0 ft.
Clayey Gravel with abundant sand, dark brown to brown (10YR3/3-4/3), gravel is sub-rounded to sub-angular and broken up to 0.21', average size .05-.1', sand is poorly graded, fine- to medium-grained with some coarse, angular to sub-rounded grains, fines show low plasticity and have abundant CaCO3 in matrix, CaCO3 also coats clasts, dry.
30% gravel, 27% sand, 9% silt, 34% clay

1.0-2.0 ft. No recovery for this interval.

SC: 2.0-3.8 ft.
Gravelly Sand with some clay and trace silt, light gray to pale yellow (2.5Y7/2-7/4), local zones of yellow brown (10YR5/4), gravel is angular quartz and quartzite, well graded with clasts to 0.2 ft., sand is well graded, fine- to coarse-grained, angular to sub-rounded, with a caliche rich matrix, fines show low to medium plasticity, dry at 2.0-6.0 ft., moist at 6.0-7.0 ft.
24% gravel, 58% sand, 5% silt, 13% clay

3.8-4.0 ft VOA sample obtained from this interval.

SC: 4.0-7.0 ft Gravelly Sand as described above.
Top of bedrock at 7.0 ft.

CLAYSTONE 7.0-7.3 ft Claystone as described below

7.3-7.5 ft VOA sample obtained from this interval

7.5-8.0 ft No recovery for this interval.

CLAYSTONE: 8.0-13.8 ft
Claystone with trace sand and silt, upper 2 ft. light yellow brown to light brownish gray (2.5Y6/4-6/2), iron oxide concretions and nodules in upper 1 ft., zones of heavy iron oxide staining throughout, grades with depth to grayish brown and light olive brown (2.5Y5/2-5/4), white CaCO3 fills voids throughout claystone, trace of manganese oxide and additional iron oxide on fractures and disseminating through rock, moist, fines exhibit medium plasticity
4% sand, 2% silt, 94% clay

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 14 0	GROUND ELEVATION (FT)	5952 50	PROJECT NUMBER	006 RI/RI
NORTH 752243	AREA IHSS 167 3	CASING DIAMETER (IN)	2 0	GEOLOGIST	BRIAN J RUBY
EAST 2084299	LOCATOR NUMBER K11	BOREHOLE DIAMETER (IN)	10 0	DATE DRILLED	11/20/92
REMARKS WELL SET 12/02/92					

LOG OF BORING NUMBER

77392

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				2.00 /2.00	5952	10				
					5951	11				
				1 80 /2 00	5950	12				
					5949	13				
										13 8-14.0 ft No recovery for this interval
						14				Total depth at 14 0 ft
					5948	15				
					5947	16				
					5946	17				
					5945	18				
					5944	19				
					5943	20				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 4.0		GROUND ELEVATION (FT):	5924.80	PROJECT NUMBER:	OU6 RFI/RI
NORTH:	751384	AREA: THSS 216.1		CASING DIAMETER (IN):		GEOLOGIST:	KERRY MIYOSHI
EAST:	2087565	LOCATOR NUMBER:	J14	BOREHOLE DIAMETER (IN):	3.0	DATE DRILLED:	12/16/92
REMARKS:	SURFACE SEALED 12/21/92						

LOG OF BORING NUMBER: 78092

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50%)	PERCENT RECOVERY (100% 0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH0450C BH0452C			1.30/2.00	5924 5923	0 1 2			ML	0.0-1.1 ft. Clayey Silt with some gravel and sand, dark brown (7.5YR3/2) gravel maximum size 0.1', average size 0.05', sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit low plasticity, extensive plant roots at 0.0-0.5 ft., caliche zone at 1.0-1.3 ft., dry. 24.6% gravel, 7.4% sand, 40.8% silt, 27.2% clay. 1.1-1.3 ft. VOA sample obtained from this interval. 1.3-2.0 ft. No recovery for this interval.
	BH0451C			1.50/2.00	5922 5921 5920 5919 5918 5917 5916 5915	3 4 5 6 7 8 9 10			ML CLAYEY SILTSTONE	2.0-3.1 ft. Sandy Silt with some clay and trace gravel, light gray (10YR7/2), white (10YR8/2), gravel maximum and average size 0.05', angular, consisting of quartzite, sand is fine-grained, well sorted, angular to rounded, consisting of quartz and quartzite, fines exhibit moderate plasticity, plant roots and trace gravel and medium sand suggest reworked bedrock, stringer of CaCO3 at 3.1-3.5 ft., dry. 1% gravel, 27.3% sand, 60.8% silt, 10.9% clay. Top of bedrock at 3.1 ft. 3.1-3.5 ft. Clayey Siltstone with some sand, light gray (10YR7/3), white (10YR8/2), sand is fine-grained, well sorted, angular to rounded, consisting of quartz and quartzite, fines exhibit moderate plasticity, stringers of CaCO3 and caliche present, less than 10% porosity, argillaceous cementation, moderately friable, dry. 0% gravel, 15% sand, 61.2% silt, 23.8% clay. 3.5-4.0 ft. No recovery for this interval. Total depth at 4.0 ft.

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 4.0	GROUND ELEVATION (FT): 5919.90	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH: 751238	AREA: IHSS 216.1	CASING DIAMETER (IN):	GEOLOGIST	KERRY MIYOSHI	78192
EAST: 2087768	LOCATOR NUMBER: J14	BOREHOLE DIAMETER (IN): 6.5	DATE DRILLED	12/18/92	
REMARKS: SURFACE SEALED 12/21/92					

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH60500WC			1.60 /2.00	5919	0–1			CL:	0.0-1.0 ft. Gravelly Clay with some sand and silt, dark brown (7.5YR3/2) gravel maximum size 0.1', average size 0.02', angular to sub-angular, consisting of quartz, quartzite, and schist, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz, quartzite, and schist, fines exhibit moderate plasticity, plant roots at 0.0-1.0 ft iron oxide staining on some grains, caliche present, dry. 25.4% gravel, 15.6% sand, 14.8% silt, 44.2% clay
	BH60502WC				5918	1–2				1.0-1.4 ft. No recovery for this interval.
										1.4-1.6 ft. VOA sample obtained from this interval.
										1.6-2.0 ft. No recovery for this interval.
	BH60501WC			1.60 /2.00	5917	2–3			CL:	2.0-3.6 ft. Silty Clay with some gravel and sand, light gray (10YR7/2), white (10YR8/2), gravel maximum size 0.2', average size 0.1' angular to sub-angular, consisting of quartz, quartzite, and schist, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz, quartzite, and schist, fines exhibit low plasticity, CaCO3 present, dry. 22.7% gravel, 15.3% sand, 24.8% silt, 37.2% clay
					5916	3–4				3.6-4.0 ft. No recovery for this interval
										Total depth at 4.0 ft
					5915	4–5				
					5914	5–6				
					5913	6–7				
					5912	7–8				
					5911	8–9				
					5910	9–10				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 4.0	GROUND ELEVATION (FT) 5917.60	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	751444	AREA IHSS 216.1	CASING DIAMETER (IN)	GEOLOGIST KERRY MIYOSHI	78292
EAST	2087756	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN) 3.0	DATE DRILLED 12/16/92	

REMARKS:

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5917	0			CL	0.0-1.2 ft. Gravelly Clay with some sand and silt, dark brown (7.5YR3/2) gravel maximum size 0.4', average size 0.025', angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate plasticity, plant roots at 0.0-1.6 ft., dry. 19.4% gravel, 13.2% sand, 13.5% silt, 53.9% clay
	BH6055C			1.60 /2.00	5916	1				1.2-1.4 ft. VOA sample obtained from this interval.
	BH6056C									1.4-1.6 ft. VOA sample obtained from this interval.
	BH6057C					2				1.6-2.0 ft. No recovery for this interval.
					5915				CL	2.0-3.4 ft. Silty Clay with some sand and trace gravel, light gray (10YR7/2), white (10YR8/2), gravel maximum and average size 0.025', angular, consisting of quartzite, sand is medium- to fine-grained, poorly graded, angular to sub-angular, consisting of quartz and quartzite, fines exhibit moderate plasticity, $CaCO_3$ present in voids, caliche at 3.1 ft., dry. 1.5% gravel, 11.5% sand, 21.8% silt, 65.2% clay
	BH6058C			1.40 /2.00	5914	3				3.4-4.0 ft. No recovery for this interval
					5913	4				Total depth at 4.0 ft.
					5912	5				
					5911	6				
					5910	7				
					5909	8				
					5908	9				
						10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 4.0	GROUND ELEVATION (FT) 5923.20	PROJECT NUMBER 006 RFI/RI	LOG OF BORING NUMBER
NORTH	751187	AREA IHSS 216.1	CASING DIAMETER (IN)	GEOLOGIST KERRY MIYOSHI	78392
EAST	2087573	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN) 3.0	DATE DRILLED 12/17/92	

REMARKS: SURFACE SEALED 12/21/92

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6054C			1.60 /2.00	5923	0			CL	0.0-0.7 ft. Silty Clay with some sand and trace gravel, very dark brown (10YR2/2), gravel maximum and average size 0.025', sub-rounded, consisting of quartzite, sand is fine-grained, well sorted, with trace amounts of medium and coarse sand, sub-angular to sub-rounded, consisting of quartzite and quartz, fines exhibit moderate plasticity, abundant plant roots at 0.0-0.7 ft., dry. 1.2% gravel, 12.4% sand, 34.6% silt, 51.8% clay
	BH6055C				5922	1			CL	0.7-1.4 ft. Silty Clay as described below.
					5921	2				1.4-1.6 ft. VOA sample obtained from this interval.
										1.6-2.0 ft. No recovery for this interval.
	BH6056C			1.50 /2.00	5920	3			CL	2.0-3.5 ft. Silty Clay with trace sand, light brownish gray (10YR6/2), pale brown (10YR6/3), white (10YR8/1), very pale brown (10YR7/4), yellow (10YR7/8), sand fine-grained, well sorted, sub-rounded, consisting of quartz, fines exhibit moderate plasticity, plant roots 0.7-1.6 ft. and 2.0-3.0 ft., clay clasts (appearance of reworked bedrock), 45 degree fracture at 3.2 ft. healed with CaCO3, extensive iron oxide staining at 3.0-3.5 ft., dry. 0% gravel, 2.1% sand, 9.8% silt, 88.1% clay
					5919	4				3.5-4.0 ft. No recovery for this interval.
					5918	5				Total depth at 4.0 ft.
					5917	6				
					5916	7				
					5915	8				
					5914	9				
						10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 4.0	GROUND ELEVATION (FT)	5912.30	PROJECT NUMBER	OU6 RFI/RI	LOG OF BORING NUMBER
NORTH	751472	AREA IHSS 216.2	CASING DIAMETER (IN)		GEOLOGIST	KERRY MIYOSHI	78492
EAST	2087970	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN)	3.0	DATE DRILLED	12/17/92	
REMARKS	SURFACE SEALED 12/21/92						

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH6046OC BH6046ZC BH6046JC			1.60 /2.00	5912 5911	0 1			GC	0.0-1.4 ft. Clayey Gravel with some sand, trace silt, dark brown (10YR3/3), light brownish gray (10YR6/2), gravel maximum size 0.2', average size 0.025', angular to sub-angular, consisting of quartzite, sand is fine- to coarse-grained well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit low to moderate plasticity, abundant plant roots at 0.0-1.0 ft., caliche at 2.2 ft., dry 35.7% gravel, 16.0% sand, 4.8% silt, 43.5% clay
										1.4-1.6 ft. VOA sample obtained from this interval.
					5910	2				1.6-2.0 ft. No recovery for this interval.
									GC	2.0-2.2 ft. Clayey Gravel as described above.
	BH6046UC			1.50 /2.00	5909	3			CL	2.2-3.5 ft. Silty Clay with some sand, trace gravel, white (10YR8/1), light gray (10YR7/1), gravel maximum size 0.1', average size 0.025', angular to sub-angular, consisting of quartz, sand is fine- to coarse-grained, well graded, sub-angular to sub-rounded, consisting of quartz, fines exhibit moderate plasticity, plant roots present with sand and gravel suggest reworked bedrock, caliche zone at 2.2-4.0 ft., local iron oxide staining, dry 1.1% gravel, 8.9% sand, 9.0% silt, 81.0% clay
					5908	4				3.5-4.0 ft. No recovery for this interval.
					5907	5				Total depth at 4.0 ft.
					5906	6				
					5905	7				
					5904	8				
					5903	9				
						10				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 4.0	GROUND ELEVATION (FT) 5911.30	PROJECT NUMBER	006 RFI/RI	LOG OF BORING NUMBER	
NORTH	751287	AREA IHSS 216.1	CASING DIAMETER (IN)	GEOLOGIST	KERRY MIYOSHI	78592	
EAST	2087963	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN) 6.5	DATE DRILLED	12/18/92		
REMARKS	SURFACE SEALED 12/21/92						

DRAFT

CHEMICAL SAMPLE DEPTH / GRADATIONAL DEPTH / SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
BH6050WC BH6050WCMS/MSD BH6050WC			1.60 /2.00	5911 5910	0 1			SC	0.0-1.2 ft. Gravelly Sand with abundant clay and trace silt, dark reddish brown (5YR3/2), red (2.5YR4/8), gravel maximum size 0.15', average 0.1', angular to sub-rounded, consisting of quartzite, sand is fine- to coarse-grained, well graded, angular to sub-rounded, consisting of quartz and quartzite, fines exhibit moderate plasticity, extensive plant roots at 0.0-0.3 ft., mottled texture, dry. 31.3% gravel, 34.0% sand, 3.5% silt, >31.4% clay
									1.2-1.4 ft. VOA sample obtained from this interval.
					2				1.4-1.6 ft. VOA sample obtained from this interval.
				5909					1.6-2.0 ft. No recovery for this interval.
BH6050WC			1.10 /2.00					SC	2.0-3.1 ft. Gravelly Sand as described above.
				5908	3				3.1-4.0 ft. No recovery for this interval.
				5907	4				Total depth at 4.0 ft.
				5906	5				
				5905	6				
				5904	7				
				5903	8				
				5902	9				
					10				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 90 13	GROUND ELEVATION (FT)	5956 20	PROJECT NUMBER	WARP	LOG OF BORING NUMBER
NORTH	749554	AREA OU 2	CASING DIAMETER (IN)	6/2	GEOLOGIST	DC/JAW	46692
EAST	2087077	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN)	10/6	DATE DRILLED	06/29/92	

REMARKS FIRST 60 FEET ADVANCED WITH A CME 75 DRILL RIG FROM 60-92 FEET ADVANCED WITH A DRILLING SYSTEMS AP1000 PERCUSSION HAMMER DRILL RIG ADDITIONAL CENTRALIZERS AT 15', 30' AND 50'

CHEMICAL SAMPLE / GRADATIONAL SAMPLE	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/ INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5956	0				NO SAMPLE Interval not sampled. Begin rotary core drilling at 60 3'
					5955	1				
					5954	2				
					5953	3				
					5952	4				
					5951	5				
					5950	6				
					5949	7				
					5948	8				
					5947	9				
						10				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 90 13	GROUND ELEVATION (FT) 5956 20	PROJECT NUMBER WARP	LOG OF BORING NUMBER
NORTH	749554	AREA OU 2	CASING DIAMETER (IN) 6/2	GEOLOGIST DC/JAW	46692
EAST	2087077	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN) 10/6	DATE DRILLED 06/29/92	

REMARKS FIRST 60 FEET ADVANCED WITH A CME 75 DRILL RIG FROM 60-92 FEET ADVANCED WITH A DRILLING SYSTEMS AP1000 PERCUSSION HAMMER DRILL RIG ADDITIONAL CENTRALIZERS AT 15', 30' AND 50'

CHEMICAL SAMPLE / GRADATIONAL SAMPLE	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5946	10				
					5945	11				
					5944	12				
					5943	13				
					5942	14				
					5941	15				
					5940	16				
					5939	17				
					5938	18				
					5937	19				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 90 13	GROUND ELEVATION (FT) 5956 20	PROJECT NUMBER WARP	LOG OF BORING NUMBER
NORTH	749554	AREA OU 2	CASING DIAMETER (IN) 6/2	GEOLOGIST DC/JAW	46692
EAST	2087077	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN) 10/6	DATE DRILLED 06/29/92	

REMARKS: FIRST 60 FEET ADVANCED WITH A CME 75 DRILL RIG FROM 60-92 FEET ADVANCED WITH A DRILLING SYSTEMS AP1000 PERCUSSION HAMMER DRILL RIG ADDITIONAL CENTRALIZERS AT 15', 30' AND 50'

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/ INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5936	20				
					5935	21				
					5934	22				
					5933	23				
					5932	24				
					5931	25				
					5930	26				
					5929	27				
					5928	28				
					5927	29				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 90 13	GROUND ELEVATION (FT) 5956 20	PROJECT NUMBER WARP	LOG OF BORING NUMBER
NORTH	749554	AREA OU 2	CASING DIAMETER (IN) 6/2	GEOLOGIST DC/JAW	46692
EAST	2087077	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN) 10/6	DATE DRILLED 06/29/92	

REMARKS FIRST 60 FEET ADVANCED WITH A CME 75 DRILL RIG FROM 60-92 FEET ADVANCED WITH A DRILLING SYSTEMS AP1000 PERCUSSION HAMMER DRILL RIG ADDITIONAL CONTRALIZERS AT 15', 30' AND 50'

CHEMICAL SAMP.	GRADATIONAL SAMP.	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					0 90 /63 70	5926	30				
						5925	31				
						5924	32				
						5923	33				
						5922	34				
						5921	35				
						5920	36				
						5919	37				
						5918	38				
						5917	39				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 90 13	GROUND ELEVATION (FT)	5956 20	PROJECT NUMBER	WARP	LOG OF BORING NUMBER
NORTH	749554	AREA OU 2	CASING DIAMETER (IN)	6/2	GEOLOGIST	DC/JAW	46692
EAST	2087077	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN)	10/6	DATE DRILLED	06/29/92	

REMARKS FIRST 60 FEET ADVANCED WITH A CME 75 DRILL RIG FROM 60-92 FEET ADVANCED WITH A DRILLING SYSTEMS AP1000 PERCUSSION HAMMER DRILL RIG ADDITIONAL CENTRALIZERS AT 15', 30' AND 50'

SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/ INTERVAL (0% – 100%)	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				5916	40				
				5915	41	07/24/92			
				5914	42				
				5913	43				
				5912	44				
				5911	45				
				5910	46				
				5909	47				
				5908	48				
				5907	49				
					50				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 90.13	GROUND ELEVATION (FT)	5956.20	PROJECT NUMBER	WARP	LOG OF BORING NUMBER
NORTH	749554	AREA OU 2	CASING DIAMETER (IN)	6/2	GEOLOGIST	DC/JAW	46692
EAST	2087077	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN)	10/6	DATE DRILLED	06/29/92	

REMARKS FIRST 60 FEET ADVANCED WITH A CME 75 DRILL RIG FROM 60-92 FEET ADVANCED WITH A DRILLING SYSTEMS AP1000 PERCUSSION HAMMER DRILL RIG ADDITIONAL CENTRALIZERS AT 15', 30' AND 50'

DEPTH (FT)	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5906	50				
					5905	51				
					5904	52				
					5903	53				
					5902	54				
					5901	55				
					5900	56				
					5899	57				
					5898	58				
					5897	59				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 90 13	GROUND ELEVATION (FT)	5956 20	PROJECT NUMBER	WAPP	LOG OF BORING NUMBER
NORTH	749554	AREA OU 2	CASING DIAMETER (IN)	6/2	GEOLOGIST	DC/JAW	46692
EAST	2087077	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN)	10/6	DATE DRILLED	06/29/92	

REMARKS: FIRST 60 FEET ADVANCED WITH A CME 75 DRILL RIG FROM 60-92 FEET ADVANCED WITH A DRILLING SYSTEMS AP1000 PERCUSSION HAMMER DRILL RIG ADDITIONAL CENTRALIZERS AT 15', 30' AND 50'

DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5896	60			NO SAMPLE	Core Loss; No Retrieval
					5895	61				
					5894	62				
					5893	63				
					5892	64			CLAYSTONE	Claystone with trace silt. Olive gray (5Y 4/1) grading to olive black (5Y 2/1). Core consists of slightly damp, friable to mod. friable, mod. indurated claystone, slightly more indurated near bottom of interval. Trace to moderate carbonaceous material imparts olive black cast to the claystone. Several sub-vertical, unhealed fractures noted in the 64.7' to 65.2' portion of this interval. Bedding is somewhat obscured, however suggests sub-horizontal to horizontal bedding. <5% Silt >95% Clay
					5891	65				
				4.00 /5.00	5890	66				
					5889	67			NO SAMPLE	Core Loss; No Retrieval
					5888	68			CLAYSTONE	Claystone with some silt. Olive gray (5Y 4/1) grading to olive black (5Y 2/1). Core consists of slightly damp, weakly friable to mod. friable claystone. Interval 71.4' to 73.7' less friable and mod. indurated. Trace to mod. carbonaceous material v.f.g. disseminations imparting olive-black cast to rock. Several thin <2mm cabonaceous stringers noted cross-cutting apparent sub-horizontal to horizontal bedding. Several sub-vertical thin fractures (unhealed) noted in the interval 69.5' to 70.5'. Claystone has greater silt content near bottom of interval. [illegible] 90% Clay
					5887	69				
						70				

DRAFT

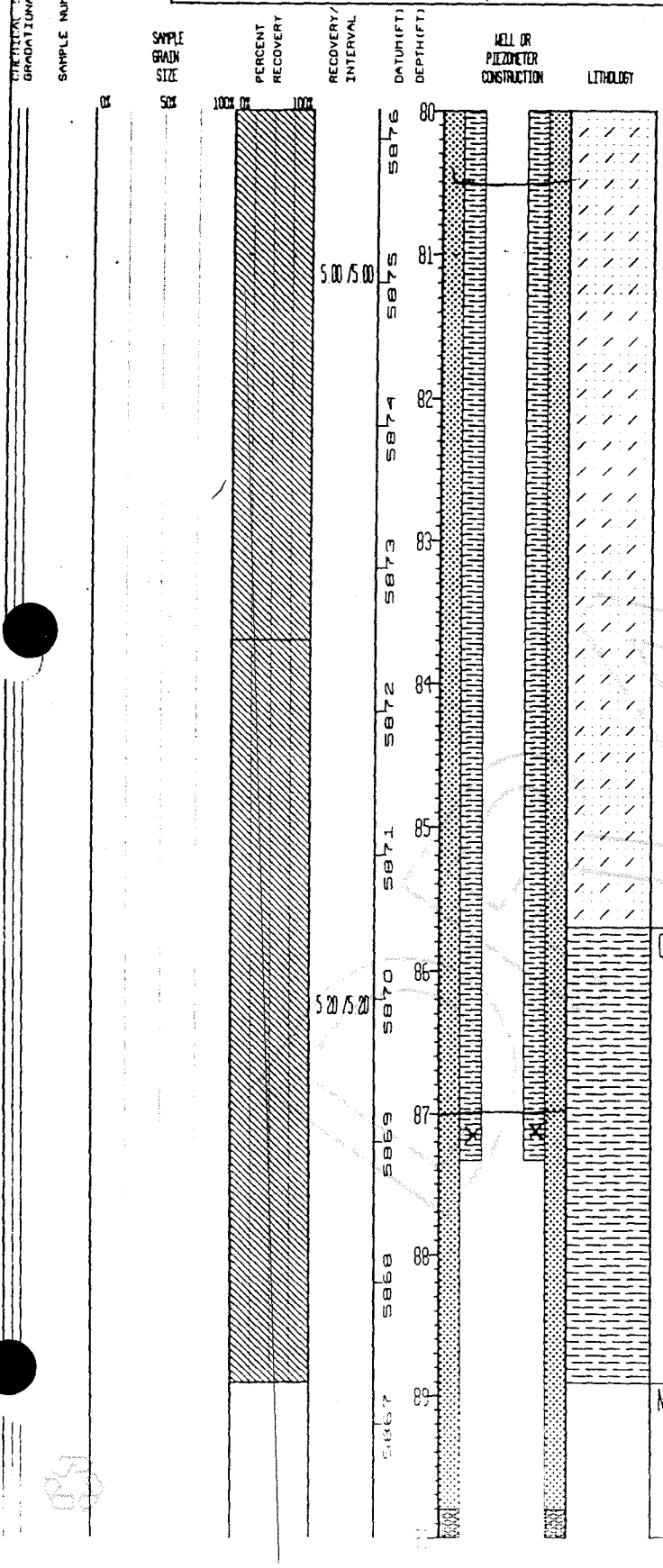
STATE PLANE COORDINATE		TOTAL DEPTH (FT) 90 13	GROUND ELEVATION (FT) 5956 20	PROJECT NUMBER WARP	LOG OF BORING NUMBER
NORTH	749554	AREA OU 2	CASING DIAMETER (IN) 6/2	GEOLOGIST DC/JAW	46692
EAST	2087077	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN) 10/6	DATE DRILLED 06/29/92	

REMARKS FIRST 60 FEET ADVANCED WITH A CME 75 DRILL RIG FROM 60-92 FEET ADVANCED WITH A DRILLING SYSTEMS AP1000 PERCUSSION HAMMER DRILL RIG ADDITIONAL CENTRALIZERS AT 15', 30' AND 50'

CRITICAL SAMPLE / GRADATIONAL SAMPLE	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50%	100% 0% 100%	5.00 /5.00	5086 5085 5084 5083	70 71 72 73				
				4.00 /5.00	5082 5081 5080 5079 5078 5077	74 75 76 77 78 79			SANDY SILTSTONE	Sandy Siltstone with some clay Olive gray(5Y4/1) grading to a mottled dark greenish gray(5GY 4/1) Core consists of dry to slightly damp intervals, dampness in thin clay rich organic intervals(1"-3") Mod well indurated, mod friable Very thin laminae of mixed lithologies grading from thin clay laminae to silt to v f g sand, sand grains v f g, sub-angular to sub-rounded with minor thin silt laminae Bedding is comprised of thin alternating silts, sands and clay laminae apparently disturbed by soft sediment deformation 25% V F G Sand 65% Silt 10% Clay
									SILTY SANDSTONE	Silty Sandstone with some clay Greenish gray(5GY 6/1) grading to a mottled dark greenish gray(5GY 4/1) V f g sand well to mod sorted, f g sand sub-rounded to sub-angular quartz grains >30% porosity Mod well cemented by silica and locally by v f g clay Mod friable, mod indurated Rock is thinly laminated to thin bedded with alternating lamallae of v f g sand and silt and very thin mixed silt and clay lamallae Bedding is predom subhorizontal to horizontal and moderately disrupted by soft sediment deformation Core is locally moist along clay and organic rich, thinly laminated intervals 60% V F G Sand 32% Silt 8% Clay

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 90 13	GROUND ELEVATION (FT)	5956 20	PROJECT NUMBER	WARP	LOG OF BORING NUMBER
NORTH	749554	AREA OU 2	CASING DIAMETER (IN)	6/2	GEOLOGIST	DC/JAW	46692
EAST	2087077	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN)	10/6	DATE DRILLED	06/29/92	

REMARKS: FIRST 60 FEET ADVANCED WITH A CME 75 DRILL RIG FROM 60-92 FEET ADVANCED WITH A DRILLING SYSTEMS AP1000 PERCUSSION HAMMER DRILL RIG. ADDITIONAL CENTRALIZERS AT 15', 30' AND 50'



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CLAYSTONE	Claystone with trace silt Olive gray(5Y 4/1) grading to olive black(5Y 2/1). Core consists of slightly damp, weakly to mod friable claystone. Mod indurated. Mod abundant disseminated organic material as irreg masses and blebs. V f g organics appear to impart dark gray cast to rock. Thin silty lens and laminae near top of interval stained by FeOxide(limonite). Several sub-vertical unhealed fractures noted in the 86 7' to 87 7' interval. <5% Silt >95% Clay
NO SAMPLE	No sample collected, overdrill boring 90 13'

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 90.13	GROUND ELEVATION (FT) 5956.20	PROJECT NUMBER WARP	LOG OF BORING NUMBER
NORTH	749554	AREA OU 2	CASING DIAMETER (IN) 6/2	GEOLOGIST DC/JAW	46692
EAST	2087077	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN) 10/6	DATE DRILLED 06/29/92	

REMARKS: FIRST 60 FEET ADVANCED WITH A CME 75 DRILL RIG FROM 60-92 FEET ADVANCED WITH A DRILLING SYSTEMS AP1000 PERCUSSION HAMMER DRILL RIG. ADDITIONAL CENTRALIZERS AT 15', 30' AND 50'

CHEMICAL SAMPLE / GRADATIONAL SAMPLE	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5956	90				
					5955	91				
					5954	92				
					5953	93				
					5952	94				
					5951	95				
					5950	96				
					5949	97				
					5948	98				
					5947	99				
						100				

TOTAL DRILLED DEPTH 90.13'

NOTE

TOTAL SAMPLED DEPTH 88.90'
BOTTOM DEPTH OF CASING 90.13'
BOTTOM DEPTH OF FILTER PACK 89.80'

DRAFT

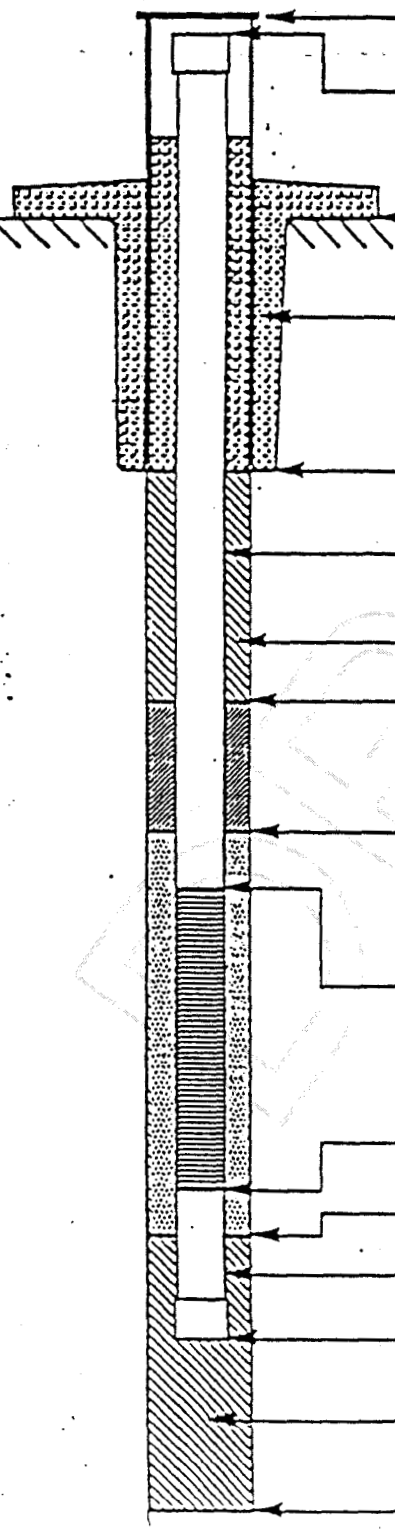
U.S. DEPARTMENT OF ENERGY ROCKY FLATS PLANT FORM GT.6A (REV. 2) 61

Groundwater Monitoring Well and Piezometer Report

PROJECT NAME WARP	WELL NO. 46692
LOCATION 46692	SCREENED INTERVAL
DATE COMPLETED 6-29-92 TOTAL HOLE DEPTH (FT) 89.8	DEPTH (FT) 72.0' to 87.0'
CHECKED BY _____ DATE _____	LITHOLOGY SANDSTONE/CLAYEY SANDSTONE

NOTE: All measurements will be from ground surface. Centralizer depths (when applicable) will also be shown.

Surface Casing Used (Check 1): ✓ Yes ____ No (If Yes, See Form GT.3A for specific information)



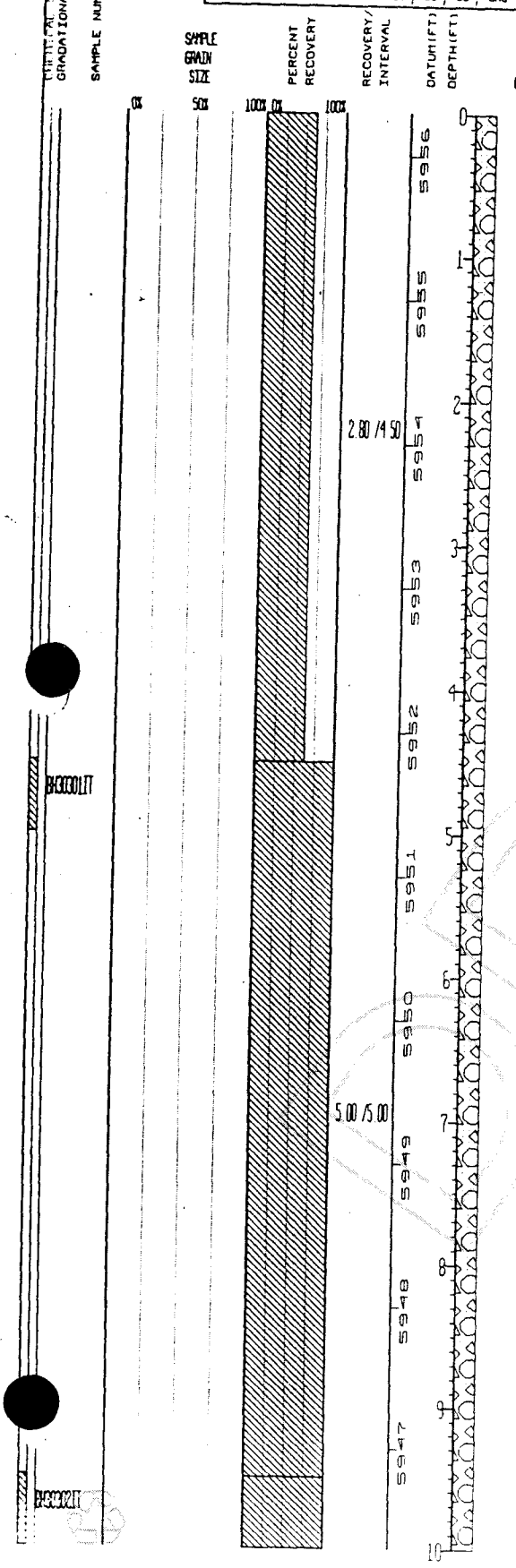
Height of top of protective casing (Ft)	2.60'
Height of top of well casing (Ft)	2.0'
Ground Elevation (Ft)	
I.D. of protective casing (In)	8"
Type of protective casing: STEEL	
Depth of protective casing (Ft)	2.4'
Depth of surface seal (Ft)	3.0'
Type of surface seal: PORTLAND CEMENT	
I.D. of well casing (In)	2"
Type of well casing: SCD40 PVC	
Type of backfill: PUREGOLD VOLCLAY GROUT	
Depth of top of seal (Ft)	66.0
Type of seal: 1/4" PUREGOLD VOLCLAY PELLETS	
Depth of top of filter pack / bottom of seal (Ft)	70.0
Type of filter pack: 16-40 CSSI SILICA SAND	
Depth of top of screened section (Ft)	72.0'
Type of screened section: SCD40 PVC	
I.D. of screened section (In)	2" ~~0.010~~ 6-29-92
Size of screen openings (In)	0.010
Depth of bottom of screened section (Ft)	87.0'
Depth of bottom of filter pack (Ft)	89.8
Length of plugged blank section - Sump (Ft)	2.8'
Depth of bottom of plugged blank section - Sump (Ft)	89.8
Type of backfill below filter pack: CLAYSTONE BEDROCK	
Diameter of hole (In)	6"
Depth of hole (Ft)	89.8

Generalized Stratigraphy and Water Level Summary (Based on Rig Geologist Notes)

Best Available Copy

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 118.8	GROUND ELEVATION (FT)	5956.30	PROJECT NUMBER	WARP	LOG OF BORING NUMBER
NORTH	749538	AREA OU 2	CASING DIAMETER (IN)	6.0/2.0	GEOLOGIST	D.E. C/E.E.M.	46792
EAST	2087080	LOCATOR NUMBER J13	BOREHOLE DIAMETER (IN)	10.0/6.0	DATE DRILLED	06/01/92	

REMARKS: Drilling Method CME 75, HSA continuous sample tube (0.0 ft to 64.5 ft) & continuous rotary core (67.0 ft to 118.8 ft). Additional centralizers at 15', 35', 55', and 75'



LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	GM	Sandy Gravel, some silt, trace clay. Very dark gray (10YR 3/1). Gravel, poorly graded, sub-rounded, dom. lithology, quartzite, fragments to 2.5 inch in size. Sand, sub-rounded to sub-angular, dom. lithology, quartz & quartzite. Moist at time of recovery. Non-calcareous. At 0.6 ft., 66% Gravel 24% Sand 9% Silt <1% Clay
	GC	Clayey Gravel, some sand & silt. Very pale brown (10YR 7/3). Gravel, poorly graded, sub-angular to sub-rounded, dom. lithology, quartzite with lesser micaceous quartzite, v.c.g. to 2.5 inch in size. Gravel throughout interval. Fractured cobble at base of interval. Sand, angular to sub-angular, dom. lithology, quartz & quartzite. Caliche, calcareous cement, very strong reaction to HCl. Moist at time of recovery. At 1.8 ft., 39% Gravel 12% Sand 14% Silt 35% Clay
	NO SAMPLE	No recovery
	SM	Gravelly Sand, some silt, trace clay. Reddish yellow (7.5YR 7/6) to brownish yellow (10YR 6/6). Sand, well graded, angular to sub-rounded, dom. lithology, quartz & quartzite with mica in f.g. fraction. Gravel, sub-angular to sub-rounded, dom. lithology, quartzite. Fractured v.c.g. to 2.5 inch gravel throughout interval. Calcareous cement throughout interval. Very strong reaction to HCl. Moist at time of recovery. At 5.5', 41% Gravel 47% Sand 7% Silt 5% Clay
	SM	Gravelly Sand, some silt, trace clay. Strong brown (7.5YR 5/6). Sand, well graded, angular to sub-rounded, pred. m.g., dom. lithology, quartz & quartzite with lesser feldspar, mica in f.g. fraction. Gravel, sub-angular to sub-rounded, dom. lithology quartzite. Calcareous cement throughout interval. Strong reaction to HCl. Moist at time of recovery. At 6.2', 41% Gravel 50% Sand 5% Silt 4% Clay
	GP	Sandy Gravel, trace silt & clay. Light yellowish brown (10YR 6/4). Gravel, poorly graded, sub-angular to sub-rounded, dom. lithology, quartzite, cobble (3 inch) to v.c.g. (2.5 inch) gravel fragments throughout interval. Sand well graded, angular to sub-rounded, dom. lithology quartz & quartzite with mica in f.g. fraction. Calcareous cement throughout interval. Strong reaction to HCl. Moist at time of recovery. At [illegible] 64% Gravel 32% Sand 3% Silt 3% Clay

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 118.8	GROUND ELEVATION (FT) 5956.30	PROJECT NUMBER WARP	LOG OF BORING NUMBER
NORTH	749538	AREA OU 2	CASING DIAMETER (IN) 6.0/2.0	GEOLOGIST D.E.C/E.E.M	46792
EAST	2087080	LOCATOR NUMBER J13	BOREHOLE DIAMETER (IN) 10.0/6.0	DATE DRILLED 06/01/92	

REMARKS: Drilling Method CME 75, HSA continuous sample tube (0.0 ft to 64.5 ft) & continuous rotary core (67.0 ft to 118.8 ft). Additional centralizers at 15', 35', 55', and 75'

CHEMICAL SAMPLE / GRADATIONAL SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
			5.00 /5.00	5946, 5945, 5944, 5943, 5942	10, 11, 12, 13, 14	07/24/92		SM	Gravelly Sand, trace silt & clay. Reddish brown (5YR 5/6) Sand, well graded, angular to sub-angular, dom. lithology, quartzite with micaceous quartzite, granite, pink feldspar & mica. Gravel throughout interval, well graded, same lithology as sand, sub-angular to sub-rounded fragments to 2.8 inches in size. Calcareous cement throughout interval. Strong reaction to HCl. Moist at time of recovery. At 10.7', 31% Gravel 61% Sand 5% Silt 3% Clay
BH30303IT				5941	15			GM	Sandy Gravel, some silt, trace clay. Mottled, light gray (10YR 7/2) to strong brown (7.5YR 5/8). Gravel, well graded, sub-rounded, fragments to one inch in size, dom. lithology, quartzite, with lesser granite. Sand, well graded, sub-round with angular fragments, dom. lithology, quartz & quartzite with pink feldspar & mica. Non-calcareous. Water encountered at 15.95' below grade. At 14.8', 44% Gravel 40% Sand 12% Silt 4% Clay
				5940	16			NO SAMPLE	No recovery, drilled with center bit
			3.00 /5.50	5939	17			SW	Gravelly Sand, trace silt & clay. Yellowish red (5YR 5/8) Sand, well graded, sub-angular to sub-rounded, dom. lithology, quartz & quartzite with mica. Gravel, well graded, sub-angular, dom. lithology, quartzite with granite, max. size 2.5 inches. Slightly calcareous, weak reaction to HCl. Wet at time of recovery. At 17.2', 45% Gravel 48% Sand >6% Silt <1% Clay
BH30304IT				5938, 5937	18, 19			NO SAMPLE	No Recovery

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 118 8	GROUND ELEVATION (FT) 5956 30	PROJECT NUMBER WARP	LOG OF BORING NUMBER
NORTH	749538	AREA OU 2	CASING DIAMETER (IN) 6 0/2 0	GEOLOGIST D E C/E E M	46792
EAST	2087080	LOCATOR NUMBER J13	BOREHOLE DIAMETER (IN) 10 0/6 0	DATE DRILLED 06/01/92	

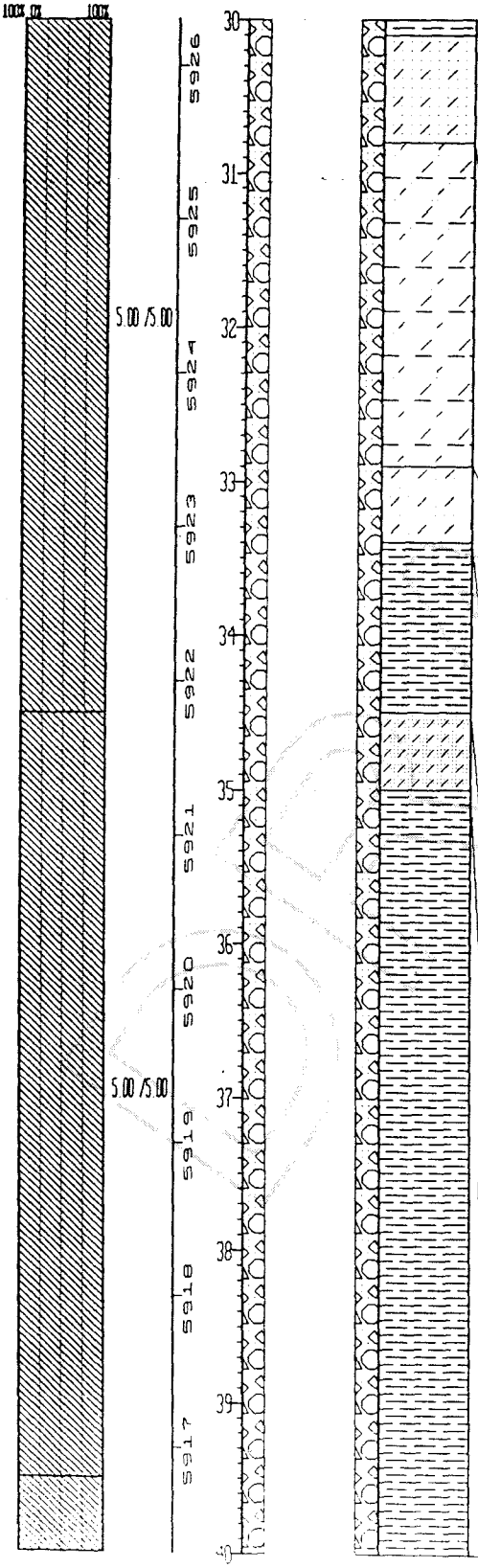
REMARKS Drilling Method CME 75, HSA continuous sample tube (0 0 ft to 64 5 ft) & continuous rotary core (67 0 ft to 118 8 ft) Additional centralizers at 15', 35', 55', and 75'.

SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	0% 50% 100%	0% 100%	2.50 /5.00	5936 5935 5934	20 21 22			SW	Gravelly Sand, trace silt & clay. Yellowish red (5YR 5/8) Sand, well graded, angular to sub-rounded, dom lithology, quartz & quartzite with granite, mica in f g sand. Gravel, well graded, rounded to angular fragments to 2 inches in size, dom lithology, quartzite & micaceous quartzite with granite. Slightly calcareous, weak reaction to HCl. Wet at time of recovery. At 21.5', 44% Gravel 49% Sand 4% Silt 3% Clay
				5933 5932	23 24			NO SAMPLE	No recovery. Bedrock encountered at 24 5', per drill rig geologists observations
			4.50 /4.50	5931 5930 5929 5928 5927	25 26 27 28 29 30			CLAYSTONE	Claystone, some silt, trace f g sand. Mottled, yellowish gray (5Y 7/2) to dark yellowish orange (10YR 6/6). Fe/Mn staining on silty seam at 26 8'. Yellowish orange Fe staining decreases towards the bottom of the interval. Minor Mn staining on fracture surfaces. Fine grained sand fraction is well rounded quartzite. Claystone is well sorted, non-porous, mod. well indurated & non-friable. No bedding structures observed. Closed sub-horizontal fractures at 20 to 30 degrees occur randomly throughout interval. Sample was moist at time of recovery. Non-calcareous. At 26.9', 5% F G Sand 14% Silt 81% Clay

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 118.8	GROUND ELEVATION (FT) 5956.30	PROJECT NUMBER WARP	LOG OF BORING NUMBER
NORTH	749538	AREA OU 2	CASING DIAMETER (IN) 6.0/2.0	GEOLOGIST D.E.C/E.E.M	46792
EAST	2087080	LOCATOR NUMBER J13	BOREHOLE DIAMETER (IN) 10.0/6.0	DATE DRILLED 06/01/92	

REMARKS: Drilling Method: CME 75, HSA continuous sample tube (0.0 ft to 64.5 ft) & continuous rotary core (67.0 ft to 118.8 ft). Additional centralizers at 15', 35', 55', and 75'

CRITICAL SAMPLE / GRADATIONAL BAR | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION



SILTY SANDSTONE Silty Sandstone, some clay. Mottled, light gray (N7) to grayish orange (10YR 7/4). Minor Mn staining on vertical fracture surfaces. Sand is sub-rounded to rounded, frosted quartz. Sandstone is well sorted with an estimated porosity of 10%, mod. to slightly friable with no apparent bedding structures. A few vertical fractures healed with clay were observed. Moist at time of recovery. Non-calcareous.
At 30.5', 45% Sand, 44% Silt, 11% Clay

CLAYEY SILTSTONE Clayey Siltstone, trace fine sand. Mottled, yellowish gray (5Y 7/2) to dark yellowish orange (10YR 6/6). Minor Mn staining on fractured surfaces. Siltstone is well sorted, non-porous, well indurated & slighty friable. No apparent bedding structures or natural fractures present. Moist at time of recovery. Non-calcareous.
At 32.0', 3% F-G Sand, 73% Silt, 24% Clay

SILTY SANDSTONE Silty Sandstone, trace clay. Mottled, yellowish gray (5Y 7/2) to dark yellowish orange (10YR 6/6). Sand is sub-rounded to rounded frosted quartz. Sandstone is well sorted with an estimated porosity of 15%, highly friable with no apparent bedding structures or fractures. Moist at time of recovery. Non-calcareous.
At 33.2', 70% F-G Sand, 28% Silt, 2% Clay

CLAYSTONE Claystone, some silt. Mottled, light gray (N7) to dark yellowish orange (10YR 6/6). Mn staining on fractured surfaces. Claystone is well sorted, well indurated & non-friable. No apparent bedding. Some randomly oriented fractures present. Moist at time of recovery. Non-calcareous.
At 34.3', 18% Silt, 82% Clay

SANDY SILTSTONE Sandy Siltstone, some clay. Mottled, light gray (N7) to dark yellowish orange (10YR 6/6). Minor Mn staining present on fractured surfaces. Siltstone is well sorted, non-porous, & mod. friable. No apparent bedding. Some randomly oriented healed fractures. Slightly moist at time of recovery. Non-calcareous.
At 34.8', 36% F-G Sand, 51% Silt, 13% Clay

CLAYSTONE Claystone, some silt. Mottled, light gray (N7) to dark yellowish orange (10YR 6/6), pred. light olive gray (5Y 5/2). Some black (N1). Mn staining present on fractured surfaces. Few small mm size Fe concretions throughout interval. Pebble size Fe concretions at 35.4' & 35.9'. Few thin mm thick sandy to silty seams between 42.5' to 44.0'. Claystone is well sorted, well indurated & non-porous. No apparent bedding structures or fractures observed. Sample was slightly moist at time of recovery. Non-calcareous.
At 37.[illegible] 28% [illegible] 60% Clay
At 40.[illegible] 15% [illegible] 85% Clay

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 118.8	GROUND ELEVATION (FT)	5956.30	PROJECT NUMBER	WARP	LOG OF BORING NUMBER
NORTH	749538	AREA OU 2	CASING DIAMETER (IN)	6.0/2.0	GEOLOGIST	D.E. C/E.E.M.	46792
EAST	2087080	LOCATOR NUMBER J13	BOREHOLE DIAMETER (IN)	10.0/6.0	DATE DRILLED	06/01/92	

REMARKS: Drilling Method: CME 75, HSA continuous sample tube (0.0 ft to 64.5 ft) & continuous rotary core (67.0 ft to 118.8 ft). Additional centralizers at 15', 35', 55', and 75'.

SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
0% 50%	100% 0% 100%	5.00/5.00	5916	40				
			5915	41				
			5914	42				
			5913	43				
			5912	44			SANDY SILTSTONE	Sandy Siltstone, some clay. Dusky yellow (5Y 6/4) to dark yellowish orange (10YR 6/6). Siltstone is well sorted, mod friable & non-porous. Pred. sub-angular to sub-rounded frosted quartz. Some mm thick silty to sandy seams occur throughout interval. No apparent bedding or fractures present. Moist at time of recovery. Non-calcareous. At 45.9', 15% F-G Sand, 70% Silt, 15% Clay
			5911	45				
			5910	46			CLAYSTONE	Claystone, some silt. Dark gray (N3) with medium light gray (N6) mm thick sandy to silty seams. Some black (N1) Mn staining on fractured surfaces & dark yellowish orange Fe staining present. Claystone is well sorted, well indurated & non-porous. No apparent bedding structures or fractures observed. Trace black carbonaceous material observed. Moist at time of recovery. Non-calcareous. At 48.5', 10% Silt, 90% Clay
		5.00/5.00	5909	47				
			5908	48			SANDY SILTSTONE	Sandy Siltstone, some clay. Dark gray (N3) with medium light gray (N6) mm to cm thick sandy to silty layers. Layers are less than one cm thick until a depth of 53.5' where they range up to one cm or more thick to the end of the interval. Siltstone is laminated, well sorted, mod. indurated, pred. sub-angular to sub-rounded frosted quartz. Sandy to silty layers are highly friable. Primary cementing medium is clay. Trace black (N1) carbonaceous material (angular lignite fragments) throughout interval. Few evaporite, possibly gypsum crystals observed. No apparent fractures. Moist at time of recovery. Non-calcareous. At 53.[illegible] 31% F-G Sand, 52% Silt, 17% Clay. At 57.5', 34% F-G Sand, 59% Silt, 7% Clay
			5907	49				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 118.8	GROUND ELEVATION (FT) 5956.30	PROJECT NUMBER WARP	LOG OF BORING NUMBER
NORTH	749538	AREA OU 2	CASING DIAMETER (IN) 6.0/2.0	GEOLOGIST D.E.C/E.E.M	46792
EAST	2087080	LOCATOR NUMBER J13	BOREHOLE DIAMETER (IN) 10.0/6.0	DATE DRILLED 06/01/92	

REMARKS Drilling Method CME 75, HSA continuous sample tube (0.0 ft to 64.5 ft) & continuous rotary core (67.0 ft to 118.8 ft). Additional centralizers at 15', 35', 55', and 75'.

SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
50%	100% 0% 100%	5.00/5.00	5906	50				
			5905	51				
			5904	52				
			5903	53				
			5902	54				
			5901	55				
			5900	56				
		5.00/5.00	5899	57				
			5898	58				
			5897	59				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 118 8		GROUND ELEVATION (FT)	5956 30	PROJECT NUMBER	WARP	LOG OF BORING NUMBER	
NORTH	749538	AREA OU 2		CASING DIAMETER (IN)	6 0/2 0	GEOLOGIST	D E C/E E M		
EAST	2087080	LOCATOR NUMBER	J13	BOREHOLE DIAMETER (IN)	10 0/6 0	DATE DRILLED	06/01/92		46792

REMARKS: Drilling Method CME 75, HSA continuous sample tube (0 0 ft to 64 5 ft) & continuous rotary core (67 0 ft to 118 8 ft) Additional centralizers at 15', 35', 55', and 75'

SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/ INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
0% 50% 100%	0% 100%		5896	60				
			5895	61				
		5 00 /5 00	5894	62				
			5893	63			CLAYEY SILTSTONE	Clayey Siltstone Olive gray (5Y 4/1) to light olive gray (5Y 6/1) Siltstone is dense & indurated, well sorted & non-porous, pred sub-angular to sub-rounded frosted quartz, mod friable Primary cementing agent clay White (N9) clay veins & black (N1) carbonaceous material present No apparent bedding or fractures present Dry on recovery Non-calcareous At 64 0', 75% Silt 25% Clay
			5892	64				
			5891	65			NO SAMPLE	Interval not sampled Begin rotary core drilling at 67 0'
		0 00 /2 50	5890	66				
			5889	67			CLAYSTONE	Claystone, trace silt Olive gray (5Y 4/1) to olive black (5Y 2/1) Claystone is very well sorted, dense & indurated, non-porous & non-friable No apparent bedding observed Thin 0 5 cm thick silty sand layer at 70 8' Interval is fractured at 68 0' & from 69 5' to 70 7' at angles approaching 30 & 60 degrees from the vertical Fractures are slickensided & coated with white calcareous material (aragonite) which reacts strongly with HCl At 67 5', 5% Silt 95% Clay
			5888	68				
			5887	69				
				70				

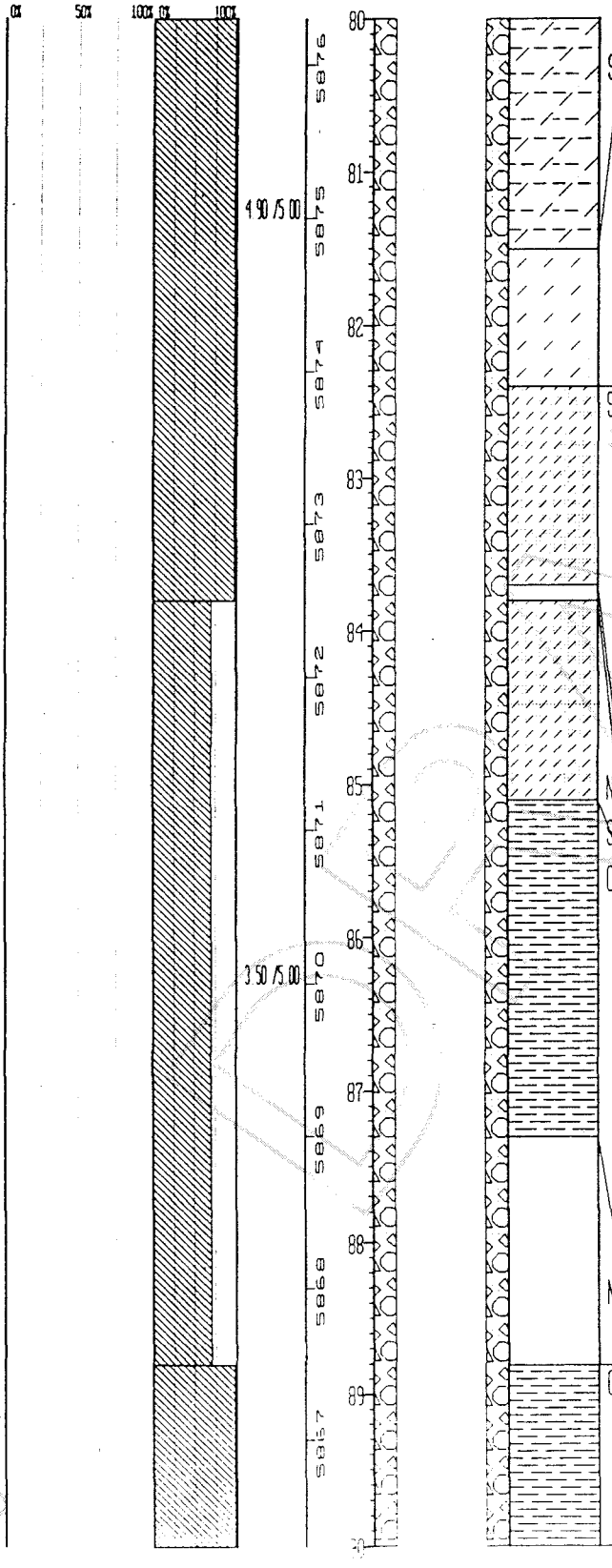
STATE PLANE COORDINATE		TOTAL DEPTH (FT) 118 8	GROUND ELEVATION (FT)	5956 30	PROJECT NUMBER	WARP	LOG OF BORING NUMBER
NORTH	749538	AREA OU 2	CASING DIAMETER (IN)	6 0/2 0	GEOLOGIST	D E C/E E M	46792
EAST	2087080	LOCATOR NUMBER J13	BOREHOLE DIAMETER (IN)	10 0/6 0	DATE DRILLED	06/01/92	

REMARKS Drilling Method CME 75, HSA continuous sample tube (0 0 ft to 64 5 ft) & continuous rotary core (67 0 ft to 118 8 ft) Additional centralizers at 15', 35', 55', and 75'

SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	0% 50% 100%	0% 100%	3 90 /6 80	5886	70				
				5885	71			NO SAMPLE	No recovery
				5884	72				
				5883	73				
				5882	74			SANDY SILTSTONE	Sandy Siltstone, trace clay Olive gray (5Y 4/1) silty layers with light olive gray (5Y 6/1) sandy layers. Siltstone is laminated, mod sorted, pred angular to sub-angular frosted quartz with calcareous cement, no observable porosity & slightly friable Black (N1) carbonaceous material (lignite) occurs as f g lithic fragments and very thin layers, usually 1 mm or less thick Bedding is horizontal to sub-horizontal at angles of 10 to 20 degrees with alternating silty and sandy layers not more than one cm thick No fractures present Fairly moist at time of recovery Very strong reaction to HCl At 76 8', 30% F G Sand 65% Silt 5% Clay
				5881	75				
			5 00 /5 00	5880	76				
				5879	77				
				5878	78			SILTY CLAYSTONE	Silty Claystone, trace clay Pred olive gray (5Y 4/1) with olive gray (5Y 5/2) silty layers Claystone is laminated, well to mod sorted, dense & indurated, non-porous & non-friable with angular to sub-angular frosted quartz grains Carbonaceous material (lignite) occurs as lithic fragments and in thin layers usually less than 1 mm thick Bedding is horizontal to sub-horizontal at angles up to 15 degrees and shows signs of post depositional deformation No fractures present Dry on recovery Non-calcareous At [illegible] 2% [illegible] sand [illegible] 69% Clay
				5877	79				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 118 8	GROUND ELEVATION (FT)	5956 30	PROJECT NUMBER	WARP	LOG OF BORING NUMBER
NORTH	749538	AREA OU 2	CASING DIAMETER (IN)	6 0/2 0	GEOLOGIST	D E C/E E M	46792
EAST	2087080	LOCATOR NUMBER J13	BOREHOLE DIAMETER (IN)	10 0/6 0	DATE DRILLED	06/01/92	

REMARKS Drilling Method CME 75. HSA continuous sample tube (0 0 ft to 64 5 ft) & continuous rotary core (67 0 ft to 118 8 ft) Additional centralizers at 15', 35', 55', and 75'



SILTY SANDSTONE Silty Sandstone, trace clay Olive gray (5Y 4/1) to light olive gray (5Y 6/1) Sandstone is laminated, mod. well sorted, pred angular to sub-angular frosted quartz with calcareous cement, an estimated porosity of 10% & mod friable Black carbonaceous material (lignite) present as lithic fragments & thin layers less than 1 mm thick Bedding is more or less horizontal with alternating sandy, silty & carbonaceous layers less than 1 cm thick No fractures present Weak reaction to HCl
At 82 3', 65% F G Sand 33% Silt 2% Clay

SANDY SILTSTONE Sandy Siltstone, some clay Olive gray (5Y 4/1) silty layers with light olive gray (5Y 6/1) sandy layers Siltstone is laminated, well to mod. sorted, with angular to sub-angular frosted quartz., non-porous & mod friable Black carbonaceous material (lignite) occurs as thin layers less than 1 mm thick & large 1 cm wide fragments at 82 9' Small 8 mm dia Fe concretion at 82 6' Bedding is horizontal to sub-horizontal at 10 to 20 degrees with alternating sandy & silty layers less than 1 cm thick & shows signs of post depositional deformation No fractures present Non-calcareous
At 83 6', 42% F G Sand 52% Silt 6% Clay

NO SAMPLE No recovery

SANDY SILTSTONE Sandy siltstone, some clay, as 82 4' to 83 7' interval

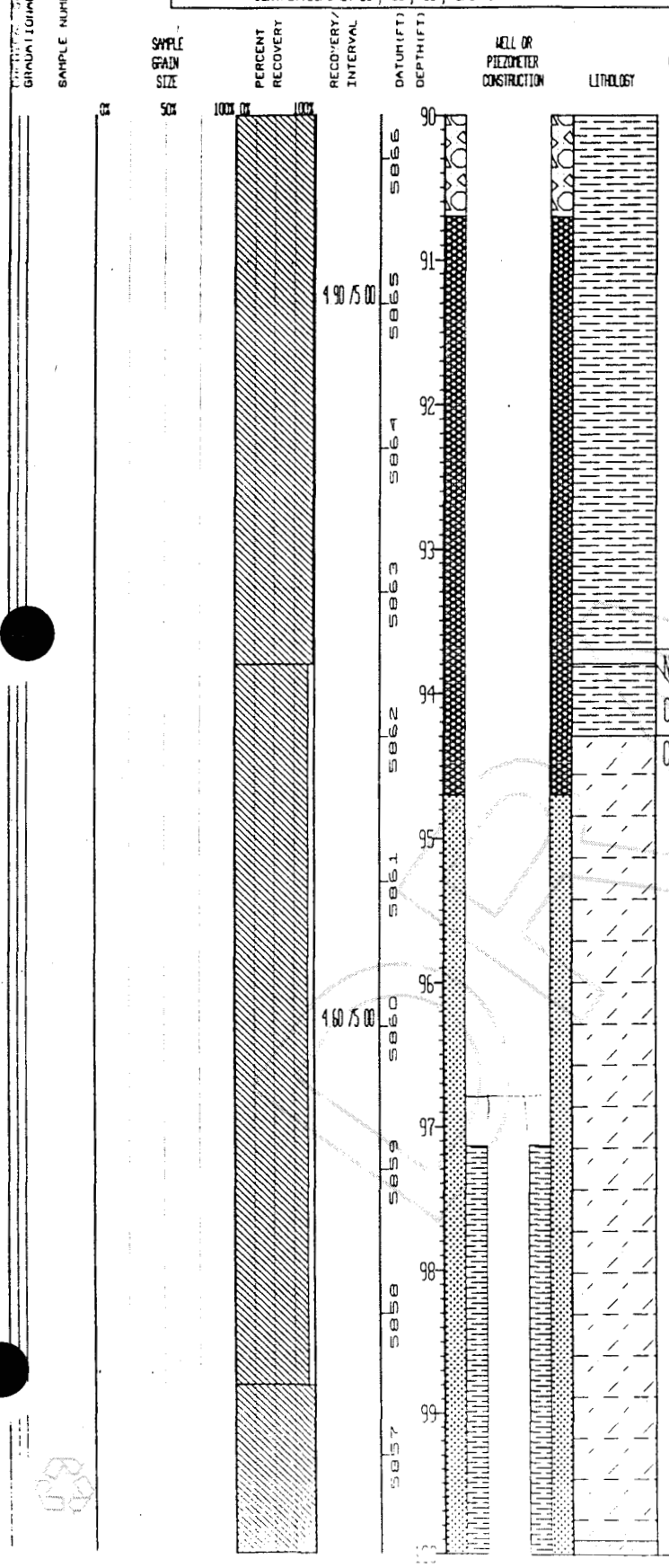
CLAYSTONE Claystone, some silt Olive gray (5Y 4/1) to light olive gray (5Y 5/2) Claystone is finely laminated becoming more massive towards base of interval, very well sorted, dense and indurated, non-porous & non-friable Carbonaceous material (lignite) occurs as lithic fragments pred less than 1 mm in size throughout interval Small Fe concretions less than 1 cm in size occur at 87 2' & from 83 8' to 84 8' Bedding is horizontal to sub-horizontal at angles up to 10 degrees Closed slickensided fractures occur from 86 ft to 87 ft at angles of 60 to 30 degrees, & from 91 2' to 92 0' at angles of 60 to 70 degrees Dry on recovery Non-calcareous
At 91 2', 16% Silt 84% Clay

NO SAMPLE No recovery

CLAYSTONE Claystone, trace sand, Same as 85 1' to 87 3' interval
At 91 2ft , 16% Silt 84% Clay

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 118 8	GROUND ELEVATION (FT)	5956 30	PROJECT NUMBER	WARP	LOG OF BORING NUMBER
NORTH	749538	AREA OU 2	CASING DIAMETER (IN)	6 0/2 0	GEOLOGIST	D E C/E E M	46792
EAST	2087080	LOCATOR NUMBER J13	BOREHOLE DIAMETER (IN)	10 0/6 0	DATE DRILLED	06/01/92	

REMARKS Drilling Method CME 75, HSA continuous sample tube (0 0 ft to 64 5 ft) & continuous rotary core (67 0 ft to 118 8 ft) Additional centralizers at 15', 35', 55', and 75'



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
NO SAMPLE	No recovery
CLAYSTONE	Claystone, some silt, Same as 85 1' to 87 3' interval
CLAYEY SILTSTONE	Clayey Siltstone, trace sand Olive gray (5Y 3/3) to light olive gray (5Y 5/2) Siltstone is laminated, mod sorted pred. angular to sub-angular frosted quartz, dense & indurated, non-porous & non-friable Carbonaceous material (lignite) occurs as lithic fragments pred less than 1 mm in size Bedding is difficult to destinguish, appears to be horizontal to sub-horizontal at angles up to 20 degrees & shows signs of post depositional deformation Slickensided fractures occur at 96 5' (45 degrees) Dry on recovery Non-calcareous At 96 4', <1% F G Sand 59% Silt 40% Clay

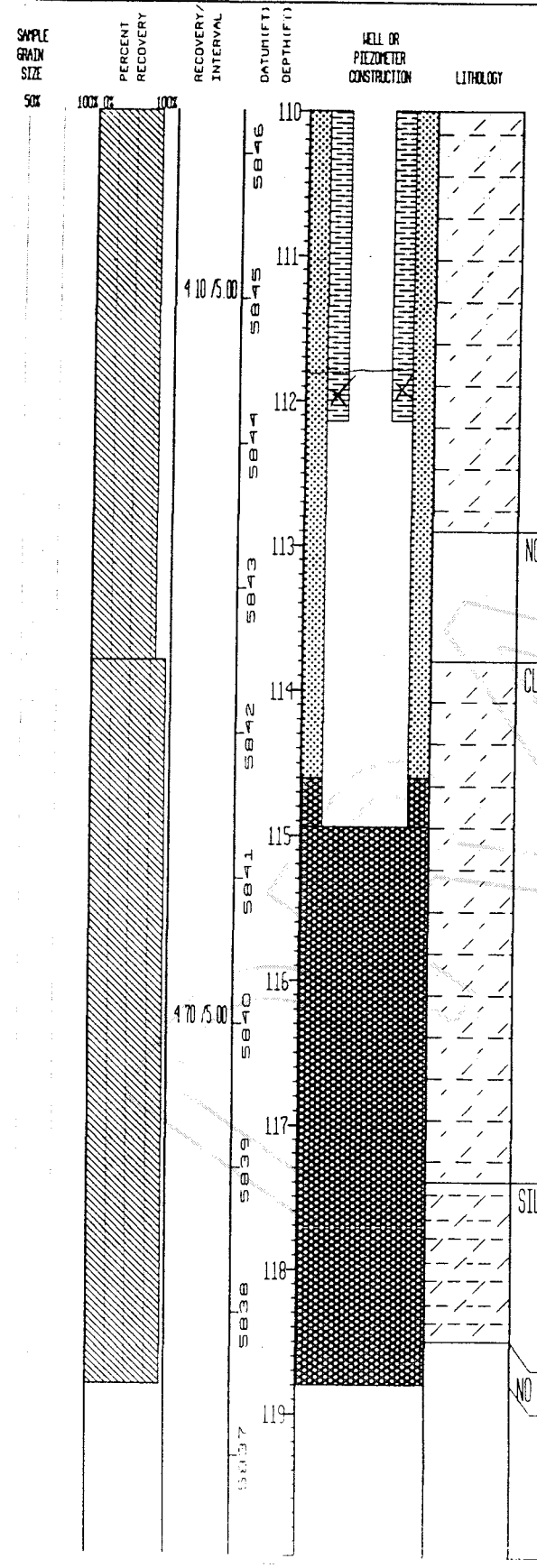
STATE PLANE COORDINATE		TOTAL DEPTH (FT) 118 8	GROUND ELEVATION (FT)	5956 30	PROJECT NUMBER	WARP	LOG OF BORING NUMBER
NORTH	749538	AREA OU 2	CASING DIAMETER (IN)	6 0/2 0	GEOLOGIST	D E C/E E M	46792
EAST	2087080	LOCATOR NUMBER J13	BOREHOLE DIAMETER (IN)	10 0/6 0	DATE DRILLED	06/01/92	

REMARKS Drilling Method CME 75, HSA continuous sample tube (0 0 ft to 64 5 ft) & continuous rotary core (67 0 ft to 118 8 ft) Additional centralizers at 15', 35', 55', and 75'

SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		5 00/5 00	5956	100			SANDY SILTSTONE	Sandy Siltstone, some clay Light olive gray (5Y 5/2) Siltstone is mod sorted angular to sub-angular, frosted quartz with argillaceous cement, an estimated porosity of 10% & mod friable Carbonaceous material (lignite) occurs as lithic fragments less than 1 mm in size throughout interval Bedding is difficult to destinguish, but appears to be horizonal No fractures present Non-calcareous At 100 3', 32% F G Sand 61% Silt 7% Clay
			5955	101				
			5954	102			SILTSTONE	Siltstone, some clay Olive gray (5Y 4/1) to light olive gray (5Y 5/2) Siltstone is finely laminated, well sorted, angular to sub-angular quartz, non-porous & non-friable Carbonaceous material (lignite) occurs as small fragments throughout interval Bedding is difficult to distinguish, appears to be massive towards top & bottom of interval with horizontal laminations towards center of interval Fractured/crushed zones with no preferred orientation occur at 102 5' to 102 9' & 103 2' to 103 7' Non-calcareous At 102 5', 82% Silt 18% Clay
			5953	103				
			5952	104			SANDY SILTSTONE	Sandy Siltstone, some clay Olive gray (5Y 3/2) to light olive gray (5Y 5/2) Siltstone is laminated, mod sorted with angular to sub-rounded frosted quartz, non-porous & mod friable Carbonaceous material (lignite) occurs as lithic fragments Bedding is more or less horizontal No fractures present Non-calcareous At 105 0', 20% Sand, 72% Silt, 8% Clay
			5951	105				
		4 10/5 00	5950	106			CLAYEY SILTSTONE	Clayey Siltstone Olive gray (5Y 3/2) to light olive gray (5Y 6/1) Siltstone is massive to laminated, dense & indurated, mod sorted, non-porous & non-friable Carbonaceous material (lignite) occurs as lithic fragments throughout interval Bedding is difficult to distinguish, however some horizontal laminations apparent at 105 3', 108 8' & 109 6' Slickensided fractures occur at 105 7' to 106 7' (30 to 60 degrees), 107 6' to 107 9' (60 degrees), 112 5' to 112 9' (70 degrees), & 115 0' to 115 8' (60 to 90 degrees) Fe stained horizontal fracture at 106 0' Slightly dry on recovery Non-calcareous At 109 4', 60% Silt 40% Clay
			5949	107				
			5948	108			NO SAMPLE	No recovery
			5947	109			CLAYEY SILTSTONE	Clayey Siltstone, Same as 105 2' to 107 9' interval At [illegible] 60% Silt 40% Clay
				110				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 118 8	GROUND ELEVATION (FT) 5956 30	PROJECT NUMBER WARP	LOG OF BORING NUMBER
NORTH	749538	AREA OU 2	CASING DIAMETER (IN) 6 0/2 0	GEOLOGIST D E C/E E M	46792
EAST	2087080	LOCATOR NUMBER J13	BOREHOLE DIAMETER (IN) 10 0/6 0	DATE DRILLED 06/01/92	

REMARKS Drilling Method CME 75, HSA continuous sample tube (0 0 ft to 64 5 ft) & continuous rotary core (67 0 ft to 118 8 ft) Additional centralizers at 15', 35', 55', and 75'



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
NO SAMPLE	No recovery
CLAYEY SILTSTONE	Clayey Siltstone Same as 105 2' to 107 9' interval At 113 8', 58% Silt 42% Clay
SILTY CLAYSTONE	Silty Claystone Olive black (5Y 2/1) Claystone is dense & indurated, well to mod sorted, non-porous & non-friable Carbonaceous material (lignite) occurs as lithic fragments throughout interval No apparent bedding or fractures observed Slightly dry on recovery Non-calcareous At 117 5', 44% Silt 56% Clay
NO SAMPLE	No recovery

Total Drilled Depth 118 80'

Note

Total Depth of casing 114 94'

Bottom of Filter Pack 114 60'

DRAFT

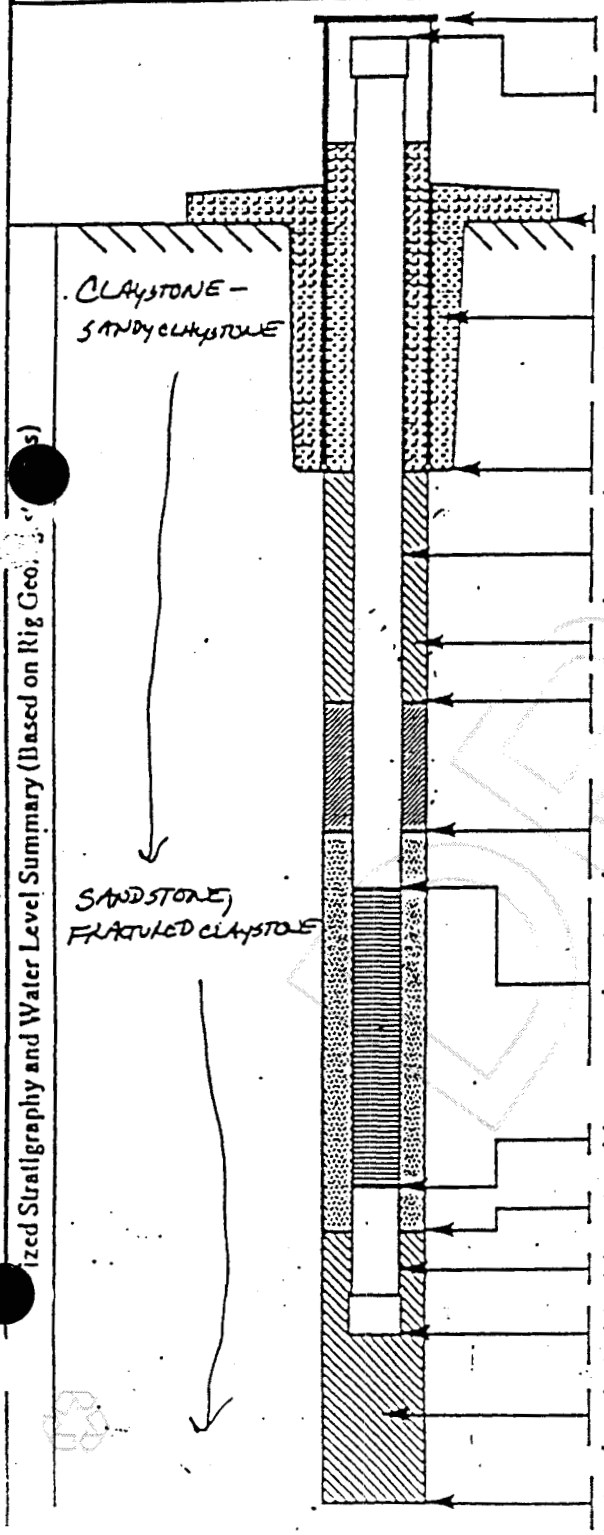
DEPARTMENT OF ENERGY ROCKY FLATS PLANT FORM GT.6A (REV. 2)

Groundwater Monitoring Well and Piezometer Report

PROJECT NAME WARP	WELL NO. 46792
LOCATION OU2	SCREENED INTERVAL
DATE COMPLETED 6-25-92 TOTAL HOLE DEPTH (FT) 118.8	DEPTH (FT) 96.8 to 111.8
CHECKED BY _____ DATE _____	LITHOLOGY SANDSTONE/ FRACTURED CLAYSTONE

NOTE: All measurements will be from ground surface. Centralizer depths (when applicable) will also be shown.

Surface Casing Used (Check 1): ____ Yes ____ No (If Yes, See Form GT.3A for specific information)



Height of top of protective casing (Ft): 2.3'

Height of top of well casing (Ft): 2.0'

Ground Elevation (Ft): _____

I.D. of protective casing (In): 6"

Type of protective casing: STEEL

Depth of protective casing (Ft): _____

Depth of surface seal (Ft): 3.0'

Type of surface seal: VOLCLAY GROUT

I.D. of well casing (In): 2"

Type of well casing: SCD. 40 PVC

Type of backfill: _____

Depth of top of seal (Ft): 90.7'

Type of seal: 1/4" VOLCLAY PUREGOLD PELLETS

Depth of top of filter pack / bottom of seal (Ft): 94.7'

Type of filter pack: 16-40 CSSI SILICA SAND

Depth of top of screened section (Ft): 96.8'

Type of screened section: PVC

I.D. of screened section (In): 2"

Size of screen openings (In): .010

Depth of bottom of screened section (Ft): 111.8

Depth of bottom of filter pack (Ft): 114.6'

Length of plugged blank section - Sump (Ft): 2.8'

Depth of bottom of plugged blank section - Sump (Ft): 114.6'

Type of backfill below filter pack: CLAYSTONE

Diameter of hole (In): 6"

Depth of hole (Ft): 118.8'

Blank to be by i

Lized Stratigraphy and Water Level Summary (Based on Rig Geo

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 165 2	GROUND ELEVATION (FT) 5956 70	PROJECT NUMBER 304929	LOG OF BORING NUMBER
NORTH	749524	AREA OU 2	CASING DIAMETER (IN) 6/2	GEOLOGIST DC/JAW	46892
EAST	2087086	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN) 10/6	DATE DRILLED 06/16/92	

REMARKS FIRST 60 FEET ADVANCED WITH A AP 1000 RC PERCUSSION HAMMER DRILL RIG, 60-165 2 FEET ADVANCED WITH A CME 75 DRILL RIG
Additional centralizers at 10', 30', 50', 70', 90', 110' and 130'

SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/ INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	0% 50% 100%	0% 100%		5956 5955 5954 5953 5952 5951 5950 5949 5948 5947	0 1 2 3 4 5 6 7 8 9 10			NO SAMPLE	Interval not sampled. Begin rotary core drilling at 67 80'

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT)	165 2	GROUND ELEVATION (FT)	5956 70	PROJECT NUMBER	304929	LOG OF BORING NUMBER
NORTH	749524	AREA	OU 2	CASING DIAMETER (IN)	6/2	GEOLOGIST	DC/JAW	46892
EAST	2087086	LOCATOR NUMBER	J14	BOREHOLE DIAMETER (IN)	10/6	DATE DRILLED	06/16/92	

REMARKS FIRST 60 FEET ADVANCED WITH A AP 1000 RC PERCUSSION HAMMER DRILL RIG, 60-165 2 FEET ADVANCED WITH A CME 75 DRILL RIG

Additional centralizers at 10', 30', 50', 70', 90', 110' and 130'

CHEMICAL SA CHARACTERIZATION	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/ INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5946	10				
					5945	11				
					5944	12				
					5943	13				
					5942	14	09/14/92			
					5941	15				
					5940	16				
					5939	17				
					5938	18				
					5937	19				
						20				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 165 2	GROUND ELEVATION (FT) 5956 70	PROJECT NUMBER 304929	LOG OF BORING NUMBER
NORTH	749524	AREA OU 2	CASING DIAMETER (IN) 6/2	GEOLOGIST DC/JAW	46892
EAST	2087086	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN) 10/6	DATE DRILLED 06/16/92	

REMARKS FIRST 60 FEET ADVANCED WITH A AP 1000 RC PERCUSSION HAMMER DRILL RIG, 60-165 2 FEET ADVANCED WITH A CME 75 DRILL RIG
Additional centralizers at 10', 30', 50', 70', 90', 110' and 130'

GRADATIONAL SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/ INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	0% 50% 100%	0% 100%		5936 5935 5934 5933 5932 5931 5930 5929 5928 5927	20 21 22 23 24 25 26 27 28 29				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 165 2	GROUND ELEVATION (FT) 5956 70	PROJECT NUMBER 304929	LOG OF BORING NUMBER
NORTH	749524	AREA OU 2	CASING DIAMETER (IN) 6/2	GEOLOGIST DC/JAW	46892
EAST	2087086	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN) 10/6	DATE DRILLED 06/16/92	

REMARKS FIRST 60 FEET ADVANCED WITH A AP 1000 RC PERCUSSION HAMMER DRILL RIG, 60-165 2 FEET ADVANCED WITH A CME 75 DRILL RIG
Additional centralizers at 10', 30', 50', 70', 90', 110' and 130'

GRADATIONAL SAMPLE	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				0 00 /66 68	5926	30				
					5925	31				
					5924	32				
					5923	33				
					5922	34				
					5921	35				
					5920	36				
					5919	37				
					5918	38				
					[illegible]	39				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 165 2	GROUND ELEVATION (FT)	5956 70	PROJECT NUMBER	304929	LOG OF BORING NUMBER
NORTH	749524	AREA OU 2	CASING DIAMETER (IN)	6/2	GEOLOGIST	DC/JAW	46892
EAST	2087086	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN)	10/6	DATE DRILLED	06/16/92	

REMARKS FIRST 60 FEET ADVANCED WITH A AP 1000 RC PERCUSSION HAMMER DRILL RIG, 60-165 2 FEET ADVANCED WITH A CME 75 DRILL RIG
Additional centralizers at 10', 30', 50', 70', 90', 110' and 130'

SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/ INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	0% 50% 100%	0% 100%		5916 5915 5914 5913 5912 5911 5910 5909 5908 5907	40 41 42 43 44 45 46 47 48 49 50				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 165 2	GROUND ELEVATION (FT)	5956 70	PROJECT NUMBER	304929	LOG OF BORING NUMBER
NORTH	749524	AREA OU 2	CASING DIAMETER (IN)	6/2	GEOLOGIST	DC/JAW	46892
EAST	2087086	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN)	10/6	DATE DRILLED	06/16/92	

REMARKS FIRST 60 FEET ADVANCED WITH A AP 1000 RC PERCUSSION HAMMER DRILL RIG, 60-165 2 FEET ADVANCED WITH A CME 75 DRILL RIG
Additional centralizers at 10', 30', 50', 70', 90', 110' and 130'

SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/ INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	0% 50% 100%	0% 100%		5906 5905 5904 5903 5902 5901 5900 5899 5898	50 51 52 53 54 55 56 57 58 59				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 165 2	GROUND ELEVATION (FT)	5956 70	PROJECT NUMBER	304929	LOG OF BORING NUMBER
NORTH	749524	AREA OU 2	CASING DIAMETER (IN)	6/2	GEOLOGIST	DC/JAW	46892
EAST	2087086	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN)	10/6	DATE DRILLED	06/16/92	

REMARKS FIRST 60 FEET ADVANCED WITH A AP 1000 RC PERCUSSION HAMMER DRILL RIG, 60-165 2 FEET ADVANCED WITH A CME 75 DRILL RIG
Additional centralizers at 10', 30', 50', 70', 90', 110' and 130'

SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				5896	60				
				5895	61				
				5894	62				
				5893	63				
				5892	64				
				5891	65				
				5890	66				
				5889	67			CLAYEY SILTSTONE	Clayey Siltstone Light olive gray(5Y 6/1) grading to olive gray(5Y 4/1) Core slightly moist, mod friable, mod indurated spotty thin wispy irregular masses of carbonaceous material No visible, apparent bedding 65% Silt 35% Clay
				5888	68			SILTY CLAYSTONE	Silty Claystone Light olive gray(5Y 6/1) grading to olive gray(5Y 4/1) Core is dry, mod friable, mod indurated, brittle fracture, moderately carbonaceous with v f g disseminated organic matter as wispy irregular masses and thin fractures filled by carbonaceous material No apparent bedding visible Several subvertical fractures 45-75 degrees with prominent slickensides with apparent dip slip motion 30% Silt 70% Clay
					69				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 165 2	GROUND ELEVATION (FT) 5956 70	PROJECT NUMBER 304929	LOG OF BORING NUMBER
NORTH	749524	AREA OU 2	CASING DIAMETER (IN) 6/2	GEOLOGIST DC/JAW	46892
EAST	2087086	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN) 10/6	DATE DRILLED 06/16/92	

REMARKS FIRST 60 FEET ADVANCED WITH A AP 1000 RC PERCUSSION HAMMER DRILL RIG, 60-165 2 FEET ADVANCED WITH A CME 75 DRILL RIG
Additional centralizers at 10', 30', 50', 70', 90', 110' and 130'

DEPTH (FT) SAMPLE GRADATIONAL SAW	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50%	100% 0% 100%	6 00 /7 14	5886	70				
					5885	71				
					5884	72				
					5883	73			NO SAMPLE	Core loss, No retrieval
					5882	74			SANDY SILTSTONE	Sandy Siltstone with some clay Mottled olive gray(5Y 4/1) grading to light olive gray(5Y 6/1) Core is dry, moderately well indurated, moderate to weakly friable Rock is mod. cemented with argillaceous cement Interval is finely laminated Alternating silt, clays, clayey silts and f g sand interbeds Sandy horizons and laminae crossbedded and soft sediment deformed Abundant carbonaceous material (lignite) as disseminated irregular stringers and fracture fillings Sand fraction is f g well sorted, sub-angular to sub-rounded, translucent white to clear quartz grains 22% Sand 57% Silt 21% Clay
					5881	75				
				5 00 /5 00	5880	76				
					5879	77				
					5878	78				
					5877	79				
						80				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 165 2	GROUND ELEVATION (FT)	5956 70	PROJECT NUMBER	304929	LOG OF BORING NUMBER
NORTH	749524	AREA OU 2	CASING DIAMETER (IN)	6/2	GEOLOGIST	DC/JAW	46892
EAST	2087086	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN)	10/6	DATE DRILLED	06/16/92	

REMARKS: FIRST 60 FEET ADVANCED WITH A AP 1000 RC PERCUSSION HAMMER DRILL RIG, 60-165 2 FEET ADVANCED WITH A CME 75 DRILL RIG
Additional centralizers at 10', 30', 50', 70', 90', 110' and 130'

DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50%	100% 0%	100%		80				
					5876	81				
				2 60 /5 00	5875				NO SAMPLE	Core loss, No Retrieval
					5874	82			SANDY SILTSTONE	Sandy Siltstone with some clay Mottled olive gray(5Y 4/1) grading to light olive gray(5Y 6/1) Core is dry, mod well indurated, moderate to weakly friable Rock is moderately cemented with argillaceous cement Interval is finely laminated, alternating silt, clays, clayey silts, and f g sandy interbeds Sandy horizons and laminae crossbedded and soft sediment deformed Abundant carbonaceous material (lignite) as disseminated irregular blebs and masses <3mm as well as thin stringers and fractures fillings Sand fraction is f g well sorted, sub-angular to sub-rounded translucent white to clear quartz grains 22% Sand 57% Silt 21% Clay
					5873	83				
				1 00 /1 00	5872	84				
					5871	85			CLAYSTONE	Claystone with trace silt Olive gray(5Y4/1) grading to dark greenish gray(5GY 4/1) Core is dry and brittle, rock is moderately indurated, friable to moderately friable Interval is thinly laminated with several thin silty pods and lens Bedding is sub-horizontal (10-20 degrees) Abundant thin irregular stringers of organic material (lignite) Patchy irregular stains and coatings of FeOxide(limonite) Porosity is nil 4% Silt 96% Clay
					5870	86				
				3 90 /4 00	5869	87			CLAYSTONE	Claystone with some silt Olive gray(5Y 4/1) grading to dark greenish gray(5GY 4/1) Core is dry and brittle, moderately to weakly friable, moderately to well indurated Bedding is somewhat obscure and mottled appearing Bedding where visible is thinly laminated and subhorizontal 10-20 degrees Consisting of alternating silt laminae with thicker claystone horizons Abundant thin irregular stringers and masses of carbonaceous material(lignite) 10% Silt 90% Clay
					5868	88				
					5867	89			NO SAMPLE	Core Loss, No Retrieval
									CLAYSTONE	Claystone with some silt Olive gray(5Y 4/1) grading to dark greenish gray(5GY 4/1) Same as 87 1' to 99 1' interval [illegible] 90% Clay

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 165 2	GROUND ELEVATION (FT)	5956 70	PROJECT NUMBER	304929	LOG OF BORING NUMBER
NORTH	749524	AREA OU 2	CASING DIAMETER (IN)	6/2	GEOLOGIST	DC/JAW	46892
EAST	2087086	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN)	10/6	DATE DRILLED	06/16/92	

REMARKS FIRST 60 FEET ADVANCED WITH A AP 1000 RC PERCUSSION HAMMER DRILL RIG, 60-165 2 FEET ADVANCED WITH A CME 75 DRILL RIG
Additional centralizers at 10', 30', 50', 70', 90', 110' and 130'

SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/ INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	0% 50% 100%	0% 100%	5.00 /5.00	5866	90				
				5865	91				
				5864	92				
				5863	93				
				5862	94				
				5861	95				
				5860	96				
				5859	97				
			9.10 /10.00	5858	98				CLAYEY SILTSTONE Clayey Siltstone with some sand Greenish gray(5GY 6/1) grading to olive gray(5Y 4/1) Core is dry, weak to mod friable, moderately well indurated, with brittle fracture No visible apparent bedding Sand fraction consist of v f g to f g quartz sand, sub-round, moderately argillic cement Abundant irregular blebs and v f g masses of organic material(lignite) Observable porosity is nil 2% Sand 46% Silt 52% Clay
					99				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 165 2	GROUND ELEVATION (FT)	5956 70	PROJECT NUMBER	304929	LOG OF BORING NUMBER
NORTH	749524	AREA OU 2	CASING DIAMETER (IN)	6/2	GEOLOGIST	DC/JAW	46892
EAST	2087086	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN)	10/6	DATE DRILLED	06/16/92	

REMARKS. FIRST 60 FEET ADVANCED WITH A AP 1000 RC PERCUSSION HAMMER DRILL RIG, 60-165 2 FEET ADVANCED WITH A CME 75 DRILL RIG
Additional centralizers at 10', 30', 50', 70', 90', 110' and 130'

SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	0% 50% 100%	0% 100%		5956	100				
				5955	101				
				5954	102			CLAYEY SILTSTONE	Clayey Siltstone with some sand Greenish gray(5GY 6/1) grading to olive gray(5Y 4/1) Interval is much the same as the above interval However, somewhat broken along 1"-2" fracture zones 25% Sand 48% Silt 27% Clay
				5953	103			NO SAMPLE	Core Loss. No Retrieval
				5952	104			CLAYEY SILTSTONE	Clayey Siltstone Much the same as 101 7'.to 102 9' interval 25% Sand 48% Silt 27% Clay
				5951	105				
				5950	106			CLAYEY SILTSTONE	Clayey Siltstone with some clay Olive gray(5Y 4/1) grading to olive black(5Y 2/1) Core is slightly moist to dry Moderately friable, moderately well indurated Mottled appearance with thin 1"-3" intervals of thinly laminated bedding comprised of alternating silts and clays Abundant carbonaceous material(lignite) as disseminated irregular blebs and masses Observable porosity is nil 75% Silt 25% Clay
				5949	107			NO SAMPLE	Core Loss. No Retrieval
			2 80 /10 00	5948	108				
				5947	109				
					110				

DRAFT

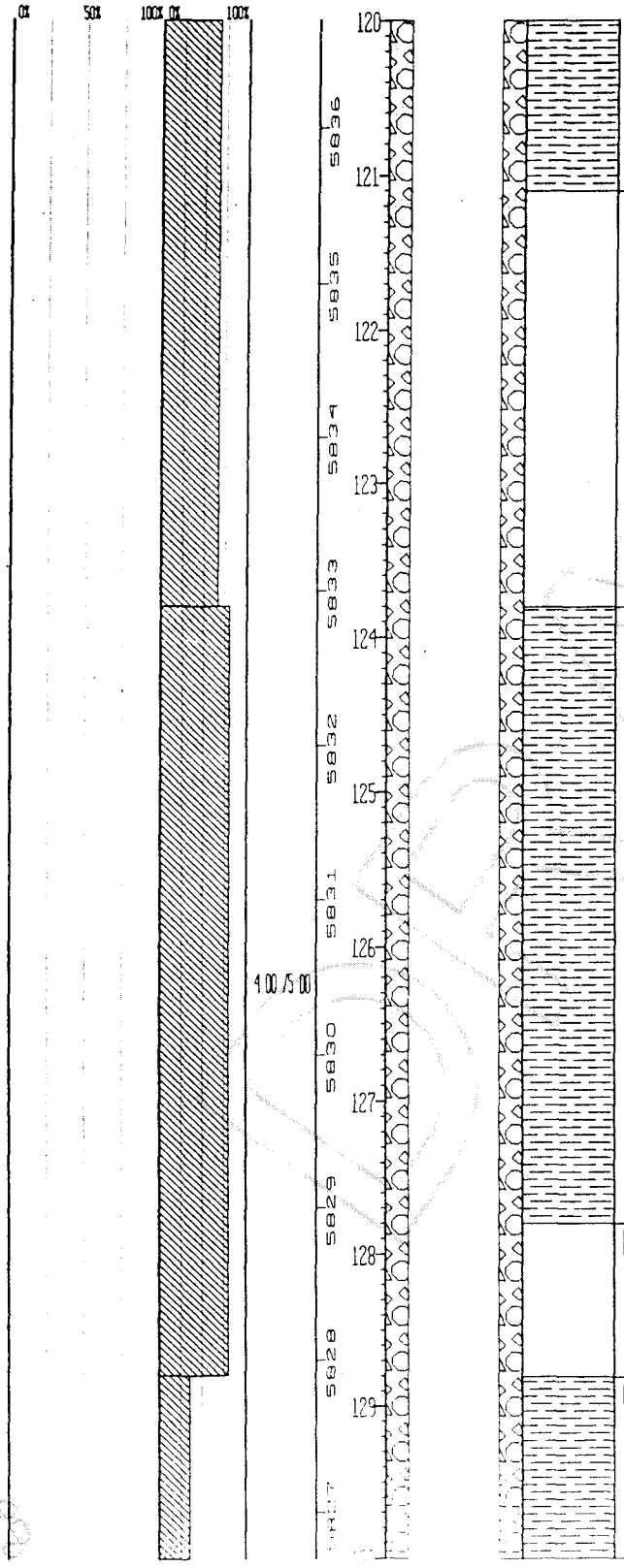
STATE PLANE COORDINATE		TOTAL DEPTH (FT) 165 2	GROUND ELEVATION (FT) 5956 70	PROJECT NUMBER 304929	LOG OF BORING NUMBER
NORTH	749524	AREA OU 2	CASING DIAMETER (IN) 6/2	GEOLOGIST DC/JAW	46892
EAST	2087086	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN) 10/6	DATE DRILLED 06/16/92	

REMARKS FIRST 60 FEET ADVANCED WITH A AP 1000 RC PERCUSSION HAMMER DRILL RIG, 60-165 2 FEET ADVANCED WITH A CME 75 DRILL RIG
Additional centralizers at 10', 30', 50', 70', 90', 110' and 130'

SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	0% 50% 100%	0% 100%		5946 5945 5944 5943 5942 5941 5940 5939 5938 5937	110 111 112 113 114 115 116 117 118 119 120				
			1 40 /1 40					CLAYSTONE	Claystone with some silt Mottled olive gray(5Y 4/1) grading to mottled olive black(5Y 2/1) Core is dry to slightly damp Interval is moderate to weakly friable, moderately indurated moderately abundant carbonaceous material(lignite) as irregular blebs, disseminated masses and thin stringers Several thin irregular silty lenses that grades to a thin bedded, thinly parted claystone No observable porosity 20% Silt 80% Clay
			5 20 /9 50					CLAYSTONE	Claystone with some silt Olive gray(5Y4/1) grading to light olive gray(5Y 6/1) Core is dry to slightly moist Bedding is obscure Core is thinly parted with a brittle fracture Rock is moderately friable, weakly to moderately indurated Abundant carbonaceous material(lignite) as thin fracture coatings and irregular stringers and as irregular blebs and f g disseminated masses Several fractured/broken zones noted 116 4'-116 7', 120 5'-121 0' 10% Silt 90% Clay

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 165 2	GROUND ELEVATION (FT) 5956 70	PROJECT NUMBER 304929	LOG OF BORING NUMBER
NORTH	749524	AREA OU 2	CASING DIAMETER (IN) 6/2	GEOLOGIST DC/JAW	46892
EAST	2087086	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN) 10/6	DATE DRILLED 06/16/92	

REMARKS FIRST 60 FEET ADVANCED WITH A AP 1000 RC PERCUSSION HAMMER DRILL RIG, 60-165 2 FEET ADVANCED WITH A CME 75 DRILL RIG
Additional centralizers at 10', 30', 50', 70', 90', 110' and 130'



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
NO SAMPLE	Core Loss, No Retrieval
CLAYSTONE	Claystone with some silt Mottled olive gray(5Y 4/1) grading to light olive gray Core is dry, moderately indurated Weakly to moderately friable, some carbonaceous material as disseminated irregular blebs and patchy coatings along very thin fractures Bedding is mostly obscured and mottled appearing with no apparent bedding planes Rock is thinly parted with a brittle fracture where not easily parted Broken/fractured zone at the following intervals 129 4'-129 9', 130'-130 6' Fractured/broken zones orientation not attainable due to broken nature of rock 12% Silt 88% Clay
NO SAMPLE	Core Loss, No Retrieval
CLAYSTONE	Claystone Same as 123 8' to 127 8' interval

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 165 2	GROUND ELEVATION (FT) 5956 70	PROJECT NUMBER 304929	LOG OF BORING NUMBER
NORTH	749524	AREA OU 2	CASING DIAMETER (IN) 6/2	GEOLOGIST DC/JAW	46892
EAST	2087086	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN) 10/6	DATE DRILLED 06/16/92	

REMARKS FIRST 60 FEET ADVANCED WITH A AP 1000 RC PERCUSSION HAMMER DRILL RIG, 60-165 2 FEET ADVANCED WITH A CME 75 DRILL RIG
Additional centralizers at 10', 30', 50', 70', 90', 110' and 130'

SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				130				
			5826	131			NO SAMPLE	Core Loss, No Retrieval
		1.80 /5.00	5825	132				
			5824	133				
			5823	134			CLAYSTONE	Claystone with some silt Olive gray(5Y4/1) grading to olive black(5Y 2/1) Core dry to slightly moist, moderately well indurated, moderately to slightly friable Mottled thin bedding with several silty lens and concretions (2mm-10mm) spotty to trace organic material, mostly as thin coatings and f g disseminated blebs Rock possesses brittle fracture with irregular thin partings A sub-rounded to sub-angular jasper clast noted in claystone at 136 6' 10% Silt 90% Clay
			5822	135				
			5821	136				
		4 10 /5 00	5820	137				
			5819	138			NO SAMPLE	Core Loss, No Retrieval
			5818	139			CLAYSTONE	Claystone Same as 133 8' to 137 9' interval

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 165 2		GROUND ELEVATION (FT)	5956 70	PROJECT NUMBER	304929	LOG OF BORING NUMBER
NORTH	749524	AREA OU 2		CASING DIAMETER (IN)	6/2	GEOLOGIST	DC/JAW	46892
EAST	2087086	LOCATOR NUMBER	J14	BOREHOLE DIAMETER (IN)	10/6	DATE DRILLED	06/16/92	

REMARKS FIRST 60 FEET ADVANCED WITH A AP 1000 RC PERCUSSION HAMMER DRILL RIG, 60-165 2 FEET ADVANCED WITH A CME 75 DRILL RIG
Additional centralizers at 10', 30', 50', 70', 90', 110' and 130'

SAMPLE NUMBER	RECOVERY/INTERVAL	DEPTH (FT)	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		140		
	3 40 /5 00	141	SILTY SANDSTONE	Silty Sandstone with trace clay Greenish gray(5GY 6/1) grading to dark greenish gray(5GY 4/1) Core is slightly moist to moist, moderately to slightly friable, moderately well indurated Moderately well cemented by calcareous cement Sand fraction moderately well sorted, sub-angular to angular grains Trace amounts of f g disseminated carbonaceous material Rock is thinly laminated 10% Silt 90% Clay
		142	NO SAMPLE	Core Loss, No Retrieval
		143		
		144	SILTY SANDSTONE	Silty Sandstone with trace clay Greenish gray(5GY 6/1) grading to dark greenish gray(5GY 4/1) Core is moist to slightly moist Moderately to slightly friable, moderately well indurated Mod well cemented with calcareous cement Sand fraction comprised of sub-angular to angular, clear to translucent quartz grains Grains mod well sorted Rock is faintly thin bedded with alternating sandy and silty laminae with some thin wispy laminae of organic material(lignite) Bedding is sub-horizontal 10-20 degrees 60% Sand 35% Silt 5% Clay
		145		
	4 30 /5 00	146	SANDY SILTSTONE	Sandy Siltstone with some clay Olive gray(5Y 4/1) grading to dark greenish gray(5Y 4/1) Core slightly moist, mod well indurated, mod to slightly friable Sand fraction comprised of angular to sub-angular, clear to translucent quartz grains Moderately cemented by argillic cement Interval has thin partings and locally brittle fracture Rock contains trace amounts of carbonaceous material as f g irregular blebs of lignite Faint wispy thinly laminated bedding mostly obscure, appears subhorizontal at 10-20 degrees 26% Sand 63% Silt 11% Clay
		147		
		148	NO SAMPLE	Core Loss, No Retrieval
		149	SANDY SILTSTONE	Sandy Siltstone, Same as 146 5' to 149 1' interval
		150		

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 165 2	GROUND ELEVATION (FT)	5956 70	PROJECT NUMBER	304929	LOG OF BORING NUMBER
NORTH	749524	AREA OU 2	CASING DIAMETER (IN)	6/2	GEOLOGIST	DC/JAW	46892
EAST	2087086	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN)	10/6	DATE DRILLED	06/16/92	

REMARKS FIRST 60 FEET ADVANCED WITH A AP 1000 RC PERCUSSION HAMMER DRILL RIG, 60-165 2 FEET ADVANCED WITH A CME 75 DRILL RIG
Additional centralizers at 10', 30', 50', 70', 90', 110' and 130'

SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					150				
			5.00 /5.00	5806	151			SANDY SILTSTONE	Sandy Siltstone with some clay Olive gray(5Y 4/1) grading to light olive gray(5Y 6/1) Core is slightly moist, mod well indurated, moderately to slightly friable Moderately well cemented by argillic cement Mottled to wavy thin bedded alternating siltstone to sandstone Rock possesses brittle fracture and variable thin to thick parting Bedding attitude is obscure, however appears subhorizontal at 10-20 degrees Sand fraction is comprised of f g sub-angular to angular moderately sorted, clear to translucent quartz grains Trace amount of carbonaceous material as disseminated f g angular fragments and grains and thin stringers disseminated throughout interval 32% Sand 58% Silt 10% Clay
				5805	152				
				5804	153				
				5803	154				
				5802	155				
			4.50 /5.00	5801	156			SILTY SANDSTONE	Silty Sandstone with trace clay Light olive gray(5Y 6/1) grading to olive gray(5Y 4/1) Core is moist Moderately well indurated, moderately friable with weak argillic cement Interval is thin bedded to thinly laminated with alternating sands and silts Bedding has wavy appearance suggestive of soft sediment deformation Overall attitudes are subhorizontal 10-30 degrees. Sand fraction is comprised of well sorted, f g., angular to sub-angular quartz grains ranging from clear to translucent 70% Sand 28 5% Silt 2.5% Clay
				5800	157				
				5799	158				
				5798				NO SAMPLE	Core Loss, No Retrieval
				5797	159			SILTY SANDSTONE	Silty Sandstone Same As 155 1' to 158 3' interval
					160				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 165 2	GROUND ELEVATION (FT) 5956 70	PROJECT NUMBER 304929	LOG OF BORING NUMBER
NORTH	749524	AREA OU 2	CASING DIAMETER (IN) 6/2	GEOLOGIST DC/JAW	46892
EAST	2087086	LOCATOR NUMBER J14	BOREHOLE DIAMETER (IN) 10/6	DATE DRILLED 06/16/92	

REMARKS FIRST 60 FEET ADVANCED WITH A AP 1000 RC PERCUSSION HAMMER DRILL RIG, 60-165 2 FEET ADVANCED WITH A CME 75 DRILL RIG
Additional centralizers at 10', 30', 50', 70', 90', 110' and 130'

SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CK	5%	100% CK 100%	5 00 /5 00	5796, 5795, 5794, 5793, 5792, 5791, 5790, 5789, 5788	160, 161, 162, 163, 164, 165, 166, 167, 168, 169			CLAYSTONE	Claystone with some silt Olive gray(5Y 4/1) grading to dark greenish gray(5GY 4/1) Core is moist, moderately indurated moderately to weakly friable, brittle fracture with weak thin partings Thin bedded with spotty irregular stringers of carbonaceous material(lignite) Bedding is sub-horizontal at 5-10 degrees Broken/fracture zones noted at 162 8' to 163 4' Attitudes not recognizable. 13% Silt 87% Clay
								NO SAMPLE	Hole reamed to 165 2' prior to well installation

NOTE
TOTAL DRILLED DEPTH 165 20'
TOTAL DEPTH OF CASING 165 20'
BOTTOM OF FILTER PACK 165 20'

DRAFT

U.S. DEPARTMENT OF ENERGY ROCKY FLATS PLANT FORM GT.6A (REV. 2)

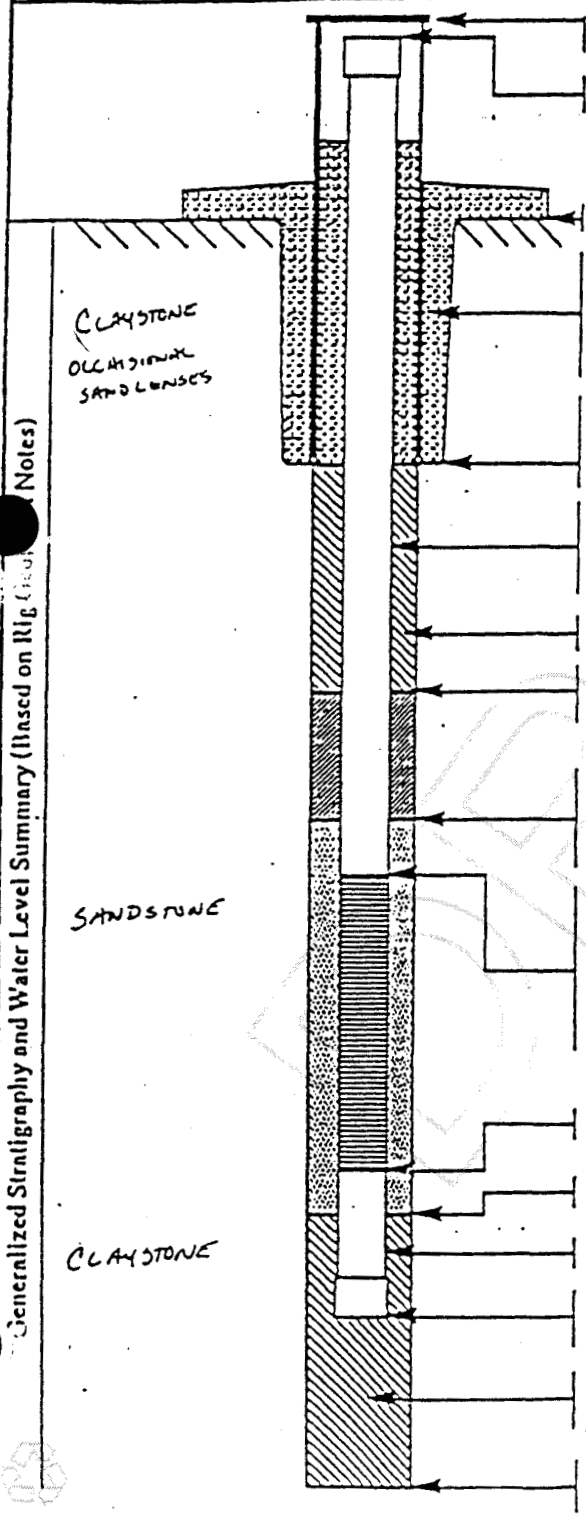
Groundwater Monitoring Well and Piezometer Report

PROJECT NAME WARP
LOCATION OU2
DATE COMPLETED 6-24-92 TOTAL HOLE DEPTH (FT) 165'
CHECKED BY _____ DATE _____

WELL NO. 46892
SCREENED INTERVAL
DEPTH (FT) 146.90 to 161.90
LITHOLOGY SANDSTONE

NOTE: All measurements will be from ground surface. Centralizer depths (when applicable) will also be shown.

Surface Casing Used (Check 1): ✓ Yes ____ No (If Yes, See Form GT.3A for specific information)



Generalized Stratigraphy and Water Level Summary (Based on Rig Geologist Notes)

Height of top of protective casing (Ft)	2.45
Height of top of well casing (Ft)	2.00' ABOVE GRADE
Ground Elevation (Ft)	
I.D. of protective casing (In)	8"
Type of protective casing: STEEL	
Depth of protective casing (Ft)	2.5'
Depth of surface seal (Ft)	3.00'
Type of surface seal: PORTLAND CEMENT	
I.D. of well casing (In)	2"
Type of well casing: PVC	
Type of backfill: PUREGOLD VOLCLAY GROUT	
Depth of top of seal (Ft)	140.80
Type of seal: 1/4 PUREGOLD VOLCLAY TABLETS	
Depth of top of filter pack / bottom of seal (Ft)	144.90
Type of filter pack: 16-40 CSSI SILICA SAND	
Depth of top of screened section (Ft)	146.90
Type of screened section: PVC	
I.D. of screened section (In)	2"
Size of screen openings (In)	0.10'
Depth of bottom of screened section (Ft)	161.90
Depth of bottom of filter pack (Ft)	164.70/165.0'
Length of plugged blank section - Sump (Ft)	2.80'
Depth of bottom of plugged blank section - Sump (Ft)	164.70'
Type of backfill below filter pack: REDROCK-SAND 0.3'	
Diameter of hole (In)	6"
Depth of hole (Ft)	165.0'

NOTE: CENTRALIZERS @ 164', 145', 130', 110', 90', 70', 50', 30', 10'

2

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 220.1	GROUND ELEVATION (FT) 5960.50	OLD WELL NUMBER 58-898R	LOG OF BORING NUMBER
NORTH	749629	AREA EAST TRENCHES	CASING DIAMETER (IN) 2 3/8 O.D.	GEOLOGIST LAH	B217689
EAST	2086746	LOCATOR NUMBER M8	BOREHOLE DIAMETER (IN) 4	DATE DRILLED 11/07/89	

REMARKS Hollow Stem Auger 0.0-69.0', Rotary Core 69.0'-220.1'. 5-5/8" Surface casing set to 69.0' on 10/25/89 by C. M. Morrow
ASI Log. GeoTech Sample B217689S103 98.5'-103.0', 34% sand, 66% silt and clay

CHEMICAL SAMPLE DEPTH / GEOTECHNICAL SAMPLE	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		CL GR SAND SILT CLAY	100%			0			CL	Silty Clay (Topsoil) - Dark yellowish brown (10 YR 4/2). Plasticity mod., some gravel to 4 cm. Becomes gravel at 0.10 ft., sub-angular. Some CaCO3. >50% clay.
	B89980002			0.50/2.00	5960	1				
	B89980003				5959					
					5958	2			GC	Gravelly Silty Clay matrix. Matrix dark yellowish brown (10 YR 4/2). Mod. plasticity. Gravel angular to sub-rounded, granules to 2.5 cm., mod. to well graded. Some sand and silt. Some CaCO3. >50% gravel
				1.70/2.00	5957	3				
					5956	4			GC	Gravel - as above. Angular to rounded granules to 5 cm. Some caliche rinds on gravel. Gravel granules. >50% gravel
	B89980006									
	B89980007			1.60/2.00	5955	5				
				0.60/1.00	5954	6			CL	Sandy Gravelly Clay. Grayish orange (10 YR 7/4). Low plasticity. 2 cm. to granule size gravel. Some sand. >50% clay
				0.60/1.00	5953	7			NO SAMPLE	NO SAMPLE
					5952	8			GC	Gravel. Same as above (reference interval 4.0' - 6.0') >50% gravel
	711			1.60/2.00	5951	9				
	B89980010					10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 220.1	GROUND ELEVATION (FT)	5960.50	OLD WELL NUMBER	58-898R	LOG OF BORING NUMBER
NORTH	745629	AREA: EAST TRENCHES	CASING DIAMETER (IN)	2 3/8 O.D.	GEOLOGIST	LAH	B217689
EAST	2086746	LOCATOR NUMBER: N8	BOREHOLE DIAMETER (IN)	4	DATE DRILLED	11/07/89	

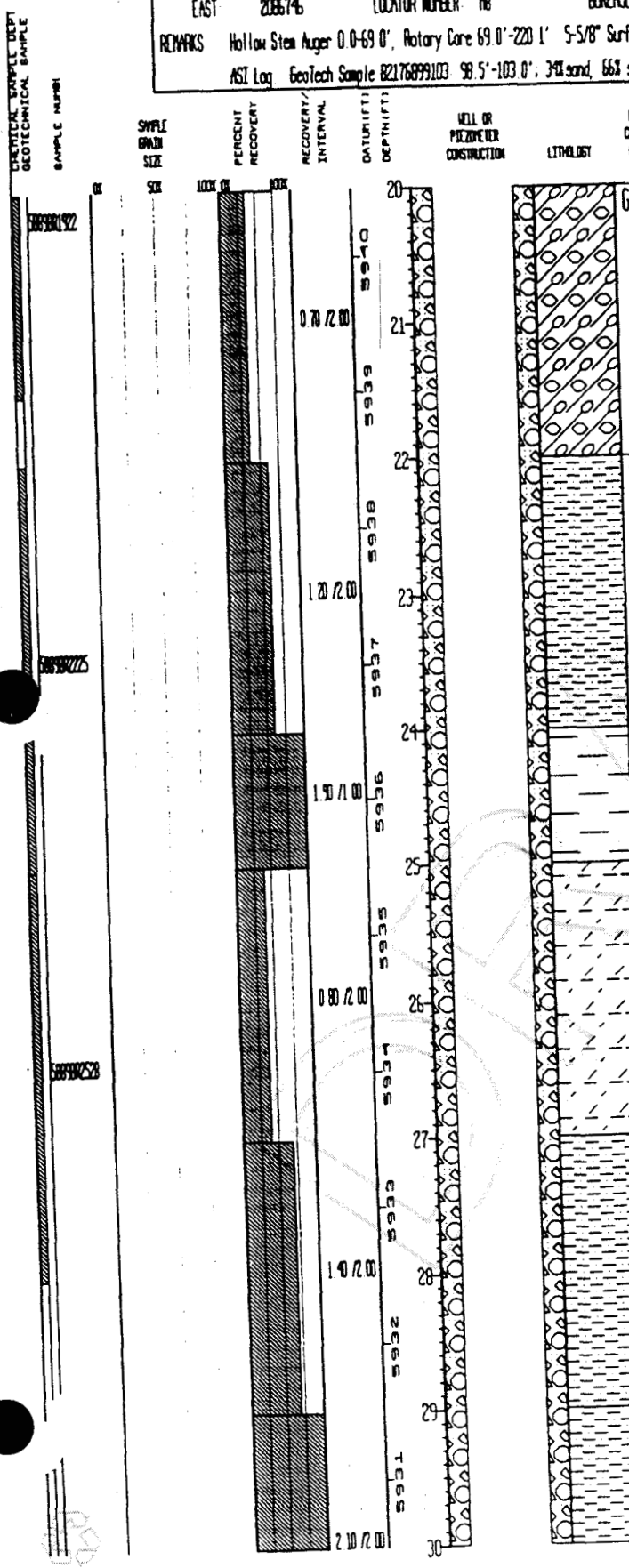
REMARKS: Hollow Stem Auger 0.0-69.0', Rotary Core 69.0'-220.1'. 5-5/8" Surface casing set to 69.0' on 10/25/89 by C. M. Morrow

ASI Log. GeoTech Sample B217689103: 98.5'-103.0', 34% sand, 66% silt and clay

CHEMICAL SAMPLE DEP / GEOTECHNICAL SAMPLE	SAMPLE NUMB	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				1.20/1.00	5950	10			GC	Clayey Gravel. Very pale orange (10 YR 8/2). Mod. graded. Granules to 4 cm, sub-angular to sub-rounded. Some v.f.g. to c.g. sand. >50% gravel.
				0.00/1.00	5949	11			NO SAMPLE	NO SAMPLE.
					5948	12			NO SAMPLE	NO SAMPLE.
	5895B1214			0.00/2.00	5947	13				
	5895B1216									
				0.50/2.00	5946	14			GC	Clayey Gravel. Pale yellowish brown (10 YR 6/2). Gravel granules to 5.5 cm. Poorly graded. Some v.f.g. to v.c.g. sand. Some silt. >50% gravel.
					5945	15				
	5895B1618			1.40/2.00	5944	16			GC	Same as above, gravel granule size to 3 cm. >50% gravel.
	5895B1619				5943	17				
				1.50/2.00	5942	18			GC	Same as above. Gravel to 4.0 cm, trace carbonaceous material. >50% gravel.
					5941	19				
						20				

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 220.1	GROUND ELEVATION (FT) 5960.50	OLD WELL NUMBER 58-89BR	LOG OF BORING NUMBER	
NORTH 749629	AREA EAST TRENCHES	CASING DIAMETER (IN) 2 3/8 O.D.	GEOLOGIST LAH	B217689	
EAST 2086746	LOCATOR NUMBER MB	BOREHOLE DIAMETER (IN) 4	DATE DRILLED 11/07/89		

REMARKS Hollow Stem Auger 0.0-69.0', Rotary Core 69.0'-220.1' 5-5/8" Surface casing set to 69.0' on 10/25/89 by C. M. Morrow.
ASI Log GeoTech Sample B2176899103 98.5'-103.0'; 34% sand, 66% silt and clay

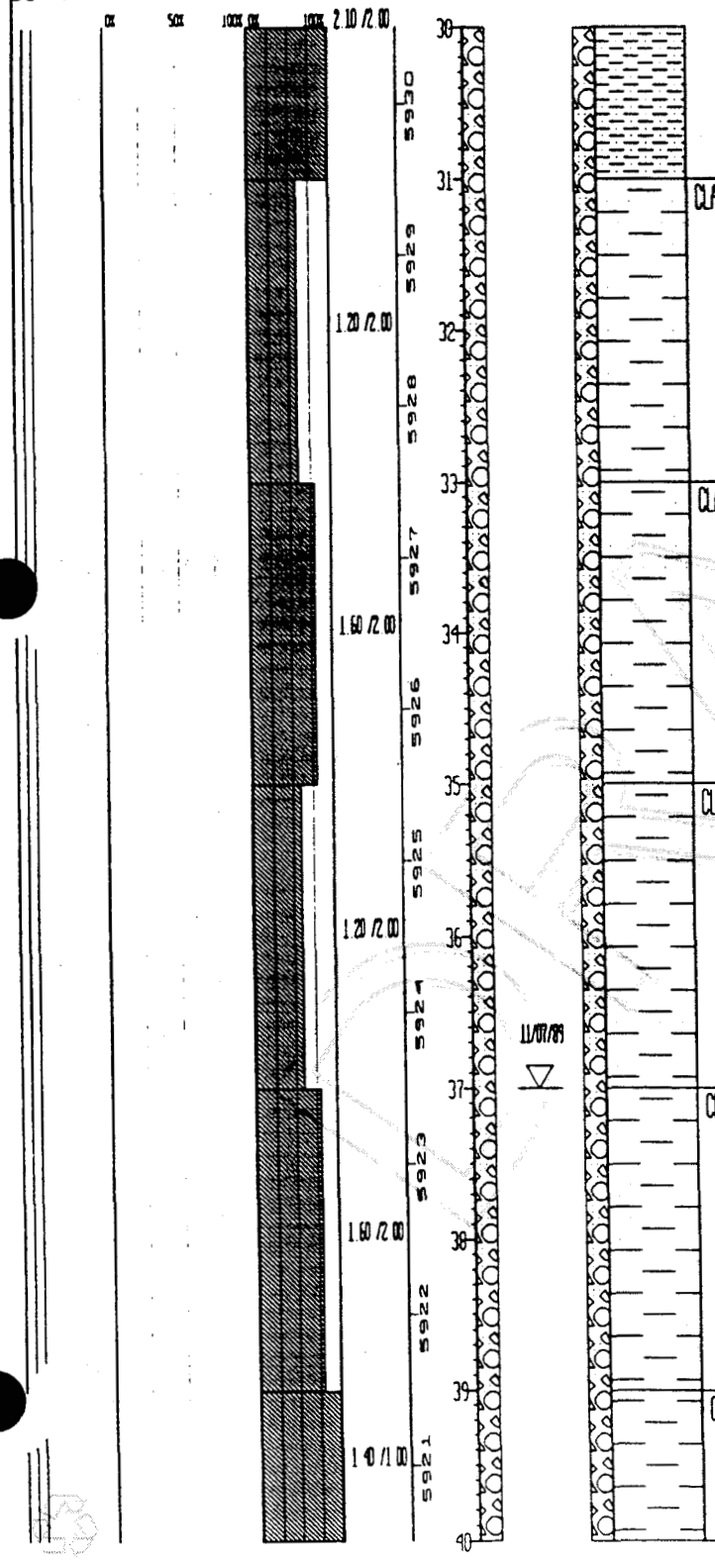


UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
GC	Clayey Gravel to Gravelly Clay (10 YR 7/4) Mod plasticity. Gravel granules to 2 cm (2.6 cm cobbles). Poorly graded angular to sub-angular. (gc-cl) 50% gravel, 50% clay.
SANDY CLAYSTONE	Sandy Claystone - very pale orange (10 YR 8/2), grayish orange (10 YR 7/4). Highly weathered, highly friable. V.f.g. to f.g. sand. 50% clay, 50% sand.
CLAYEY SANDSTONE	Clayey Sandstone. Grayish orange to dark yellowish orange (10 YR 7/4 to 10 YR 6/6). Some CaCO3. V.f.g. to f.g. rounded grains. Highly weathered, friable. >50% sand
CLAYEY SILTSTONE	Clayey Siltstone to Clayey Sandstone - as above. Some horiz. laminated bedding visible. Highly weathered, friable. >50% silt
SANDY CLAYSTONE	Sandy Claystone - Very pale orange (10 YR 8/2) to dark yellowish orange (10 YR 6/6). V.f.g. sand, poorly graded (mod. to well sorted), mod. rounded to rounded, mod. porous to porous, mod. friable. Horiz. irreg. laminated bedding. >50% clay
SANDY CLAYSTONE	Same as above, some carbonaceous material. >50% clay

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 220.1	GROUND ELEVATION (FT) 5960.50	OLD WELL NUMBER 58-89BR	LOG OF BORING NUMBER
NORTH	749629	AREA EAST TRENCHES	CASING DIAMETER (IN) 2 3/8 O.D.	GEOLOGIST LAH	B217689
EAST	2086746	LOCATOR NUMBER M8	BOREHOLE DIAMETER (IN) 4	DATE DRILLED 11/07/89	

REMARKS Hollow Stem Auger 0.0-69.0', Rotary Core 69.0'-220.1' 5-5/8" Surface casing set to 69.0' on 10/25/89 by C. M. Morrow
ASI Log GeoTech Sample 98.5'-103.0'; 34% sand, 66% silt and clay.

CHEMICAL SAMPLE DEPT
GEOTECHNICAL SAMPLE
SAMPLE NUMBER
SAMPLE GRAIN SIZE
PERCENT RECOVERY
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



CLAYEY SANDSTONE Clayey Sandstone - Very pale orange to dark yellowish orange (10 YR 6/6 to 10 YR 8/2) V f g to m g sand Poorly sorted. Irreg horiz bedding Rounded grains Some silt Porous
50% sand, 30% clay, 20% silt

CLAYEY SANDSTONE Same as above

CLAYEY SANDSTONE Same as above

CLAYEY SANDSTONE Same as above

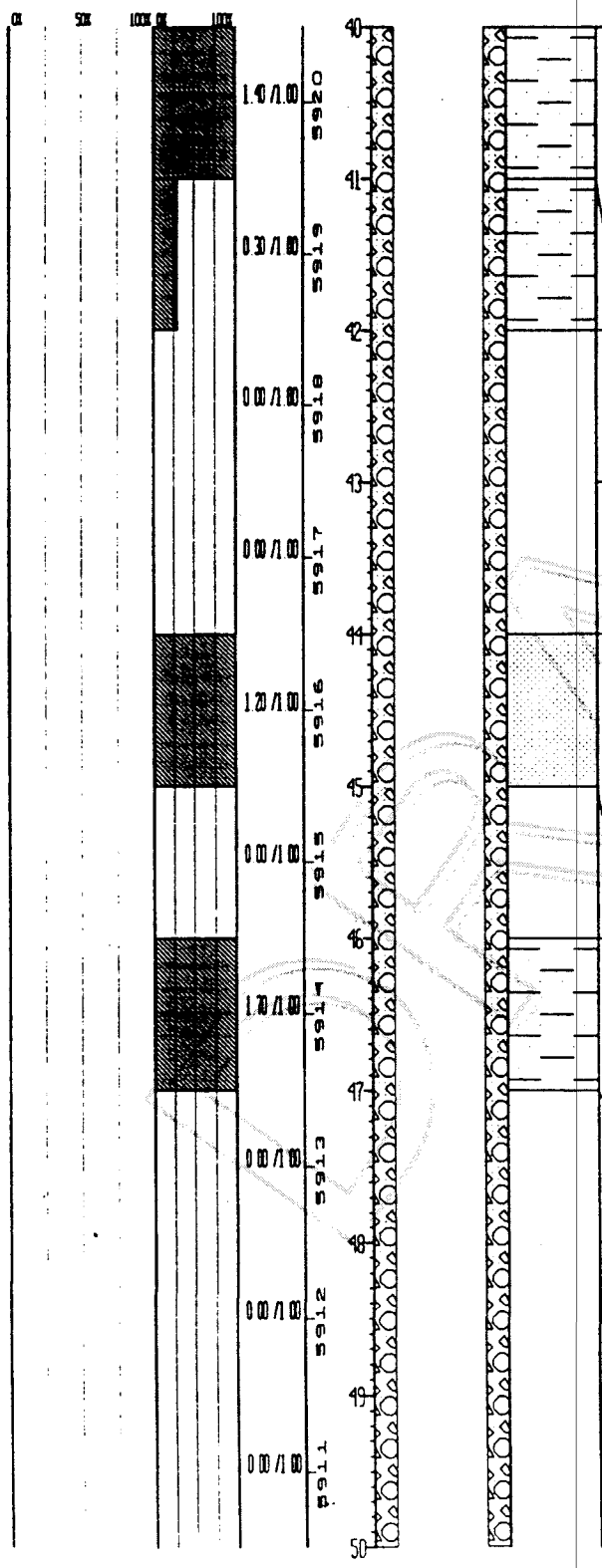
CLAYEY SANDSTONE Same as above

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 220.1	GROUND ELEVATION (FT)	5960.50	OLD WELL NUMBER	58-89BR	LOG OF BORING NUMBER
NORTH	749629	AREA EAST TRENCHES	CASING DIAMETER (IN)	2 3/8 O.D.	GEOLOGIST	LAH	B217689
EAST	2086746	LOCATOR NUMBER M8	BOREHOLE DIAMETER (IN)	4	DATE DRILLED	11/07/89	

REMARKS: Hollow Stem Auger 0.0-69.0', Rotary Core 69.0'-220.1' 5-5/8" Surface casing set to 69.0' on 10/25/89 by C. M. Morrow

ASI Log. GeoTech Sample B2176899103 98.5'-103.0', 34% sand, 66% silt and clay

CHEMICAL SAMPLE GEOTECHNICAL | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION



Unified Soils Classification or Rock Type	Description
CLAYEY SANDSTONE	Clayey Sandstone - Very pale orange to dark yellowish orange (10 YR 8/2 to 10 YR 6/6). V.f.g. to f.g., mod. graded, sorted, rounded grains. Mod. porous to porous. Mod. friable. Crossbedded especially toward bottom of interval. Some iron staining. >60% sand.
CLAYEY SANDSTONE	Same as above.
NO SAMPLE	NO SAMPLE.
NO SAMPLE	NO SAMPLE.
SANDSTONE	Sandstone - Grayish orange to mod. yellowish brown (10 YR 7/4 to 10 YR 5/4). Well sorted, rounded grains. Med. grained. Porous. Bedding not evident. Some clay. Friable. Becomes more clayey, finer grained toward bottom of interval. 90% sand.
NO SAMPLE	NO SAMPLE
CLAYEY SANDSTONE	Clayey Sandstone to Sandy Claystone. Grayish orange to mod. yellowish brown (10 YR 7/4 to 10 YR 5/4). Mod. friable, bedding not evident. Mod. porous, v.f.g. to m.g. sand, rounded, mod. sorted. 50% clay, 50% sand
NO SAMPLE	NO SAMPLE.
NO SAMPLE	NO SAMPLE
NO SAMPLE	NO SAMPLE.

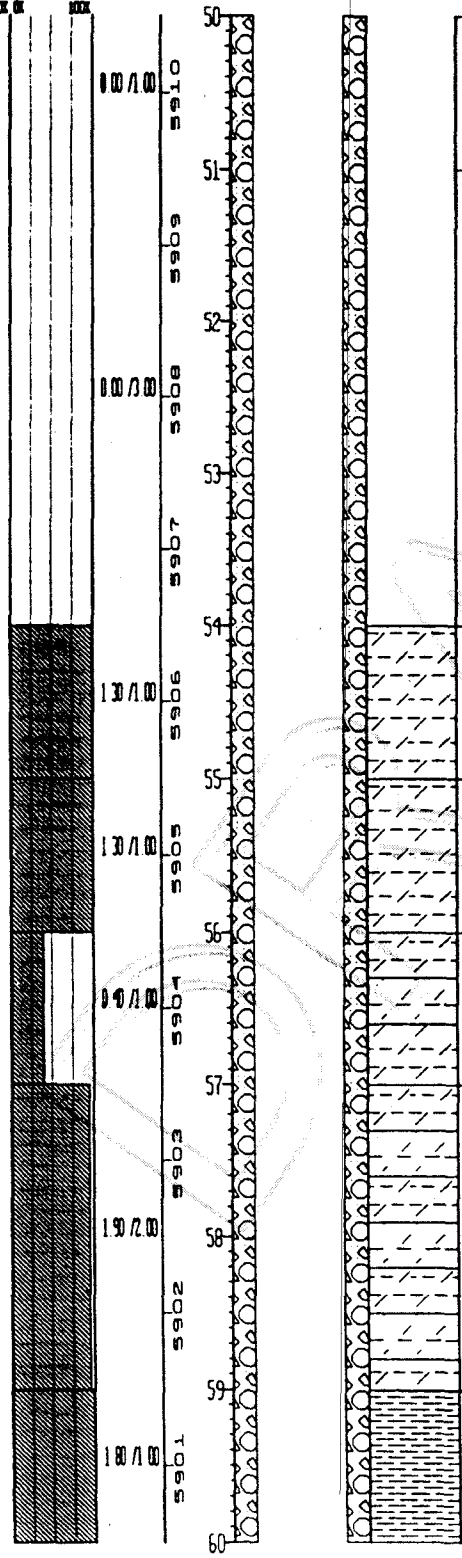
STATE PLANE COORDINATE	TOTAL DEPTH (FT): 220.1	GROUND ELEVATION (FT)	5960.50	OLD WELL NUMBER:	58-89BR
NORTH 749629	AREA: EAST TRENCHES	CASING DIAMETER (IN):	2 3/8 O.D.	GEOLOGIST:	LAH
EAST 2086746	LOCATOR NUMBER: M8	BOREHOLE DIAMETER (IN):	4	DATE DRILLED	11/07/89

LOG OF BORING NUMBER: **B217689**

REMARKS: Hollow Stem Auger 0.0-69.0', Rotary Core 69.0'-220.1'. 5-5/8" Surface casing set to 69.0' on 10/25/89 by C. M. Morrow

ASI Log GeoTech Sample B2176899103: 98.5'-103.0'; 34% sand, 66% silt and clay

CHEMICAL SAMPLE DEP / GEOTECHNICAL SAMPLE | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
NO SAMPLE	NO SAMPLE.
NO SAMPLE	NO SAMPLE.
SILTY CLAYSTONE	Silty Claystone - Med. bluish gray (5 B 5/1). Irreg. bedding, slightly friable. Some dark yellowish orange. Mottling, mod. porous, some v f g sand. 60% clay, 30% silt
SILTY CLAYSTONE	Same as above. Some carbonaceous material visible.
SILTY CLAYSTONE	Silty Claystone and Clayey Siltstone. Irregularly interbedded (mottled). Yellowish gray to light olive gray (5 Y 8/1 to 5 Y 6/1). Mod. friable, no apparent bedding. Some coal, unconsol
SILTY CLAYSTONE	Same as above (reference interval 56.0' to 57.0')
CLAYSTONE	Claystone - Olive gray (5 Y 4/1). Friable. No apparent bedding, unconsol. >70% clay

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 220.1	GROUND ELEVATION (FT)	5960.50	OLD WELL NUMBER	58-B9BR	LOG OF BORING NUMBER
NORTH	749629	AREA EAST TRENCHES	CASING DIAMETER (IN)	2 3/8 O.D.	GEOLOGIST	LAH	B217689
EAST	2086746	LOCATOR NUMBER: M8	BOREHOLE DIAMETER (IN)	4	DATE DRILLED	11/07/89	

REMARKS: Hollow Stem Auger 0.0-69.0', Rotary Core 69.0'-220.1' 5-5/8" Surface casing set to 69.0' on 10/25/89 by C. M. Morrow

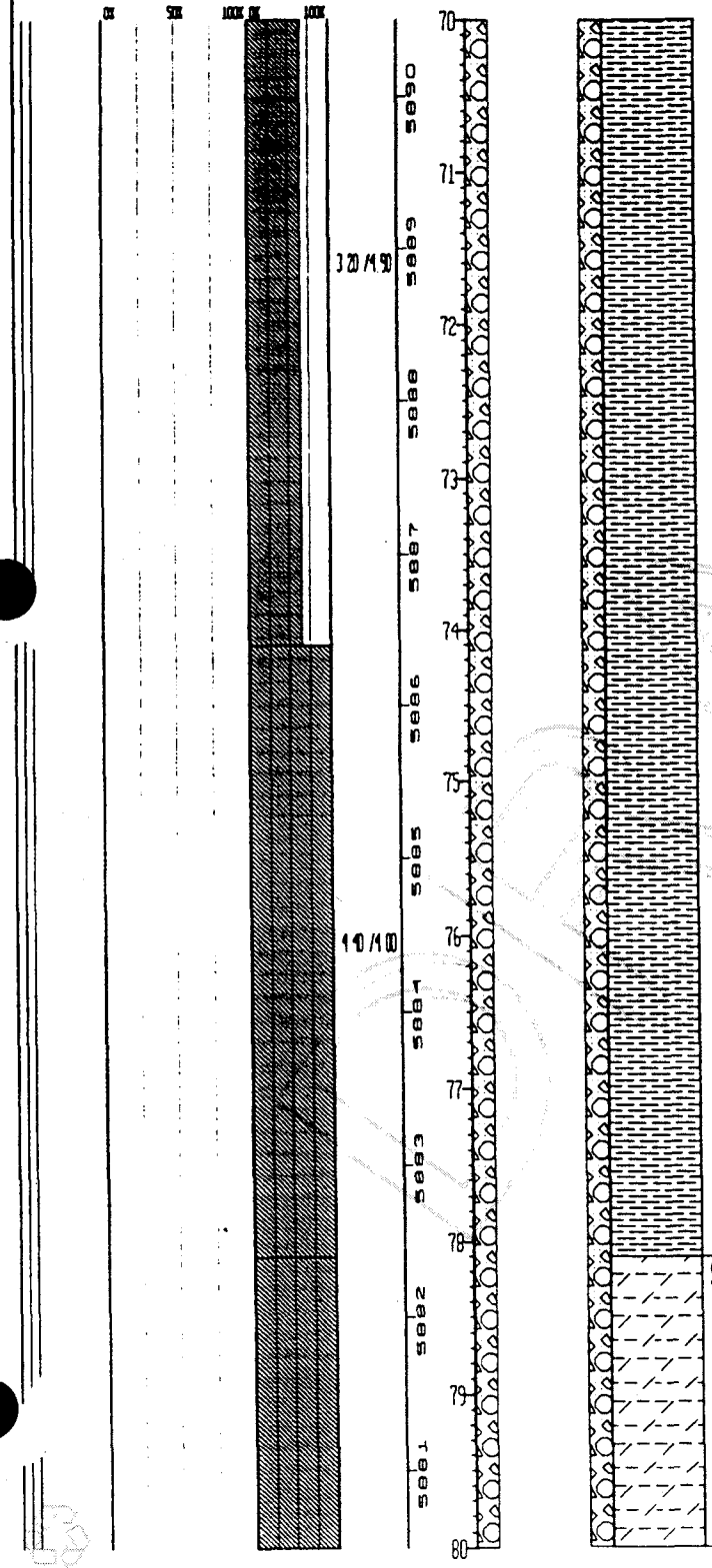
ASI Log GeoTech Sample 98.5'-103.0', 34% sand, 66% silt and clay

CHEMICAL SAM GEOTECHNICAL	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50%)	PERCENT RECOVERY (100% 0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				1.00/1.00	5900	60			CLAYSTONE	Claystone - Olive (5 Y 4/1) Mod to slightly friable No apparent bedding Core is unconsol, some silt, trace of carbonaceous material >60% clay.
				1.00/1.00	5899	61			CLAYSTONE	Same as above Some v f g - f g sand
				0.90/1.00	5898	62			CLAYSTONE	Claystone - olive gray (5 Y 4/1) Mod - highly friable No apparent bedding Core is unconsol Trace of coal, trace of carbonaceous material, trace of silt Interval shows possible clast material
				0.90/1.00	5897	63			CLAYSTONE	Same as above
				0.90/1.00	5896	64			CLAYSTONE	Same as above
				0.90/1.00	5895	65			CLAYSTONE	Same as above Trace of Fe staining
				0.00/1.00	5894	66			NO SAMPLE	NO SAMPLE
				1.20/1.00	5893	67			CLAYEY SANDSTONE	Top 4 in. is same as above (reference interval 62.0' to 63.0') Base of interval is Clayey Sandstone light olive gray (5 Y 6/1) V f g - f g, sub-rounded, mod well sorted No apparent bedding Trace carbonaceous material
				1.60/1.00	5892	68			CLAYSTONE	Same as above Possible horiz bedding planes Base of interval is unconsol
				0.00/0.20	5891	69			NO SAMPLE	NO SAMPLE
						70			CLAYSTONE	Olive gray (5 Y 4/1) to light olive gray (5 Y 6/1) Mod to slightly friable, some silt, trace carbonaceous material Bedding not evident Fractures mostly horiz Some slickensides visible on one irregular 80 degree fracture Mildly calcareous (Claystone with trace Silt) >5% silt, >70% clay

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 220.1		GROUND ELEVATION (FT)	5960.50	OLD WELL NUMBER	58-89BR	LOG OF BORING NUMBER
NORTH	749629	AREA: EAST TRENCHES		CASING DIAMETER (IN)	2 3/8 O D	GEOLOGIST	LAH	B217689
EAST	2086746	LOCATOR NUMBER: M8		BOREHOLE DIAMETER (IN)	4	DATE DRILLED	11/07/89	

REMARKS: Hollow Stem Auger 0.0-69.0', Rotary Core 69.0'-220.1'. 5-5/8" Surface casing set to 69.0' on 10/25/89 by C. M. Morrow.
ASI Log GeoTech Sample B2176899103: 98.5'-103.0', 34% sand, 66% silt and clay

CHEMICAL SAMPLE DEP
GEOTECHNICAL SAMPLE
SAMPLE NUME
SAMPLE GRAIN SIZE
PERCENT RECOVERY
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



SILTY CLAYSTONE Light olive gray (5 Y 6/1). Slightly friable. Bedding not evident, fractures mostly horiz., trace carbonaceous material. Bedding becomes visible toward bottom of interval. Irregular thin laminations, some v.f.g. sand, some iron staining visible. Some carbonaceous material. (Silty Claystone with trace Sand)
5% sand, 25% silt, 70% clay

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 220.1	GROUND ELEVATION (FT) 5960.50	OLD WELL NUMBER 58-898R	LOG OF BORING NUMBER
NORTH	749629	AREA EAST TRENCHES	CASING DIAMETER (IN) 2 3/8 O.D.	GEOLOGIST LAH	B217689
EAST	2086746	LOCATOR NUMBER M8	BOREHOLE DIAMETER (IN) 4	DATE DRILLED 11/07/89	

REMARKS: Hollow Stem Auger 0.0-69.0', Rotary Core 69.0'-220.1' 5-5/8" Surface casing set to 69.0' on 10/25/89 by C. M. Morrow

AST Log GeoTech Sample B217689B103: 98.5'-103.0', 34% sand, 66% silt and clay

CHEMICAL DATA GEOTECHNICAL	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				4.10/4.00	5880	80				
					5879	81				
					5878	82				
	B217689A				5877	83				
				3.20/4.00	5876	84				
					5875	85				
					5874	86				
	B217689B				5873	87				
				1.30/4.00	5872	88				
					5871	89				
						90				

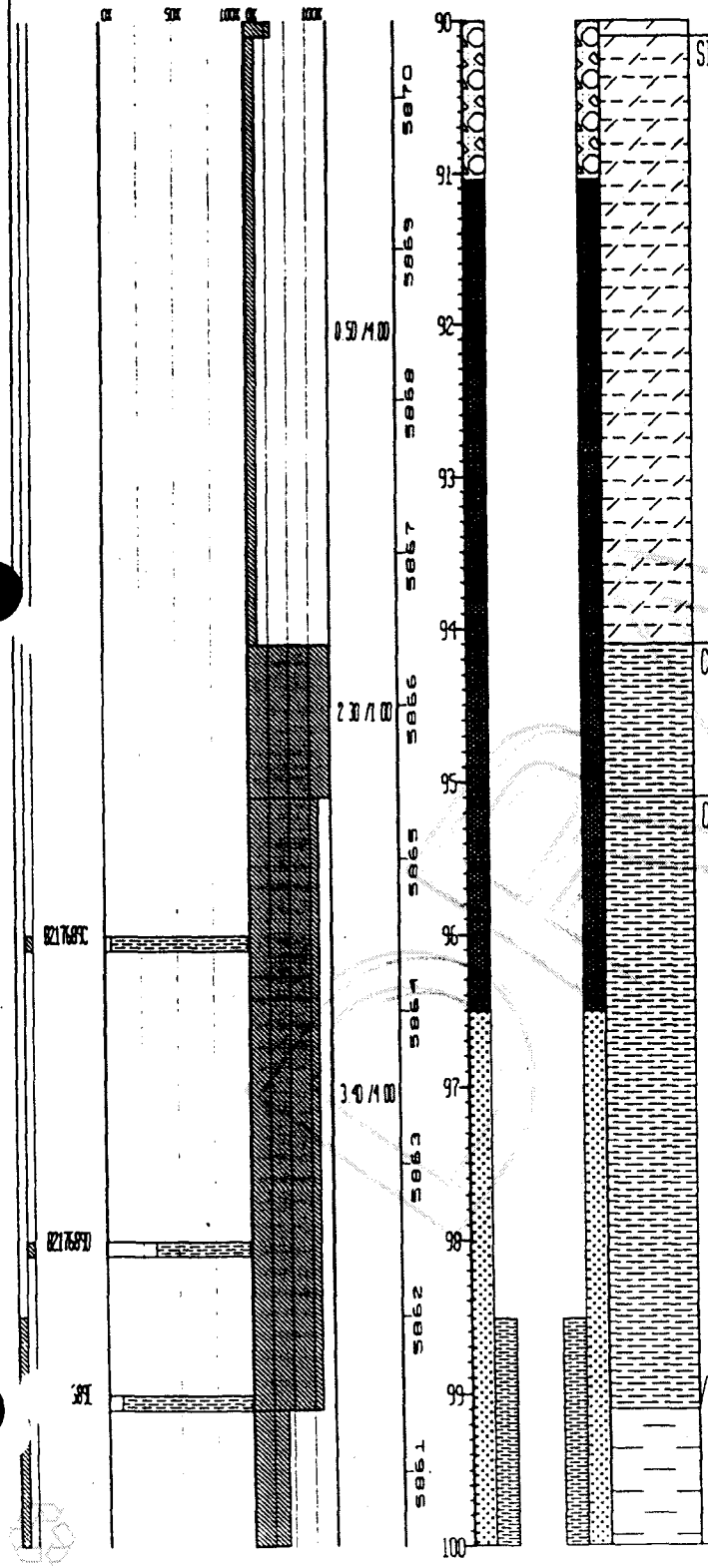
SILTY CLAYSTONE: Light olive gray (5 Y 6/1). Mod. to slightly friable. Thinly laminated bedding visible, some crossbedding visible. Some carbonaceous material, some iron staining. One area of Sandy Claystone (calcareous) toward top of interval, approx. 4 in. long. (Silty Claystone with some Sand)
10% sand, 20% silt, >50% clay

SILTY CLAYSTONE: Same as above - bedding mostly horiz., thinly laminated. Very thin silt laminations (<1 mm.). Becomes less silty toward bottom of interval. Slickensides on a near vertical irregular fracture toward bottom. (Silty Claystone with some Sand)
10% sand, 20% silt, >50% clay

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 220.1	GROUND ELEVATION (FT)	5960.50	OLD WELL NUMBER	58-89BR	LOG OF BORING NUMBER
NORTH	749623	AREA EAST TRENCHES	CASING DIAMETER (IN)	2 3/8 O.D.	GEOLOGIST	LAH	B217689
EAST	2086746	LOCATOR NUMBER M8	BOREHOLE DIAMETER (IN)	4	DATE DRILLED	11/07/89	

REMARKS: Hollow Stem Auger 0.0-69.0', Rotary Core 69.0'-220.1' 5-5/8" Surface casing set to 69.0' on 10/25/89 by C. M. Morrow

ASI Log: GeoTech Sample B217689103 98.5'-103.0', 34% sand, 66% silt and clay

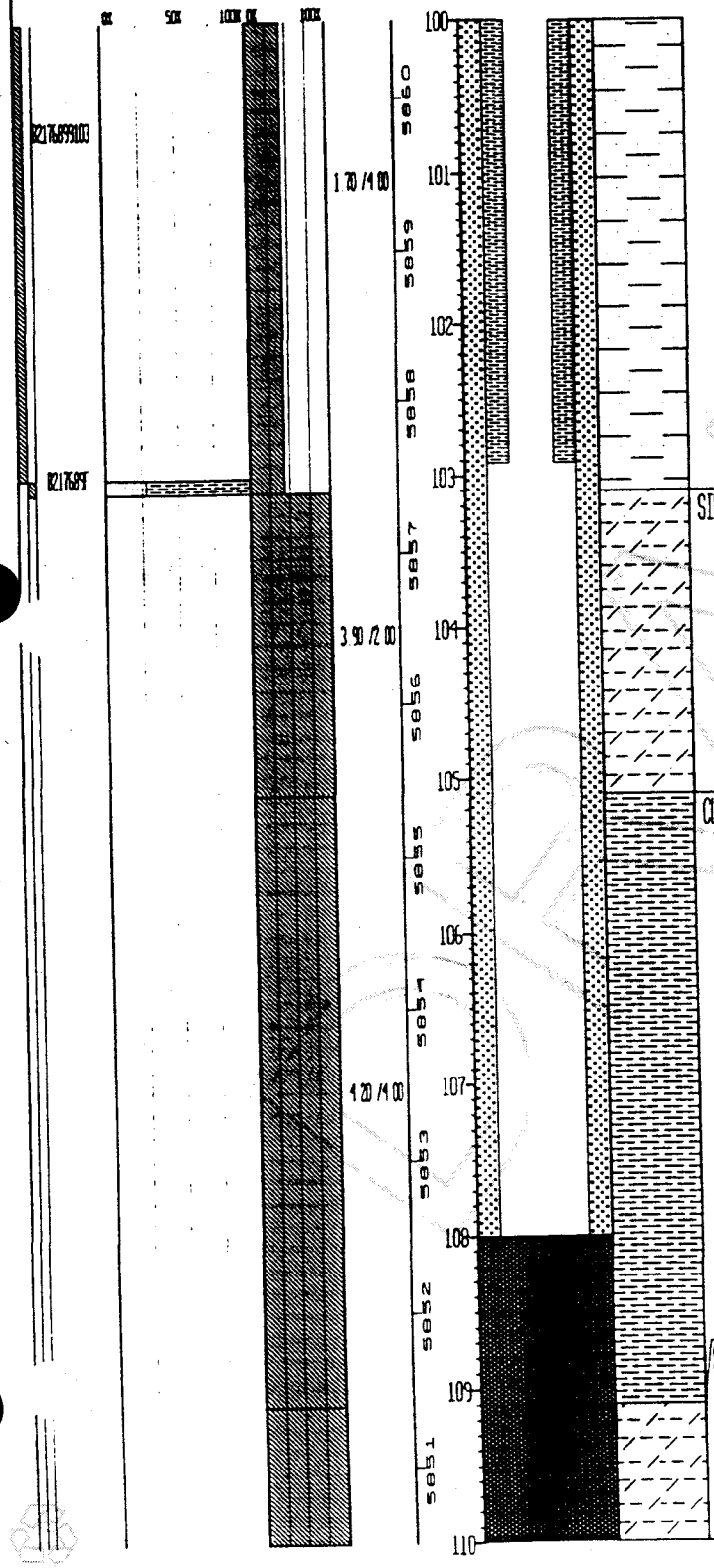


SILTY CLAYSTONE	Olive gray (5 Y 4/1). Slightly friable. Bedding not evident. 30% silt, 70% clay.
CLAYSTONE	Olive gray (5 Y 4/1). Mod. friable, bedding not evident. Some slickensides present on fracture (open). Fracture angle 40 degrees. >70% clay
CLAYSTONE	Same as above - color change to olive black (5 Y 2/1). Some carbonaceous material, especially toward center. Bedding mostly horiz. from fracture patterns. Becomes Sandy Claystone at a distinct contact, yellowish gray (5 Y 8/1). Slightly friable. Bedding irregular. Sand v.f.g. to f.g., trace carbonaceous material. >70% clay to >50% clay.
CLAYEY SANDSTONE	Yellowish gray (5 Y 8/1). V.f.g. to f.g., poorly to mod. graded. Thinly laminated, irregular bedding (1 mm to 2 mm). Slightly dipping (20 degrees). Trace carbonaceous material. >60% sand

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 220.1	GROUND ELEVATION (FT) 5960.50	OLD WELL NUMBER 58-89BR	LOG OF BORING NUMBER
NORTH	749629	AREA: EAST TRENCHES	CASING DIAMETER (IN) 2 3/8 O.D.	GEOLOGIST LAH	B217689
EAST	2086746	LOCATOR NUMBER M8	BOREHOLE DIAMETER (IN) 4	DATE DRILLED 11/07/89	

REMARKS Hollow Stem Auger 0.0-69.0', Rotary Core 69.0'-220.1' 5-5/8" Surface casing set to 69.0' on 10/25/89 by C. M. Morrow

ASI Log. GeoTech Sample B2176899103 98.5'-103.0'; 34% sand, 66% silt and clay



SILTY CLAYSTONE Light olive gray (5 Y 6/1) to olive black (5 Y 2/1). Slightly to mod. friable. Bedding not evident. Some carbonaceous material. Slickensides visible on fracture. Irregular fracture, trace iron staining. Abundt. carbonaceous material in localized areas. Fracture angle 30 degrees.
>60% clay

CLAYSTONE Olive gray (5 Y 4/1). Mod. to highly friable. Bedding not evident. Some carbonaceous material. Grades to very Silty Claystone, yellowish gray (5 Y 8/1). Slightly friable. Massive bedding, trace carbonaceous material.
>80% clay to >50% clay

SILTY CLAYSTONE Light olive gray (5 Y 6/1). Slightly friable. Thin, laminated bedding in areas, mostly horiz. Some v.f.g. sand and silt in thin layers. Some coal in thin layers (1 mm). Less silty toward bottom, slightly calcareous in some areas.
>60% clay

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 220.1	GROUND ELEVATION (FT)	5960.50	OLD WELL NUMBER	58-89BR	LOG OF BORING NUMBER:
NORTH	749629	AREA: EAST TRENCHES	CASING DIAMETER (IN)	2 3/8 O D	GEOLOGIST	LAH	B217689
EAST	2086746	LOCATOR NUMBER M8	BOREHOLE DIAMETER (IN)	4	DATE DRILLED	11/07/89	

REMARKS: Hollow Stem Auger 0.0-69.0', Rotary Core 69.0'-220.1'. 5-5/8" Surface casing set to 69.0' on 10/25/89 by C. M. Morrow.
ASI Log. GeoTech Sample B2176899103: 98.5'-103.0', 34% sand, 66% silt and clay.

CHEMICAL SAMPLE DE GEOTECHNICAL SAMPL

SAMPLE NUM

SAMPLE GRAIN SIZE: 0% 50%

PERCENT RECOVERY: 100% 0% 100%

RECOVERY/INTERVAL: 4.40/4.00; 4.20/4.00; 3.70/4.00

DATUM (FT): 5850, 5849, 5848, 5847, 5846, 5845, 5844, 5843, 5842, 5841

DEPTH (FT): 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120

WELL OR PIEZOMETER CONSTRUCTION

LITHOLOGY

UNIFIED SOILS CLASSIFICATION OR ROCK TYPE

DESCRIPTION

CLAYSTONE — Same as above - olive gray (5 Y 4/1) to olive black (5 Y 2/1). Mod. to slightly friable. Bedding not apparent. Some silt, trace carbonaceous material. >80% clay

CLAYSTONE — Same as above - Mod. friable to friable. High angle fractures (numerous) toward bottom of interval. This area is highly friable (approx. 6 in.). Vertical slickensides on fractures. Fracture angle 70 degrees to 80 degrees. >80% clay

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 220.1	GROUND ELEVATION (FT) 5960.50	OLD WELL NUMBER 58-899R	LOG OF BORING NUMBER
NORTH	749629	AREA EAST TRENCHES	CASING DIAMETER (IN) 2 3/8 O.D.	GEOLOGIST LAH	B217689
EAST	2086746	LOCATOR NUMBER M8	BOREHOLE DIAMETER (IN) 4	DATE DRILLED 11/07/89	

REMARKS: Hollow Stem Auger 0.0-69.0', Rotary Core 69.0'-220.1'. 5-5/8" Surface casing set to 69.0' on 10/25/89 by C. M. Morrow

AST Log: GeoTech Sample B217689103: 98.5'-103.0'; 34% sand, 66% silt and clay

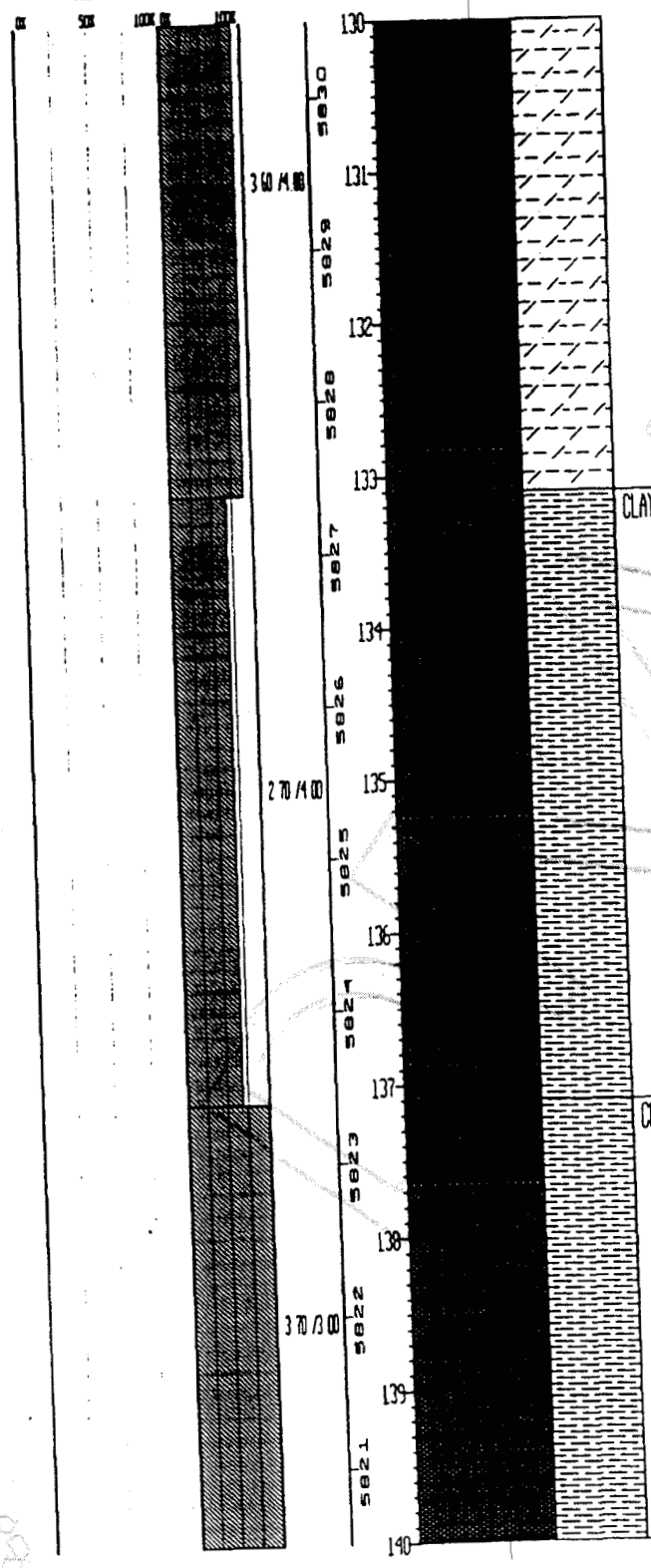
GEOTECHNICAL SAMPLE / GEOTECHNICAL SAMPLE	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5940	120				
					5939	121			CLAYSTONE	Brownish black (5 YR 2/1). Friable. Some fractures. Slickensides run vertically on fractures. Fractures are irregular. Color change to olive gray (5 Y 4/1) in middle of interval and back to brownish black toward bottom. Trace carbonaceous material, trace iron staining. Slickensides on fractures at bottom of interval are at a 15 degree angle to horiz. Fracture angels 70 degrees and 90 degrees. >80% clay
					5938	122				
				5.00/4.00	5937	123				
					5936	124				
					5935	125				
					5934	126				
				3.10/4.00	5933	127				
					5932	128				
					5931	129			SILTY CLAYSTONE	Light olive gray (5 Y 6/1). Mod. friable. Bedding not evident. Becomes less silty to Claystone, some silt at bottom of interval. Color change to olive gray (5 Y 4/1) >60% clay
						130				

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 220.1	GROUND ELEVATION (FT):	5960.50	OLD WELL NUMBER:	58-89BR	LOG OF BORING NUMBER:
NORTH	749629	AREA: EAST TRENCHES	CASING DIAMETER (IN):	2 3/8 O.D.	GEOLOGIST:	LAH	B217689
EAST	2086746	LOCATOR NUMBER: M8	BOREHOLE DIAMETER (IN):	4	DATE DRILLED:	11/07/89	

REMARKS: Hollow Stem Auger 0.0-69.0', Rotary Core 69.0'-220.1'. 5-5/8" Surface casing set to 69.0' on 10/25/89 by C. M. Morrow

ASI Log. GeoTech Sample B2176899103: 98.5'-103.0'; 34% sand, 66% silt and clay.

CHEMICAL SAMPLE DEP
GEOTECHNICAL SAMPLE
SAMPLE NUMB
SAMPLE GRAIN SIZE
PERCENT RECOVERY
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



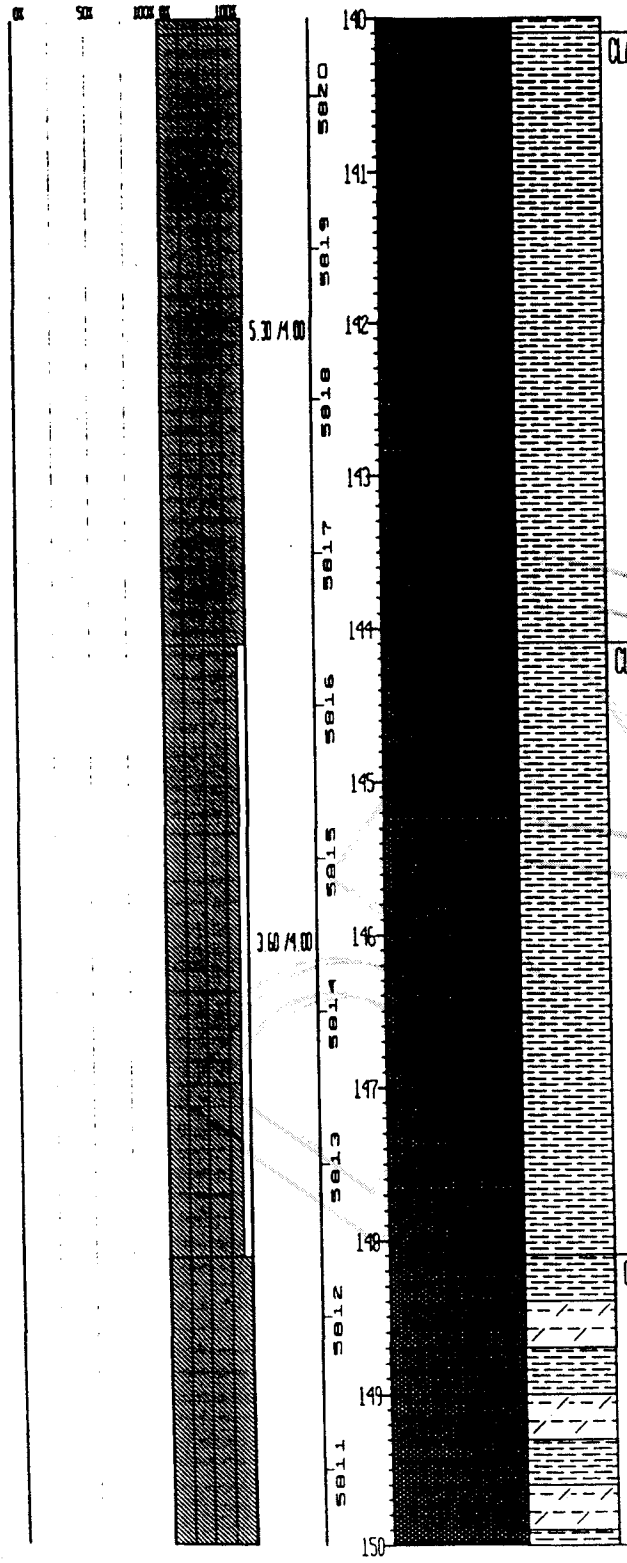
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CLAYSTONE	Olive gray (5 Y 4/1). Mod. friable. Bedding not evident. Some possible slickensides on high angle fractures. Slicks orientation mostly vertical. Grades to Silty Claystone near middle of interval, color change to light olive gray (5 Y 6/1). Trace carbonaceous material. Vertical slickensides on high angle fracture toward bottom. Fracture angles 80 degrees to 70 degrees. >80% clay to >60% clay
CLAYSTONE	Olive gray (5 Y 4/1). Mod. to highly friable. Bedding not evident, trace silt. >80% clay

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 220.1	GROUND ELEVATION (FT): 5960.50	OLD WELL NUMBER: 50-899R	LOG OF BORING NUMBER:
NORTH:	749629	AREA: EAST TRENCHES	CASING DIAMETER (IN): 2 3/8 O.D.	GEOLOGIST: LAH	B217689
EAST:	2086746	LOCATOR NUMBER: 118	BOREHOLE DIAMETER (IN): 4	DATE DRILLED: 11/07/89	

REMARKS: Hollow Stem Auger 0.0-69.0', Rotary Core 69.0'-220.1'. 5-5/8" Surface casing set to 69.0' on 10/25/89 by C. M. Morrow.
MSI Log. GeoTech Sample B217689103: 98.5'-103.0'; 34% sand, 66% silt and clay.

CHEMICAL SAMPLE DEP
GEOTECHNICAL SAMPLE
SAMPLE NUMB

SAMPLE GRAIN SIZE | PERCENT RECOVERY | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION



CLAYSTONE: Olive gray (5 Y 4/1). Mod. to highly friable. Bedding not evident, trace silt. Grades to Silty Claystone (light olive gray (5 Y 6/1)). Mod. to highly friable. Bedding not evident. Trace carbonaceous material, trace silt discoloration.
>80% clay to >60% clay.

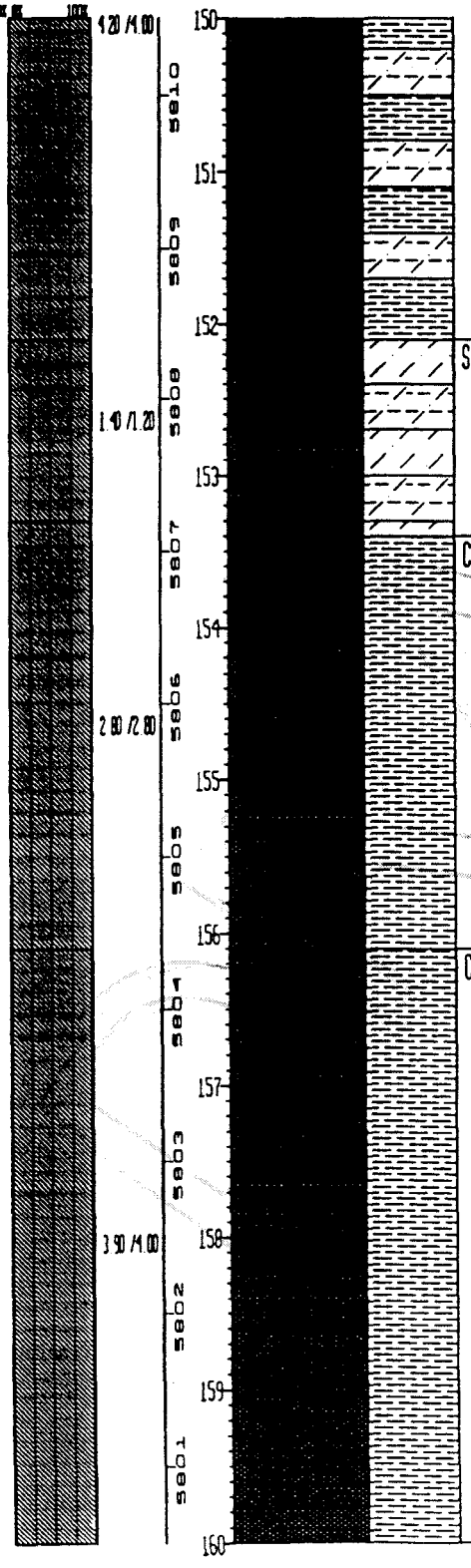
CLAYSTONE: Olive gray (5 Y 4/1). Mod. friable to friable. Bedding not evident. Some silt, slickensides visible on fracture, verticle orientation. Trace carbonaceous material (Claystone with some Silt).
20% silt, 80% clay.

CLAYSTONE: Same as above - interbedded with Silty Claystone, olive gray (5 Y 4/1). Mod. friable to friable. Thinly laminated bedding with some layers of silt (<1 mm.). Some small wedge sets visible (approx. 1.5 cm.). Bedding appears to have dip in some areas. Bedding angle 20 degrees in some areas.
>60% clay

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 220.1	GROUND ELEVATION (FT): 5960.50	OLD WELL NUMBER: 58-89BR	LOG OF BORING NUMBER
NORTH	749629	AREA EAST TRENCHES	CASING DIAMETER (IN): 2 3/8 O.D.	GEOLOGIST: LAH	B217689
EAST	2086746	LOCATOR NUMBER: M8	BOREHOLE DIAMETER (IN): 4	DATE DRILLED: 11/07/89	

REMARKS: Hollow Stem Auger 0.0-69.0', Rotary Core 69.0'-220.1'. 5-5/8" Surface casing set to 69.0' on 10/25/89 by C. M. Morrow.
ASI Log. GeoTech Sample B2176899103: 98.5'-103.0'; 34% sand, 66% silt and clay.

CHEMICAL SAMPLE OR GEOTECHNICAL SAMPLE | SAMPLE NUM | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION

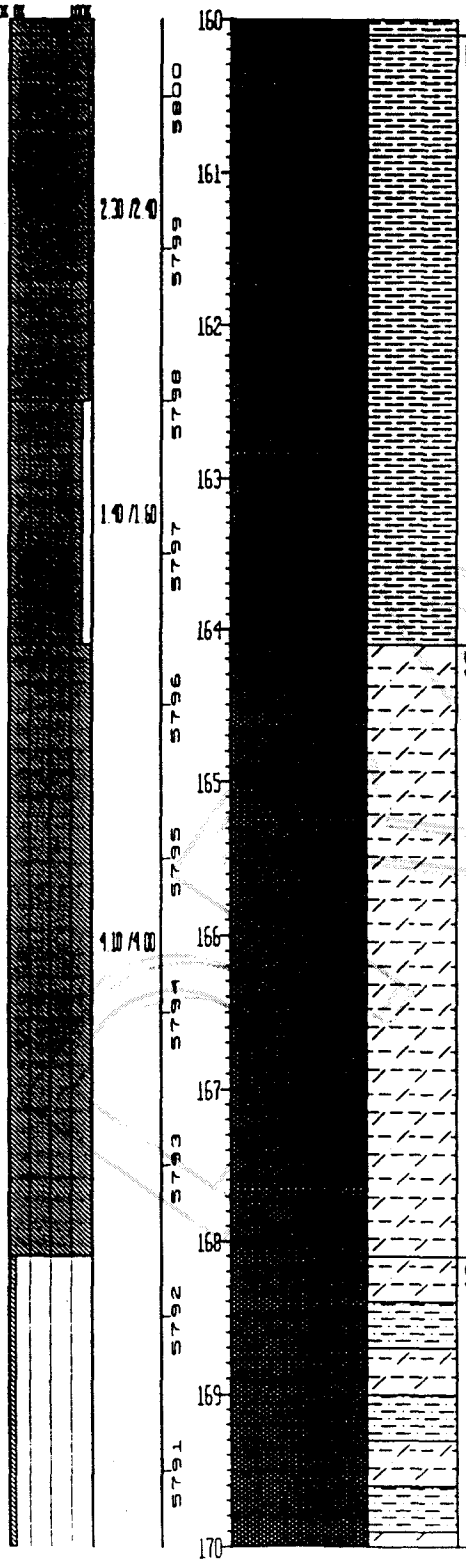


UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
SILTSTONE	Interbedded Siltstone and Silty Claystone - mod. friable. Bedding at low angle to horiz. 30% silt, 60% clay.
CLAYSTONE	Grades to Claystone - olive gray (5 Y 4/1). Mod. friable. Bedding not evident, some silt. Fracture angles 30 degrees to 60 degrees. >80% clay.
CLAYSTONE	Same as above - bedding not evident >80% clay.

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 220.1	GROUND ELEVATION (FT): 5960.50	OLD WELL NUMBER: 58-898R	LOG OF BORING NUMBER:
NORTH:	749629	AREA: EAST TRENCHES	CASING DIAMETER (IN): 2 3/8 O.D.	GEOLOGIST: LAH	B217689
EAST:	2086746	LOCATOR NUMBER: 118	BOREHOLE DIAMETER (IN): 4	DATE DRILLED: 11/07/89	

REMARKS: Hollow Stem Auger 0.0-69.0', Rotary Core 69.0'-220.1'. 5-5/8" Surface casing set to 69.0' on 10/25/89 by C. M. Morrow.
ASI Log. GeoTech Sample B217689103: 98.5'-103.0'; 34% sand, 66% silt and clay.

CHEMICAL SAMP. / GEOTECHNICAL / SAMPLE NUMBER / SAMPLE GRAIN SIZE (0% – 50%) / PERCENT RECOVERY (100% – 100%) / RECOVERY/INTERVAL / DATUM (FT) / DEPTH (FT) / WELL OR PIEZOMETER CONSTRUCTION / LITHOLOGY / UNIFIED SOILS CLASSIFICATION OR ROCK TYPE / DESCRIPTION



CLAYSTONE Olive gray (5 Y 4/1). Mod. friable. Bedding not evident. Some silt. Becomes silty toward bottom. >80% clay to >60% clay.

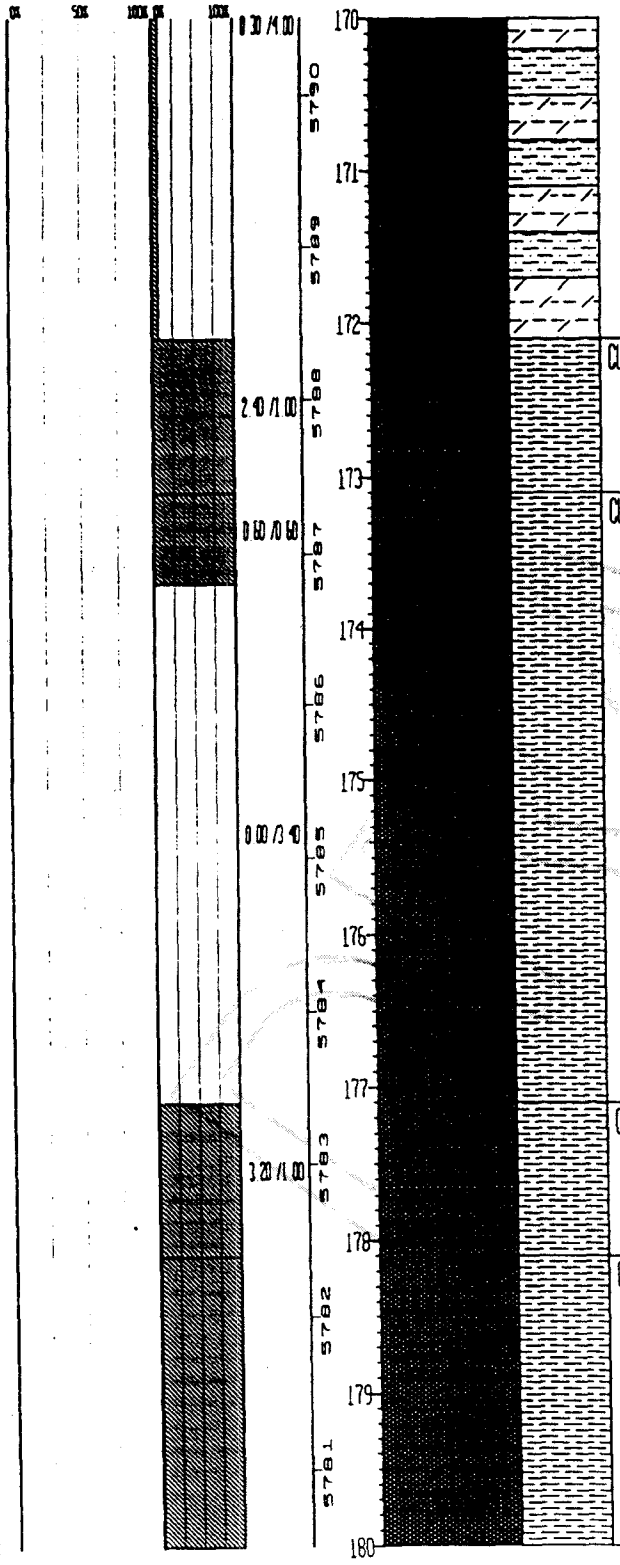
SILTY CLAYSTONE Olive gray (5 Y 4/1). Mod. friable. Thinly laminated, irregular bedding visible, mostly in upper interval, gently sloping. Trace carbonaceous material. Some v.f.g. sand, trace iron staining. Healed fracture forms contact between above and v.f.g. Sandy Claystone. Fracture angle 50 degrees. Bedding angle 15 degrees to 30 degrees. 10-25% sand, 20% silt, >60% clay.

SILTY CLAYSTONE Same as above and Sandy Claystone - pinkish gray (5 YR 8/1) to light olive gray (5 Y 6/1). Slightly friable. Bedding not evident. Trace carbonaceous material. >60% clay.

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 220.1	GROUND ELEVATION (FT)	5960.50	OLD WELL NUMBER	58-899R	LOG OF BORING NUMBER
NORTH	749629	AREA EAST TRENCHES	CASING DIAMETER (IN)	2 3/8 O.D.	GEOLOGIST	LMH	B217689
EAST	208676	LOCATOR NUMBER M8	BOREHOLE DIAMETER (IN)	4	DATE DRILLED	11/07/89	

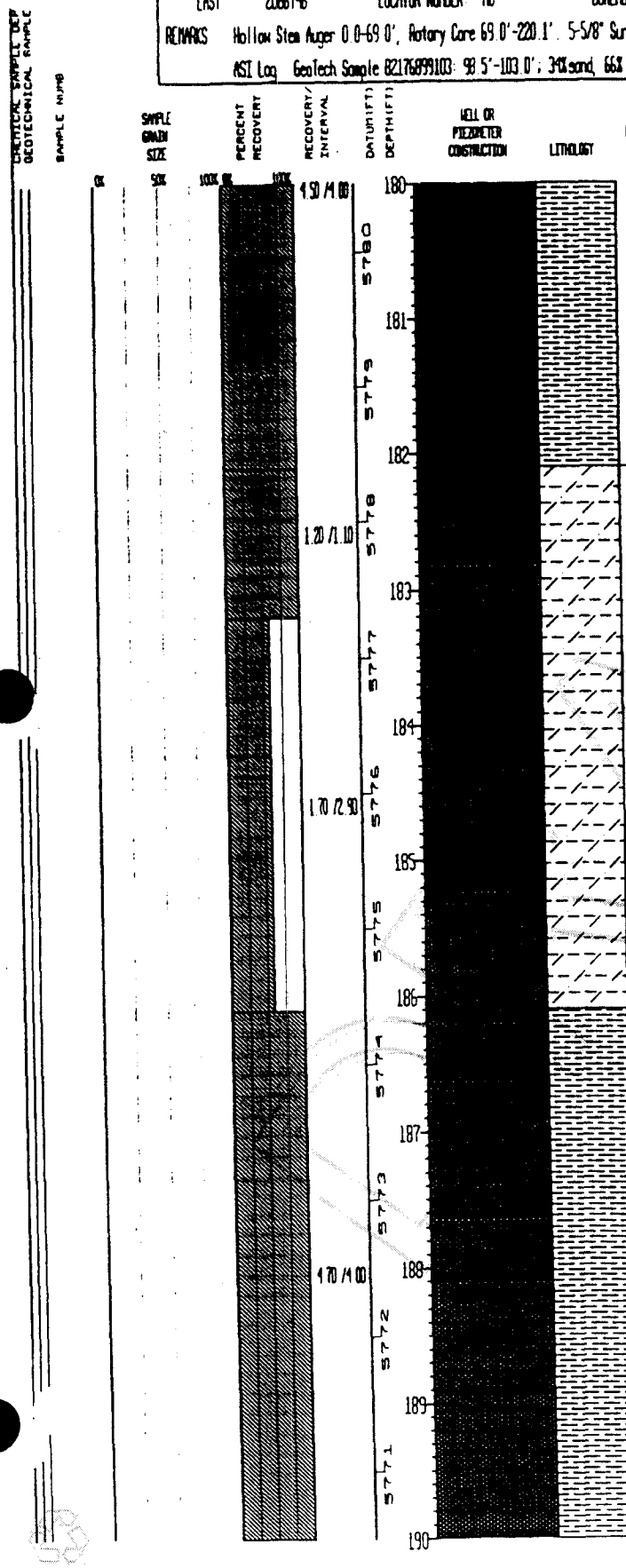
REMARKS: Hollow Stem Auger 0.0-69.0', Rotary Core 69.0'-220.1'. 5-5/8" Surface casing set to 69.0' on 10/25/89 by C. M. Morrow.
ASI Log. Geotech Sample B217689103: 98.5'-103.0', 34% sand, 66% silt and clay

UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CLAYSTONE	Olive black (5 Y 2/1). Friable. Bedding not evident. Some silt in localized areas, trace iron staining. >80% clay
CLAYSTONE	Same as above - high angle fracture. Bedding angle approx 80 degrees. >80% clay
CLAYSTONE	Same as above - Grades to Sandy Claystone, olive gray (5 Y 4/1). Slightly friable. Bedding not evident. V.f.g sand, some silt. >60% clay
CLAYSTONE	Same as above - grading from more sandy to less sandy, color grades from olive gray (5 Y 4/1) to light olive gray (5 Y 6/1). Healed fracture toward bottom separates a sandier sequence. Some thin laminations visible toward bottom of sequence (<1 mm), trace carbonaceous material. >60% clay



STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 220.1	GROUND ELEVATION (FT):	5960.50	OLD WELL NUMBER:	58-89BR	LOG OF BORING NUMBER:
NORTH:	749629	AREA: EAST TRENCHES	CASING DIAMETER (IN):	2 3/8 0.0	GEOLOGIST:	LAH	B217689
EAST:	2086746	LOCATOR NUMBER: MB	BOREHOLE DIAMETER (IN):	4	DATE DRILLED:	11/07/89	

REMARKS: Hollow Stem Auger 0.0-69.0', Rotary Core 69.0'-220.1'. 5-5/8" Surface casing set to 69.0' on 10/25/89 by C. M. Morrow.
ASI Log GeoTech Sample B2176899103: 98.5'-103.0'; 34% sand, 66% silt and clay.



SILTY CLAYSTONE: Olive gray (5 Y 4/1). Mod. friable. Bedding not evident, trace carbonaceous material. High angle, open, fracture toward bottom of interval has slickensides 80 degrees off vertical. Fracture angle 70 degrees.
>70% clay

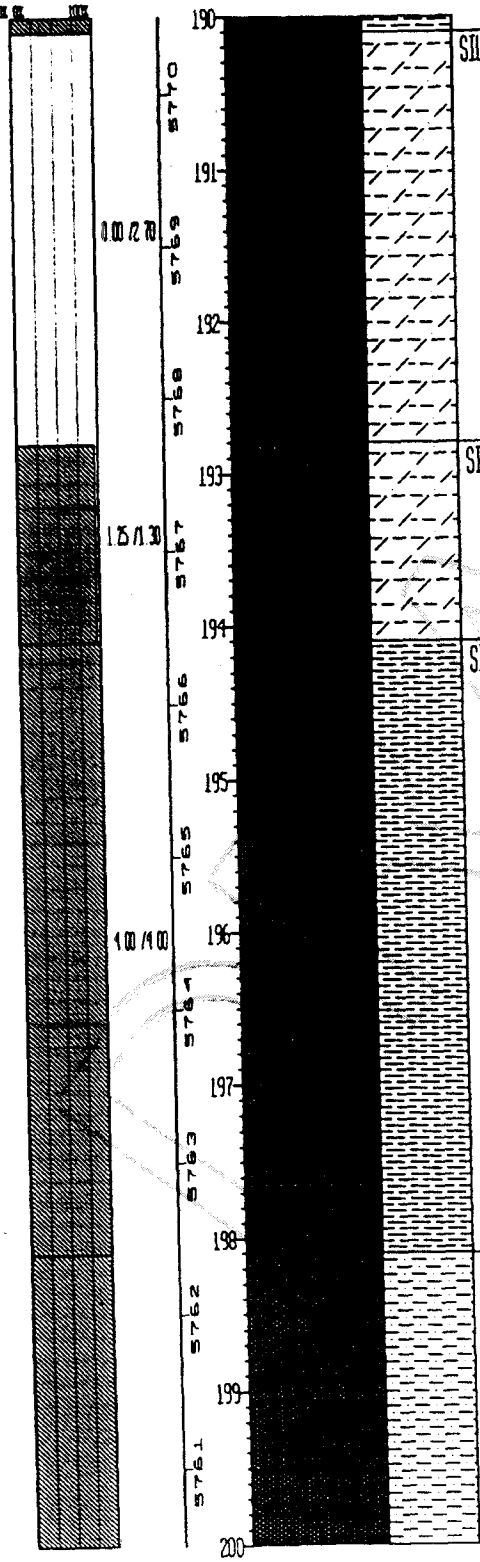
CLAYSTONE: Olive black (5 Y 2/1). Friable. Bedding not evident. Trace silt, trace carbonaceous material, low angle open fracture. Fracture angle 20 degrees.
>80% clay

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 220.1	GROUND ELEVATION (FT)	5960.50	OLD WELL NUMBER:	58-89BR	LOG OF BORING NUMBER
NORTH	749629	AREA: EAST TRENCHES	CASING DIAMETER (IN)	2 3/8 O.D.	GEOLOGIST:	LAH	B217689
EAST	2086746	LOCATOR NUMBER: M8	BOREHOLE DIAMETER (IN)	4	DATE DRILLED:	11/07/89	

REMARKS: Hollow Stem Auger 0.0-69.0', Rotary Core 69.0'-220.1'. 5-5/8" Surface casing set to 69.0' on 10/25/89 by C. M. Morrow

ASI Log: GeoTech Sample B2176899103: 98.5'-103.0'; 34% sand, 66% silt and clay

CHEMICAL SAMPLE DEPTH / GEOTECHNICAL SAMPLE / SAMPLE NUM. / SAMPLE GRAIN SIZE (0% 50% 100%) / PERCENT RECOVERY (0% 100%) / RECOVERY/INTERVAL / DATUM (FT) / DEPTH (FT) / WELL OR PIEZOMETER CONSTRUCTION / LITHOLOGY / UNIFIED SOILS CLASSIFICATION OR ROCK TYPE / DESCRIPTION



SILTY CLAYSTONE: Olive gray (5 Y 4/1) to olive black (5 Y 2/1). Friable. Bedding appears mildly dipping (approx. 10 degrees) and irregular from deposition of organic material. Some carbonaceous material, thin (<1 mm.) coal seams. (Silty Claystone with some Carbonaceous Material). 10% silt, 7% carbonaceous, >60% clay.

SILTY CLAYSTONE: Same as above - bedding not as evident. Mod. friable, low angle fracture at 30 degrees.

SITLY CLAYSTONE: Olive gray (5 Y 4/1). Mod. friable to friable. Bedding laminated in thin layers, irregular. Silt layers (<1 mm.) Bedding has mild dip in lower part of sequence. Some localized areas of Sandy Claystone, v.f.g. sand. Bedding angle 15 degrees to 20 degrees. 20% sand, 30% silt, >50% clay.

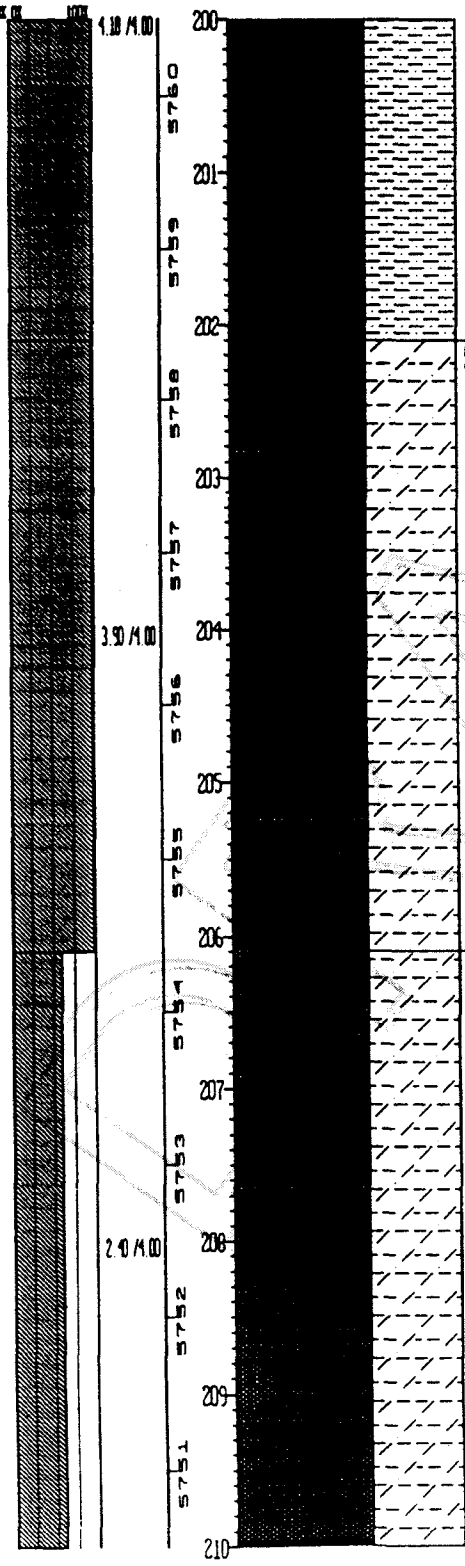
SANDY CLAYSTONE: Same as above - bedding more irregular, probably soft sediment deformation. Some carbonaceous material middle of interval. (Sandy Claystone with some Silt) >20% sand, 20% silt, >50% clay

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 220.1	GROUND ELEVATION (FT):	5960.50	OLD WELL NUMBER:	58-89BR	LOG OF BORING NUMBER:
NORTH:	749629	AREA: EAST TRENCHES	CASING DIAMETER (IN):	2 3/8 O.D.	GEOLOGIST:	LAH	B217689
EAST:	2086746	LOCATOR NUMBER: M8	BOREHOLE DIAMETER (IN):	4	DATE DRILLED:	11/07/89	

REMARKS: Hollow Stem Auger 0.0-69.0', Rotary Core 69.0'-220.1' 5-5/8" Surface casing set to 69.0' on 10/25/89 by C. M. Morrow.

ASI Log. GeoTech Sample B2176899103: 98.5'-103.0'; 34% sand, 66% silt and clay.

CHEMICAL SAMPLE | GEOTECHNIC SAMPLE | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION



SILTY CLAYSTONE: Olive gray (5 Y 4/1). Slightly friable. Bedding appears dipping from deposition of carbonaceous material (some carbonaceous material and coal seams (<1mm)). Healed fracture provides sharp contact with a Clayey Sandstone, light olive gray (5 Y 6/1) to pinkish gray (5 YR 8/1). Bedding thinly laminated, deformed (soft sediment). V.f.g. sand, well sorted, mod. porous. Fracture angles 40 degrees to 45 degrees.
20% silt, >60% clay.

SILTY CLAYSTONE: Same as above - grades to Claystone. Claystone 0.7 in. down. Claystone friable, olive gray (5 Y 4/1) to olive black (5 Y 2/1). Bedding not evident, trace carbonaceous material.
>50% sand, >80% clay.

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 220.1	GROUND ELEVATION (FT)	5960.50	OLD WELL NUMBER	58-898R	LOG OF BORING NUMBER
NORTH	749629	AREA EAST TRENCHES	CASING DIAMETER (IN)	2 3/8 O.D.	GEOLOGIST	LAH	B217689
EAST	2086746	LOCATOR NUMBER M8	BOREHOLE DIAMETER (IN)	4	DATE DRILLED	11/07/89	

REMARKS Hollow Stem Auger 0.0-69.0', Rotary Core 69.0'-220.1'. 5-5/8" Surface casing set to 69.0' on 10/25/89 by C. M. Morrow
ASI Log. GeoTech Sample B217689103: 98.5'-103.0', 34% sand, 66% silt and clay

CHEMICAL SAMPLE OR GEOTECHNICAL SAMPLE	SAMPLE NUM.	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				2.60 /1.23	5750	210			SILTY CLAYSTONE	Olive black (5 Y 2/1). Slightly friable. Bedding not evident, some carbonaceous material. Low angle fracture. Grades to Claystone as above, but friable. Grades to v.f.g. Sandy Claystone, light olive gray (5 Y 6/1). Slightly friable. Bedding not evident, trace carbonaceous material. Fracture angle 30 degrees. >60% clay.
					5749	211				
				1.60 /1.77	5748	212				
						213			SILTY CLAYSTONE	Same as above - grades to Clayey Sandstone, v.f.g., then is mottled with clay, irregular mottles, light gray (5 Y 6/1) to olive gray (5 Y 4/1). Some bedding dipping at 45 degrees, some carbonaceous organic material. Some thin laminations (approx. 1 mm.) visible, soft sediment deformation likely. Above 45 degrees, fracture was healed with carbon. Fracture angle 0 degrees to 45 degrees. >50% sand.
				2.80 /2.00	5747	214				
					5746	215				
					5745					
				0.00 /1.20	5744	216			NO SAMPLE	NO SAMPLE
						217			CLAYSTONE	Olive black (5 Y 2/1). Mod. friable. Bedding not evident. Some carbonaceous material, some silt, grades to Silty Claystone and back to Claystone at bottom of interval. Trace iron staining. >50% clay.
				3.20 /2.20	5743	218				
					5742	219				
				0.00 /0.80	5741	220			NO SAMPLE	No sample - core missing.

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 220.1	GROUND ELEVATION (FT): 5960.50	OLD WELL NUMBER: 58-89BR	LOG OF BORING NUMBER:	
NORTH: 749629	AREA: EAST TRENCHES	CASING DIAMETER (IN): 2 3/8 0.0	GEOLOGIST: LAH	B217689	
EAST: 2086746	LOCATOR NUMBER: MB	BOREHOLE DIAMETER (IN): 4	DATE DRILLED: 11/07/89		

REMARKS: Hollow Stem Auger 0.0-69.0', Rotary Core 69.0'-220.1'. 5-5/8" Surface casing set to 69.0' on 10/25/89 by C. M Morrow

ASI Log. GeoTech Sample B2176899103: 98.5'-103.0'; 34% sand, 66% silt and clay.

CHEMICAL SAMPLE DET. GEOTECHNICAL SAMPLE	SAMPLE NUMB.	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
						220				Total Drilled Depth = 220.1'
					5740					
						221				
					5739					
						222				
					5738					
						223				
					5737					
						224				
					5736					
						225				
					5735					
						226				
					5734					
						227				
					5733					
						228				
					5732					
						229				
					5731					
						230				

DRAFT

STATE PLANE COORDINATE	TOTAL DEPTH (FT): 14.20	GROUND ELEVATION (FT): 5897.39	PROJECT NUMBER: 0014-RFI/RI	LOG OF BORING NUMBER:
NORTH: 751569	AREA: BUFFER ZONE	CASING DIAMETER (IN): 8.4	GEOLOGIST: C.D. MURRAY	40093
EAST: 2085093	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN): 8.00 .0	DATE DRILLED: 01/14/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BORING PLUGGED AND ABANDONED. RIG GEOLOGY BY C.D. MURRAY, CORE LOGGING BY K.R. MIYOSHI AND J.C. EVANS.

CHEMICAL SAMPLE / GRADATIONAL / DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				0.85/1.00	5897	0			SW	Silty Sand with some gravel and trace clay (0.0-3.1'). Yellowish brown (10 YR 5/6). Poorly graded sand, v.f.g to c.g., sub-angular to sub-rounded, no caliche, pred. quartz and feldspar. Low plasticity fines, no visible bedding, moist. Sandy zone at 3.0-3.1'. 7% Gravel, 54% Sand, 35% Silt, 4% Clay. No recovery (0.85-1.0'), (1.5-2.0'), (2.8-3.0')
	BH0168NE			0.50/1.00	5896	1				
	BH0167NE			0.80/1.00	5895	2				
				1.20/1.20	5894	3			ML	Silt with some clay (3.1-6.4'). Brownish yellow (10 YR 6/6), poorly graded, low plasticity fines, no visible bedding, moist, reworked bedrock. Some Fe-oxide staining, friable. 90% Silt, 10% Clay. No Recovery (4.8-6.0')
	BH0169NE			0.60/1.80	5893	4				
				1.00/1.00	5892	5				
				0.90/1.00	5891	6			SW	Gravelly Sand with some silt (6.4-6.9'). Red (2.5 YR 4/6), well graded sand, v.f.g. to c.g., sub-angular to sub-rounded, pred. quartz and feldspar, low plasticity fines, no visible bedding, moist. 29% Gravel, 56% Sand, 15% Silt, 1% Clay
				0.70/1.00	5890	7			ML	Clayey Silt with some sand (6.9-8.4'). Yellowish brown (10 YR 5/4), poorly graded sand, pred. quartz, no visible bedding, moist, very stiff, some organic material, roots, trace of pebbles. 9% Sand, 73% Silt, 18% Clay. No Recovery (7.9-8.0')
	70NE			1.20/1.20	5889	8			CLAYEY SILTSTONE	Top of Bedrock at 8.4'. Clayey Siltstone (8.4-14.2'). Brown (10 YR 5/3) to light yellowish brown (2.5 Y 6/4). Trace of fine sand, low plasticity fines, high amount of organic material (roots), mottled appearance, massive bedding, some Fe-oxide staining, moist. 60% Silt, 40% Clay. No Recovery (8.7-9.0')
	BH0171NE				5888	9				
						10				

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 14.20	GROUND ELEVATION (FT): 5897.39	PROJECT NUMBER: 004-RFI/RI	LOG OF BORING NUMBER:	
NORTH: 751569	AREA: BUFFER ZONE	CASING DIAMETER (IN):	GEOLOGIST: C.D.MURRAY	40093	
EAST: 2085093	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 01/14/93		

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BORING PLUGGED AND ABANDONED. RIG GEOLOGY BY C.D. MURRAY, CORE LOGGING BY K.R. MIYOSHI AND J.C. EVANS.

CHEMICAL SAMPLE GRADATIONAL	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5887	10				
				2.00 /2.00	5886	11				
					5885	12				
				2.20 /2.00	5884	13				
					5883	14				Total Depth Drilled 14.20
					5882	15				
					5881	16				
					5880	17				
					5879	18				
					5878	19				
						20				

DRAFT

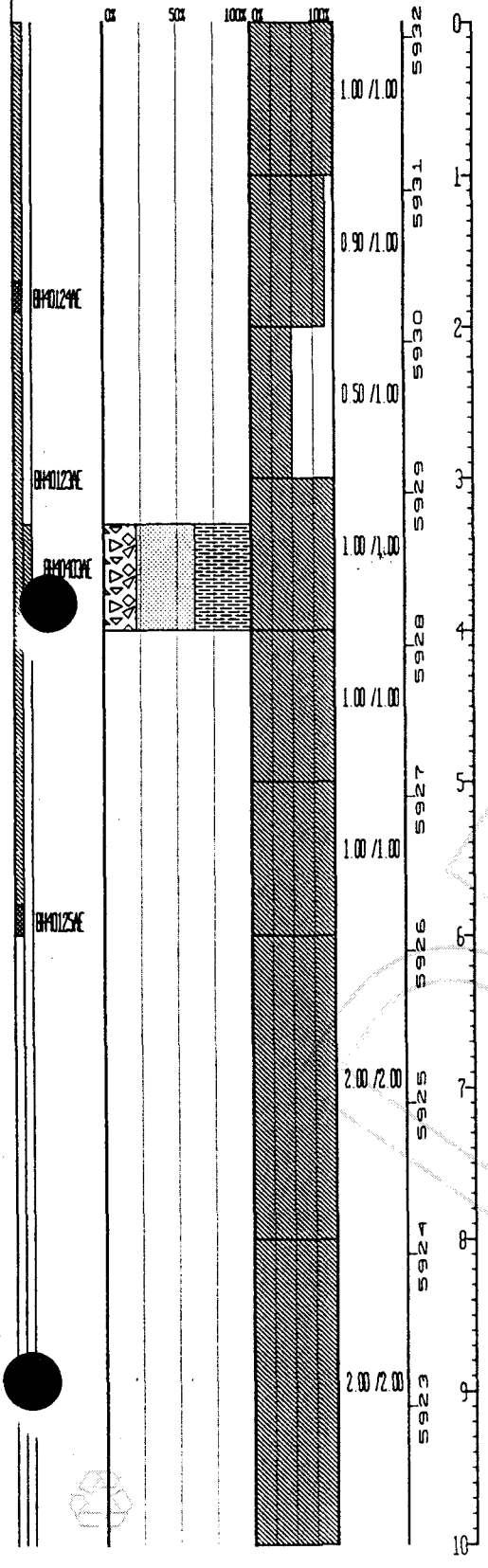
STATE PLANE COORDINATE		TOTAL DEPTH (FT): 6.20	GROUND ELEVATION (FT):	5901.90	PROJECT NUMBER:	014-RFI/RI	LOG OF BORING NUMBER:
NORTH:	751520	AREA: BUFFER ZONE	CASING DIAMETER (IN):	2.00	GEOLOGIST:	K.R.MIYOSHI	40293
EAST:	2084904	LOCATOR NUMBER: L11	BOREHOLE DIAMETER (IN):	8.00	DATE DRILLED:	01/20/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COMPLETED AS LYSIMETER/NEUTRON ACCESS TUBE. RIG GEOLOGY BY K.R. MIYOSHI (TE), CORE LOGGING BY J.C. EVANS (AE).

CHEMICAL SAMPLE DEPTH / GRADATION SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50%	100% 0% 100%	1.20 /1.20	5901	0			CL	Sandy Clay with abundant silt and trace gravel (0.0-1.2'). Yellowish brown (10 YR 5/6) to dark yellowish brown (10 YR 4/4). Clay is soft, moist, low plasticity fines. Sand moderately to well graded, angular to sub-rounded, pred. quartz, trace dark rock fragments, interval is sandier and rooted at top. Gravel angular, to 2 cm in length. 2% Gravel, 29% Sand, 28% Silt, 41% Clay.
	GHOL18NE					1				
	GHOL19NE			1.00 /1.00	5900	2			ML	Clayey Silt with some sand and trace gravel (1.2-2.9') Very dark gray (10 YR 3/1) to dark yellowish brown (10 YR 4/6), very stiff to hard, low plasticity fines. Sand moderately graded, v.f.g to f.g., sub-rounded, pred. quartz, trace well rounded, frosted medium quartz grains. Gravel sub-rounded, to 4 cm in length, moist, no visible bedding. 2% Gravel, 19% Sand, 47% Silt, 32% Clay.
				1.00 /1.00	5899	3				
				0.80 /1.80	5898	4			CL	Silty Clay with some gravel and trace sand (2.9-6.2') Grayish brown (10 YR 5/2) Low plasticity fines, with mottled limonite staining, no visible bedding, moist, trace scattered gravel, angular to sub-rounded, up to 2 cm in length. 6% Gravel, 1% Sand, 28% Silt, 65% Clay. No recovery (4.0-4.2')
				2.00 /2.00	5897	5				
	GHOL20NE				5896	6				
					5895	7				Total depth drilled 6.2'. Vadose Zone Monitoring Borehole Construction Listed Below: Bentonite: 0.65' to 0.84' Silica Sand: 0.84' to 1.33' Silica Flour: 1.33' to 2.8' Bottom Porous Cup: 1.67' Bentonite: 2.8' to 3.1' Portland Cement: 3.1' to 6.7' Total Depth Neutron Access Tube: 6.4'
					5894	8				
					5893	9				
					5892	10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 12.00	GROUND ELEVATION (FT): 5932.10	PROJECT NUMBER: 004-RFI/RI	LOG OF BORING NUMBER:
NORTH:	751256	AREA: Buffer Zone	CASING DIAMETER (IN): 2.00	GEOLOGIST: C.D. MURRAY	40393
EAST:	2085447	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 01/29/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COMPLETED AS LYSIMETER/NEUTRON ACCESS TUBE. RIG GEOLOGY BY C.D. MURRAY, CORE LOGGING BY C.D. MURRAY AND K.R. MIYOSHI.



LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	OL	Organic Silt with abundant sand, some gravel and trace clay (0'0-0.6'). Dark brown (10 YR 3/3) soil zone. Poorly graded sand, v.f.g. to m.g., sub-angular to sub-rounded, pred. quartz/feldspar, low plasticity fines, common roots/organic material, no visible bedding, moist. 17% Gravel, 27% Sand, 54% Silt, 3% Clay.
	ML	Sandy Silt with some gravel and trace of clay (0.6-6.0'). Yellowish brown (10 YR 5/6). Well graded sand, v.f.g. to c.g., sub-angular, pred. quartz and feldspar, no caliche, low plasticity fines, slight horiz. bedding. Trace of pebble size gravel scattered throughout. Reworked bedrock, moist. 13% Gravel, 40% Sand, 42% Silt, 5% Clay. No recovery (1.9-2.0'), (2.5-3.0')
	SANDY SILTSTONE	Top of Bedrock at 6.0'. Sandy Siltstone with a trace of clay (6.0-6.4'). Olive yellow (2.5 Y 6/6), well sorted sand, v.f.g., sub-angular, pred. quartz, argilloceous cement, no caliche, moist. Some fe-oxide staining, no visible bedding. 49% Sand, 56% Silt, 3% Clay
	CLAYSTONE	Claystone with a trace of silt (6.4-11.0'). Light olive brown (2.5 Y 5/6). Very stiff, caliche present in fractures, some fe-oxide staining, faint horiz. bedding, clay nodules present throughout. Caliche filled fractures at 7.6' (10 degrees), moist. 5% Silt, 95% Clay

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 12.00	GROUND ELEVATION (FT): 5932.10	PROJECT NUMBER: 014-RFI/RI	LOG OF BORING NUMBER:
NORTH:	751256	AREA: Buffer Zone	CASING DIAMETER (IN): 2.00	GEOLOGIST: C.D.MURRAY	40393
EAST:	2085447	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 01/29/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COMPLETED AS LYSIMETER/NEUTRON ACCESS TUBE. RIG GEOLOGY BY C.D. MURRAY, CORE LOGGING BY C.D. MURRAY AND K.R. MIYOSHI.

CHEMICAL SAMPLE DEPTH / GRADATIONAL S/	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH0104AE			1.00 /2.00	5922	10				
					5921	11			NO RECOVERY	No recovery (11.0-12.0').
					5920	12				Total depth drilled 12.0' Vadose Zone Monitoring Borehole Construction Listed Below: Portland Cement: 1.0' to 2.8' Bentonite: 2.8' to 3.6' Silica Sand: 3.6' to 4.8' Silica Flour: 4.8' to 5.8' Bottom Porous Cup: 5.7' Bentonite: 5.8' to 6.2' Portland Cement: 6.2' to 11.8' Total Depth Neutron Access Tube: 11.5'
					5919	13				
					5918	14				
					5917	15				
					5916	16				
					5915	17				
					5914	18				
					5913	19				
						20				Total Depth Drilled 12.00

DRAFT

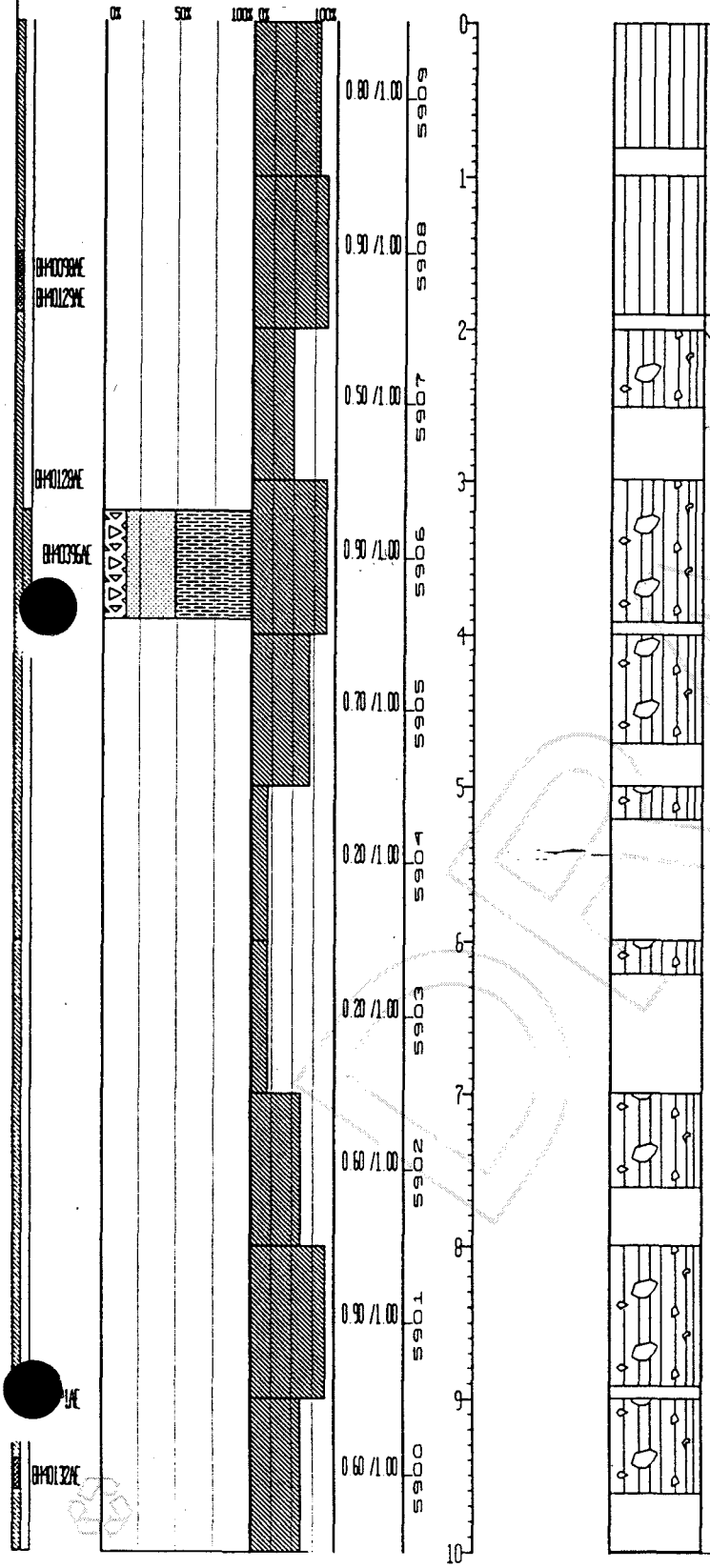
STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 8.00	GROUND ELEVATION (FT): 5883.64	PROJECT NUMBER: OU4-RFI/RI	LOG OF BORING NUMBER:	
NORTH: 751541	AREA: BUFFER ZONE	CASING DIAMETER (IN): 4.7	GEOLOGIST: K.R.MIYOSHI	40493	
EAST: 2085711	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN): ~~8.00~~ 9.4	DATE DRILLED: 01/08/93		

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY BY K.R.MIYOSHI (TE), CORE LOGGING BY J.C. EVANS (AE).

CHEMICAL SAMPLE / GRADATIONAL SAMPLE	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH40461AE			0.90 /2.00	5883, 5882	0, 1			CL:	Silty Clay with trace sand (0.0-4.7'). Dark yellowish brown (10 YR 3/4) to olive brown (2.5 Y 4/3), very stiff to hard, low to medium plasticity fines, plant roots throughout interval, sand well sorted, well-rounded, pred. f.g., trace m.g. frosted quartz grains. Top 0.5' of interval contains organic soil and trace gravel to 5 cm in length, dry to moist, no visible bedding. 5% Sand, 38% Silt, 57% Clay. No recovery (0.9-2.0'), (3.0-4.0').
	BH40462AE			1.00 /2.00	5881, 5880	2, 3				
	BH40463AE			1.00 /2.00	5879, 5878	4, 5			CLAYEY SANDSTONE:	Clayey Sandstone with some silt (4.7-5.0'). Top of Bedrock at 4.7'. Yellow (10 YR 7/6) to brownish yellow (10 YR 6/6), pred. v.f.g. to f.g., sub-rounded to rounded, trace very well-rounded, frosted m.g. quartz grains, approx. 20% visible porosity, approx. 5-10% argillaceous cement, moderately friable, moist. 58% Sand, 17% Silt, 25% Clay.
						6			NO RECOVERY:	No recovery (5.0-6.0').
				0.90 /2.00	5877, 5876	7			CLAYSTONE:	Claystone with some silt (6.0-6.4'). Dark gray (10 YR 4/1) to black (10 YR 2/1), very stiff to hard, parallel bedding at 15 degrees to horiz. carbonaceous material and limonite staining along bedding planes, moist. 10-20% Silt, 80-90% Clay.
						8			CLAYEY SANDSTONE:	Clayey Sandstone with some silt (6.4-6.9'). Same as reference interval (4.7-5.0') above.
					5875, 5874	9, 10			NO RECOVERY:	No recovery (6.9-8.0)
										Total Depth Drilled: 8.00

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 26.00	GROUND ELEVATION (FT):	5909.50	PROJECT NUMBER	014-RFI/RI	LOG OF BORING NUMBER:
NORTH:	751491	AREA: BUFFER ZONE	CASING DIAMETER (IN):	2.00	GEOLOGIST:	K.R. MIYOSHI	40593
EAST:	2085558	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN):	8.00	DATE DRILLED:	01/26/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COMPLETED AS TWO LYSIMETERS AND A NEUTRON ACCESS TUBE. RIG GEOLOGST BY K.R. MIYOSHI, CORE LOGGING BY J.C. EVANS.

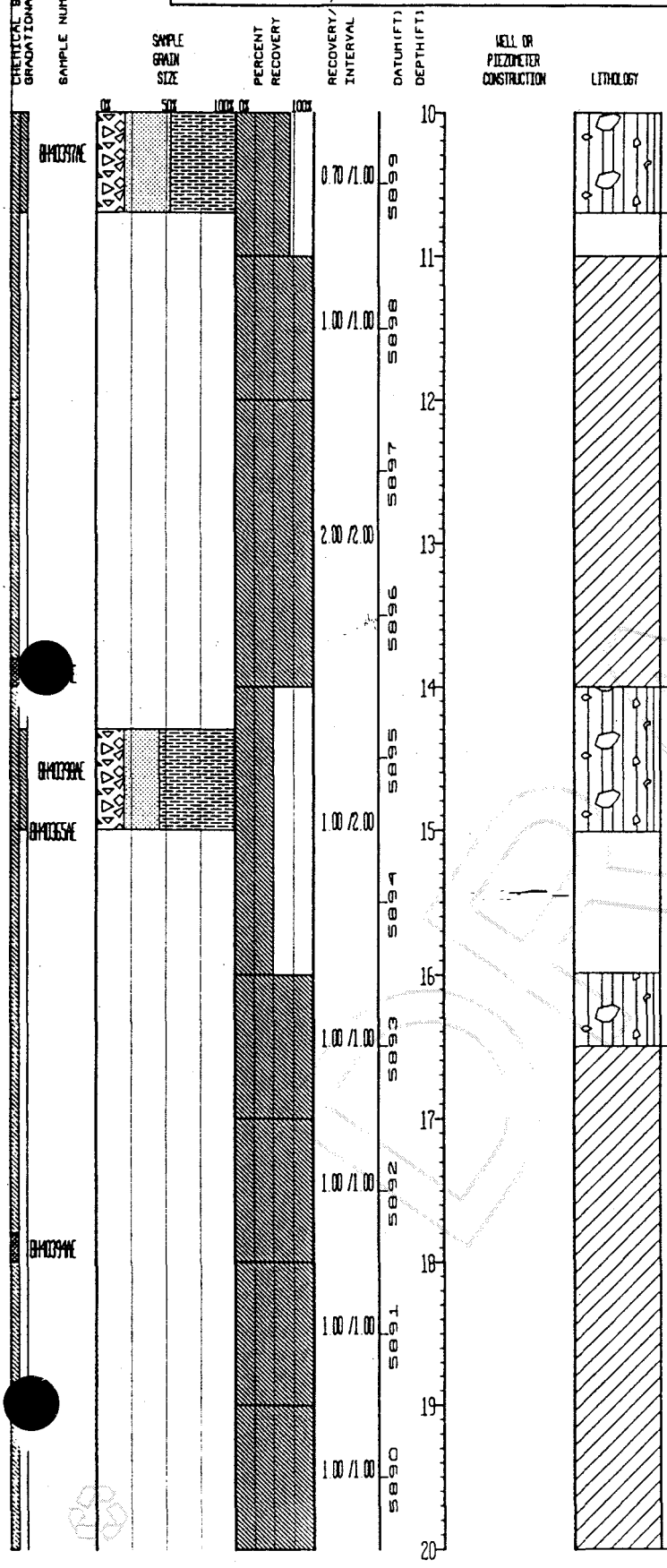


UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
ML	Clayey Silt with some sand and gravel (0.0-1.9'). Light brownish gray (10 YR 6/2) with scattered brownish yellow (10 YR 6/8) mottling. Scattered white (10 YR 8/1) calichegrains. Stiff, moist, sand and gravel poorly graded, sub-angular to rounded. Abundant grass roots from (0.0-0.3'). Low plasticity fines. 6% Gravel, 6% Sand, 53% Silt, 35% Clay No recovery (0.8-1.0')
NO RECOVERY	No recovery (1.9-2.0')
GM	Silty Gravel with some sand and clay (2.0-10.7'). Matrix light yellowish brown (10 YR 6/4), scattered caliche grains, sand poorly graded, v.f. to m.g., sub-angular to sub-rounded, dry, low plasticity fines, pred. quartz/feldspar, no visible bedding, some reworked bedrock, pebble sized quartzite/lithic fragments. 50% Gravel, 20% Sand, 21% Silt, 9% Clay No recovery (2.5-3.0'), (3.9-4.0'), (4.7-5.0'), (5.2-6.0') No recovery (6.2-7.0'), (7.6-8.0'), (8.9-9.0'), (9.6-10.0')

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 26.00	GROUND ELEVATION (FT):	5909.50	PROJECT NUMBER:	OU4-RFI/RI
NORTH: 751491	AREA: BUFFER ZONE	CASING DIAMETER (IN):	2.00	GEOLOGIST:	K.R. MIYOSHI
EAST: 2085558	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN):	8.00	DATE DRILLED:	01/26/93

LOG OF BORING NUMBER: 40593

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COMPLETED AS TWO LYSIMETERS AND A NEUTRON ACCESS TUBE. RIG GEOLOGY BY K.R. MIYOSHI, CORE LOGGING BY J.C. EVANS.



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
NO RECOVERY	No recovery (10.7-11.0').
CL	Silty Clay (11.0-14.0'). Mottled grayish brown (10 YR 5/2) and light yellowish brown (10 YR 6/4) with dark brown (10 YR 3/3) laminiations from 12.5-14.0'. Stiff with crude horiz. bedding, moist, trace sand and gravel. 30% Silt, 70% Clay.
GM	Silty Gravel with some sand and trace clay (14.0-16.5'). Matrix yellowish brown (10 YR 5/4), sand poorly graded, v.f. to m.g sub-angular to sub-rounded, low plasticity fines, no caliche pred. quartz/feldspar, crude horiz. bedding, dry. 41% Gravel 19% Sand, 38% Silt, 2% Clay. No recovery (15.0-16.0')
CL	Silty Clay with some sand (16.5-21.0'). Olive brown (2.5 Y 4/3) grading to grayish brown (2.5 Y 5/2) at base. Soft, plant roots throughout interval, no visible bedding. Sand poorly graded, sub-angular to sub-rounded, pred. quartz trace rounded gravel, trace caliche, moist. 13% Sand, 26% Silt, 61% Clay

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 26.00	GROUND ELEVATION (FT): 5909.50	PROJECT NUMBER: 014-RFI/RI	LOG OF BORING NUMBER:
NORTH: 751491	AREA: BUFFER ZONE	CASING DIAMETER (IN): 2.00	GEOLOGIST: K.R.MIYOSHI	40593
EAST: 2085558	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 01/26/93	

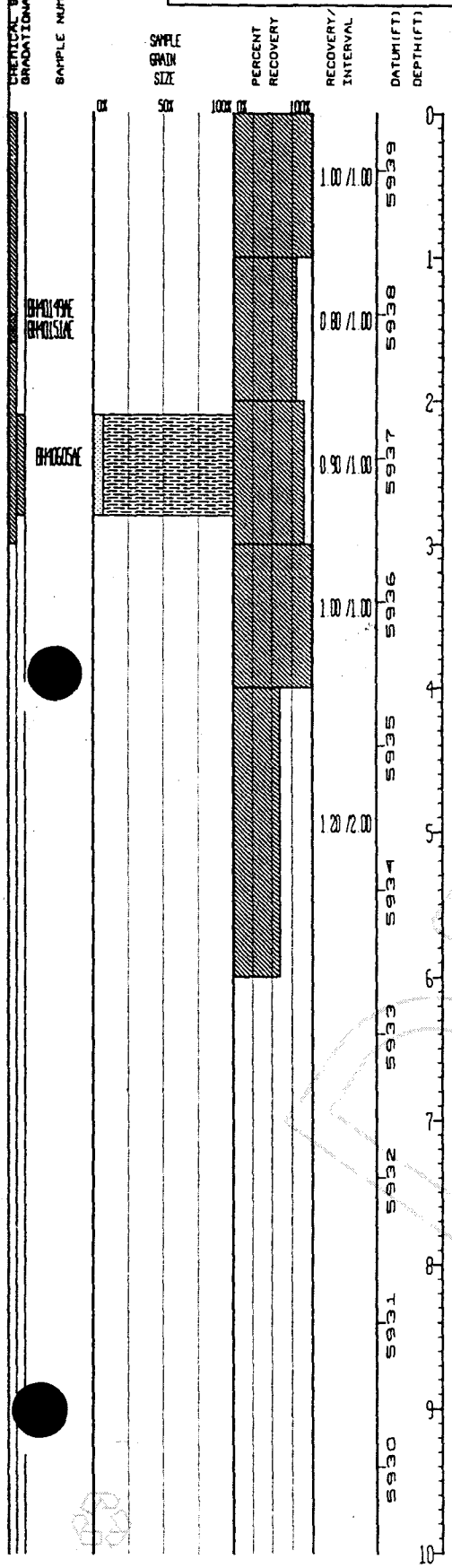
REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COMPLETED AS TWO LYSIMETERS AND A NEUTRON ACCESS TUBE. RIG GEOLOGY BY K.R. MIYOSHI, CORE LOGGING BY J.C. EVANS.

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH0401AE			1.00 /1.00	5909	20				
	BH0410AE					21			SILTY CLAYSTONE	Top of Bedrock at 21.0'. Silty Claystone at (21.0-26.0'). Light olive brown (2.5 Y 5/4). No sand present, predominately quartz, med plasticity fines, moist, approx. 2% porosity, argillaceous cement, no caliche, some Fe-oxide staining, some organic material, some crude bedding toward bottom, small friable zone at 24.0' 20% Silt, 80% Clay.
				1.00 /1.00	5908					
	BH0399AE				5907	22				
				2.00 /2.00		23				
					5906					
						24				
				1.30 /1.30	5905					
						25				
	BH0402AE			0.70 /0.70	5904					
						26				Total depth drilled 26.0'. Vadose Zone Monitoring Borehole Construction Listed Below: Bentonite: 5.5' to 6.0' Silica Sand: 6.0' to 8.4' Silica Flour: 8.4' to 10.4' Bottom of Porous Cup: 10.3' Bentonite: 10.4' to 10.8' Silica Sand: 10.8' to 15.9' Silica Flour: 15.9' to 16.4' Bottom Porous Cup: 16.3' Bentonite: 16.4' to 16.8' Silica Sand: 16.8' to 20.7' Bentonite: 20.7' to 21.3' Portland Cement: 21.3' to 26.3' Total Depth Neutron Access Tube: 26.0'
					5903					
						27				
					5902					
						28				
					5901					
						29				
					5900					
						30				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 6.00	GROUND ELEVATION (FT): 5939.40	PROJECT NUMBER: 004-RFI/RI	LOG OF BORING NUMBER:
NORTH:	751206	AREA: PA, Around Ponds	CASING DIAMETER (IN):	GEOLOGIST: K.R.MIYOSHI	40693
EAST:	2084477	LOCATOR NUMBER: L11	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 02/26/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COMPLETED AS NEUTRON ACCESS TUBE. RIG GEOLOGY BY K.R. MIYOSHI, CORE LOGGING BY C.D. MURRAY.

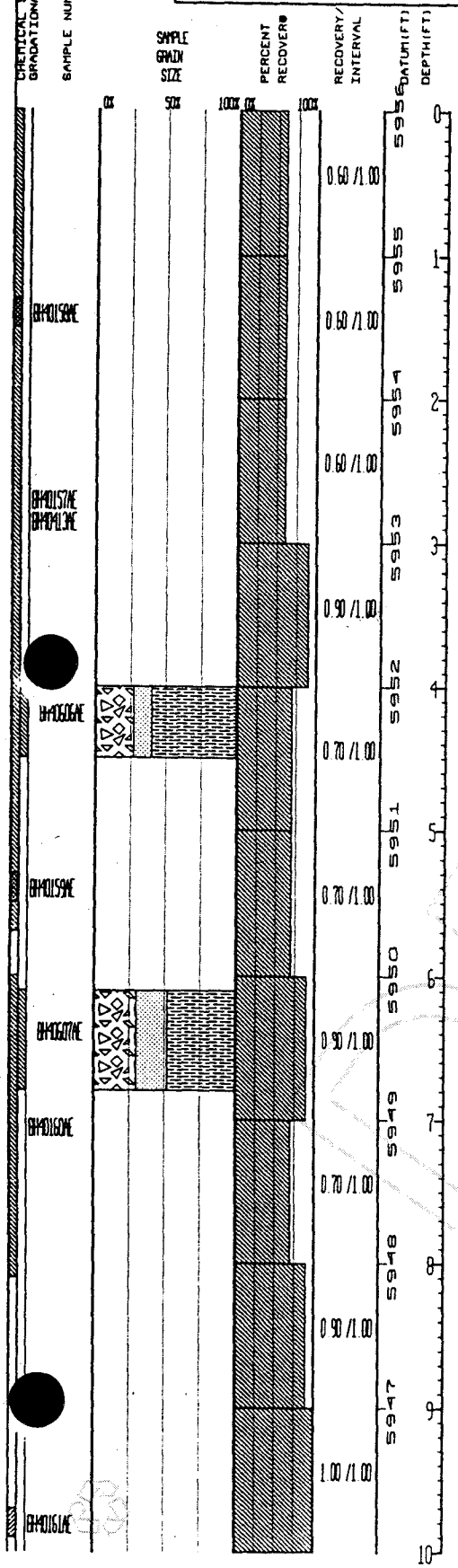


UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
OL	Organic Silt with abundant sand and trace of clay (0.0-1.0'). Dark brown (10 YR 3/3) poorly graded sand, v.f.g., sub-angular to rounded, pred. quartz, caliche present, abundant root material, low plasticity fines, soil zone, no visible bedding, moist. 37% Sand, 60% Silt, 3% Clay.
CLAYSTONE	Top of Bedrock at 1.0'. Claystone (1.0-5.2'). Light olive brown (2.5 Y 5/3), stiff, no visible bedding, moist. 100% Clay. No recovery (1.8-2.0'), (2.9-3.0').
NO RECOVERY	No recovery (5.2-6.0').
	Total depth drilled 6.0'. Vadose Zone Monitoring Borehole Construction. Total Depth Neutron Access Tube 4.5'

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 13.00	GROUND ELEVATION (FT): 5956.00	PROJECT NUMBER: 004-RFI/RI	LOG OF BORING NUMBER:
NORTH:	751089	AREA: BUFFER ZONE	CASING DIAMETER (IN): 2.00	GEOLOGIST: K.R. MIYOSHI	40793
EAST:	2084627	LOCATOR NUMBER: L11	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 03/02/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COMPLETED AS LYSIMETER/NEUTRON ACCESS TUBE. RIG GEOLOGY BY K.R. MIYOSHI, CORE LOGGING BY J.C. EVANS.



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
ML	Sandy Silt with some gravel and trace clay (0.0-1.6'). Very dark grayish brown (10 YR 3/2). Sand v.f.g., poorly graded, sub-angular, pred. quartz, low plasticity fines, moist, trace (5%) plant roots 12% Gravel, 31% Sand, 55% Silt, 3% Clay. No recovery (0.6-1.0').
NO RECOVERY	No recovery (1.6-2.0').
ML	Sandy Silt with some clay and trace gravel (2.0-6.9'). Dark yellowish brown (10 YR 4/6). Sand f.g. to c.g., poorly graded, sub-angular to sub-rounded, low plasticity fines, pred. quartz, trace (5%) caliche, moist. 5% Gravel, 28% Sand, 60% Silt, 7% Clay. No recovery (2.6-3.0'), (3.9-4.0'), (4.7-5.0'), (5.7-6.0').
NO RECOVERY	No recovery (6.9-7.0')
ML	Gravelly Silt with some clay and sand (7.0-8.5'). Brownish yellow (10 YR 6/6). Gravel poorly graded, sub-angular, pred. c.g., up to 6 cm in length. Sand poorly graded, pred. f.g., low plasticity fines, dry abundant (30%) caliche. 30% Gravel, 11% Sand, 36% Silt, 23% Clay. No recovery (7.7-8.0')
SILTY CLAYSTONE	Top of Bedrock at 8.5'. Silty Claystone with some sand (8.5-12.1'). Light yellowish brown (2.5 Y 6/4) with olive yellow (2.5 Y 6/8) Fe-oxide staining. Sand v.f.g. to f.g., well sorted, angular to sub-rounded, bedding consists of alternating sandy and clayey layers up to 0.4' thick, caliche present as fracture filling at 8.5', 9.2', and 10.1'. 17% Sand, 20% Silt, 63% Clay. No recovery (8.9-9.0'), (11.6-12.0')

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 13.00	GROUND ELEVATION (FT):	5956.00	PROJECT NUMBER:	014-RFI/RI	LOG OF BORING NUMBER:
NORTH:	751089	AREA: BUFFER ZONE	CASING DIAMETER (IN):	2.00	GEOLOGIST:	K.R.MIYOSHI	40793
EAST:	2084627	LOCATOR NUMBER: L11	BOREHOLE DIAMETER (IN):	8.00	DATE DRILLED:	03/02/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COMPLETED AS LYSIMETER/NEUTRON ACCESS TUBE. RIG GEOLOGY BY K.R. MIYOSHI, CORE LOGGING BY J.C. EVANS.

CHEMICAL SAMPLE DEPTH / GRADATIONAL S/ DEPTH	BAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/ INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				1.60 /2.00	5946	10				
					5945	11				
					5944	12				
				1.00 /1.00	5943	13			SILTY CLAYSTONE	Silty Claystone (12.1-13.0'). Olive yellow (2.5 Y 6/6), non-friable, argilloceous cement, dry, no visible bedding, possibly bioturbated, trace Mg-oxide at 12.5'. 30% Silt, 70% Clay.
					5942	14				Total depth drilled 13.0'.
					5941	15				
					5940	16				
					5939	17				
					5938	18				
					5937	19				
						20				

Vadose Zone Monitoring Borehole Construction Listed Below:
Bentonite: 2.7'-3.2'
Silica Sand: 3.2'-5.2'
Silica Flour: 5.2'-7.9'
Bottom Porous Cup: 5.8'
Grout: 7.9'-13.13'
Total Depth Neutron Access Tube: 12.83'

Note: Boring drilled to 12.0', poor recovery from 6.0-12.0'. Moved rig 3' to the west, drilled to 6.0', resumed sampling from 6.0' to 13.0'.
Note: Boring drilled to 12.0', poor recovery from 6.0'-12.0'. Moved rig 3' to west, drilled to 6.0', resumed sampling from 6.0'-13.0'.

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 11.20	GROUND ELEVATION (FT):	5956.31	PROJECT NUMBER:	OU4-RFI/RI	LOG OF BORING NUMBER:
NORTH:	751078	AREA: N OF POND 2078 N	CASING DIAMETER (IN):	6.3	GEOLOGIST:	C.D.MURRAY	40893
EAST:	2085100	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN):	8.00	DATE DRILLED:	12/15/92	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORE. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY AND CORE LOGGING BY C.D. MURRAY (AE)

CHEMICAL SAMPLE DEPTH / GRADATIONAL SP DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH0001AE			0.80 /2.00	5956	0			SM:	Gravelly Sand with some silt and clay (0.0-0.5'). Very dark gray (5 YR 3/1). Gravel, angular, Sand f.g. to c.g., poorly graded, grass and root fragments common, moist. Gravel 25%, Sand 46%, Silt 15%, Clay 14%.
				0.70 /1.00	5955	1			GM:	Sandy Gravel with some silt and a trace of clay (0.5-4.6'). Very dark grayish brown (10 YR 3/2). Gravel 1-5 cm (fractured by drlg), subrounded. Sand, f.g. to c.g., rounded to angular, moderately graded, quartz and feldspar common, moist. Gravel 63%, Sand 28%, Silt 6%, Clay 3%. No recovery (0.8-2.0'), (2.7-3.0')
	BH0003AE			1.00 /1.00	5954	2				
				0.60 /1.00	5953	3				
	BH0002AE			0.95 /2.00	5952	4			NO RECOVERY	No recovery (4.6-6.3').
	BH0029AE			1.20 /2.00	5951	5			CLAYSTONE:	Claystone with some silt (6.3-9.0'). Top of Bedrock at 6.3' Light olive gray (5 YR 3/2) with light olive brown (5 Y 5/6) mottling, mod. friable, massive bedding. Moist. Silt 10%, Clay 90% No recovery (7.0-7.8')
					5950	6				
					5949	7				
					5948	8				
					5947	9			CLAYSTONE:	Claystone with trace silt (9.0-11.2'). Brownish gray (5YR 4/1). Moderately friable, massive bedding, moist. Caliche present in some fractures. Clay 95%, Silt 5%
						10				

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 11.20	GROUND ELEVATION (FT):	5956.31	PROJECT NUMBER:	004-RFI/RI	LOG OF BORING NUMBER:
NORTH:	751078	AREA: N OF POND 2078 N	CASING DIAMETER (IN):		GEOLOGIST:	C.O.MURRAY	40893
EAST:	2085100	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN):	8.00	DATE DRILLED:	12/15/92	

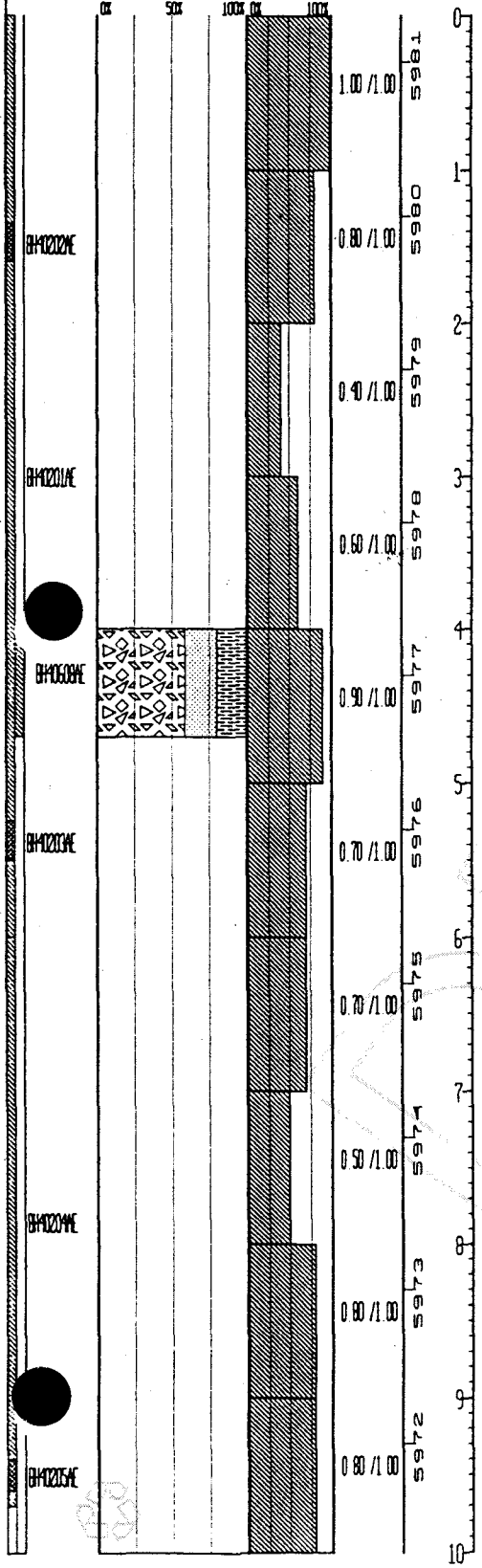
REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORE. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY AND CORE LOGGING BY C.O. MURRAY (AE).

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				2.20 /2.20	5946	10				
					5945	11				Total Depth Drilled 11.20
					5944	12				
					5943	13				
					5942	14				
					5941	15				
					5940	16				
					5939	17				
					5938	18				
					5937	19				
						20				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 34.50	GROUND ELEVATION (FT): 5981.30	PROJECT NUMBER: 014-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750962	AREA: NW CORNER POND 207C	CASING DIAMETER (IN): 2.00	GEOLOGIST: C.D. MURRAY	40993
EAST:	2084436	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 03/23/93	

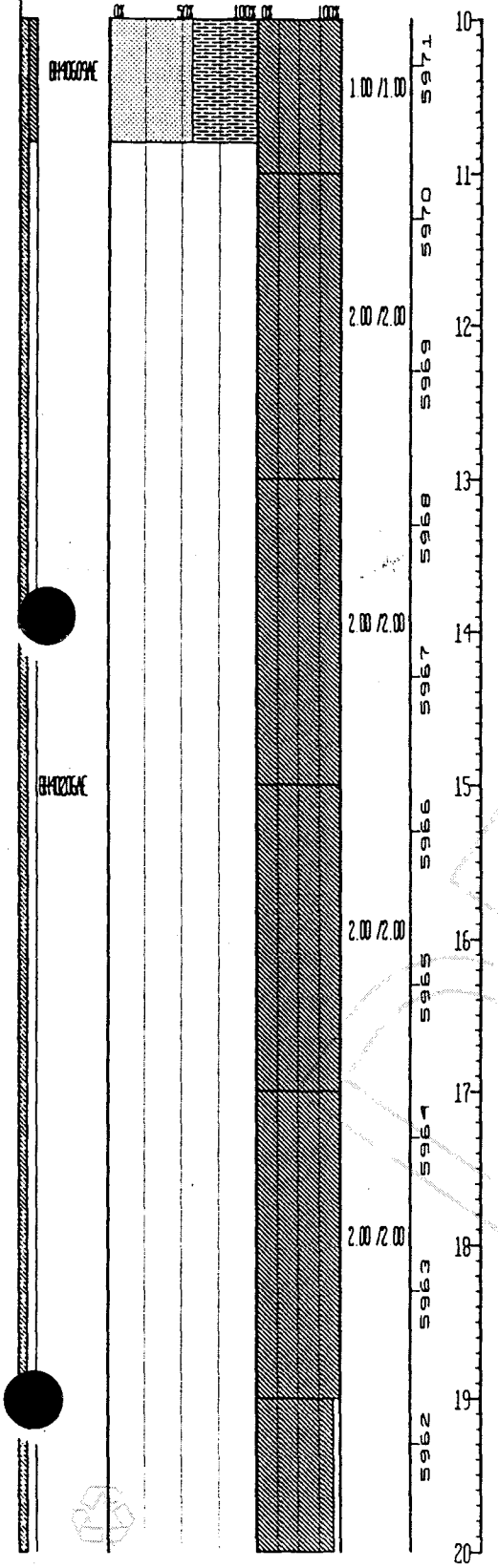
REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COMPLETED AS TWO LYSIMETERS AND NEUTRON ACCESS TUBE. RIG GEOLOGY BY C.D. MURRAY. CORE LOGGING BY C.D. MURRAY AND J.C. EVANS (AE).



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
GC	Sandy Gravel with some clay and trace silt (0.0-1.8'). Matrix dark yellowish brown (10 YR 3/4), moist. Gravel 10 cm. diameter common, 5 cm. present. Angular to sub-rounded, quartz and metamorphic grains common. Sand f.g. to c.g. common, angular to sub-rounded, quartz and hornblend common. Biotite present. Gravel 56%, Sand 22%, Silt 3%, Clay 19%.
NO RECOVERY	No recovery (1.8-2.0').
GM	Silty Sandy Gravel with trace clay (2.0-5.7'). Matrix very dusky red (2.5 YR 2.5/2). Gravel and cobbles rounded to angular, (broken by drilling), commonly > 5 cm. in diameter. Sand f.g. to c.g., very angular to sub-rounded, quartz and metamorphic grains abundant. F.g. biotite common, moist. Low plasticity. Gravel 67%, Sand 15%, Silt 15%, Clay 3%. No recovery (2.4-3.0'), (3.6-4.0'), (4.9-5.0').
NO RECOVERY	No recovery (5.7-6.0').
GM	Sandy Gravel with some silt and trace clay (6.0-6.7'). Matrix dark brown (7.5 YR 3/4), slightly moist. Cobbles and gravel, very angular and broken by drilling. 10 cm-30 cm. diameter. Sand f.g. to c.g., very angular to sub-angular, quartz and feldspar grains, clear quartz common, low plasticity fines. Gravel 52%, Sand 29%, Silt 14%, Clay 5%.
NO RECOVERY	No recovery (6.7-7.0')
GC	Sandy Gravel with some clay and trace silt (7.0-7.5'). Matrix strong brown (7.5 YR 4/6). Cobbles and Gravel, 10-50 cm. Sand very angular to sub-angular, quartz common, abundant f.g., med. plasticity fines, moist. Gravel 61%, Sand 20%, Silt 6%, Clay 13%
NO RECOVERY	No recovery (7.5-8.0')
SM	Gravelly Sand with some silt (8.0-9.7'). Yellowish brown (10 YR 5/6), moist, very angular to sub-angular, f.g. to c.g., quartz and metamorphics common, moist. Gravel 32%, Sand 48%, Silt 20%. No recovery (8.8-9.0')

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 34.50	GROUND ELEVATION (FT):	5981.30	PROJECT NUMBER:	OU4-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750962	AREA: NW CORNER POND 207C	CASING DIAMETER (IN):	2.00	GEOLOGIST:	C.D. MURRAY	40993
EAST:	2084436	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN):	8.00	DATE DRILLED:	03/23/93	

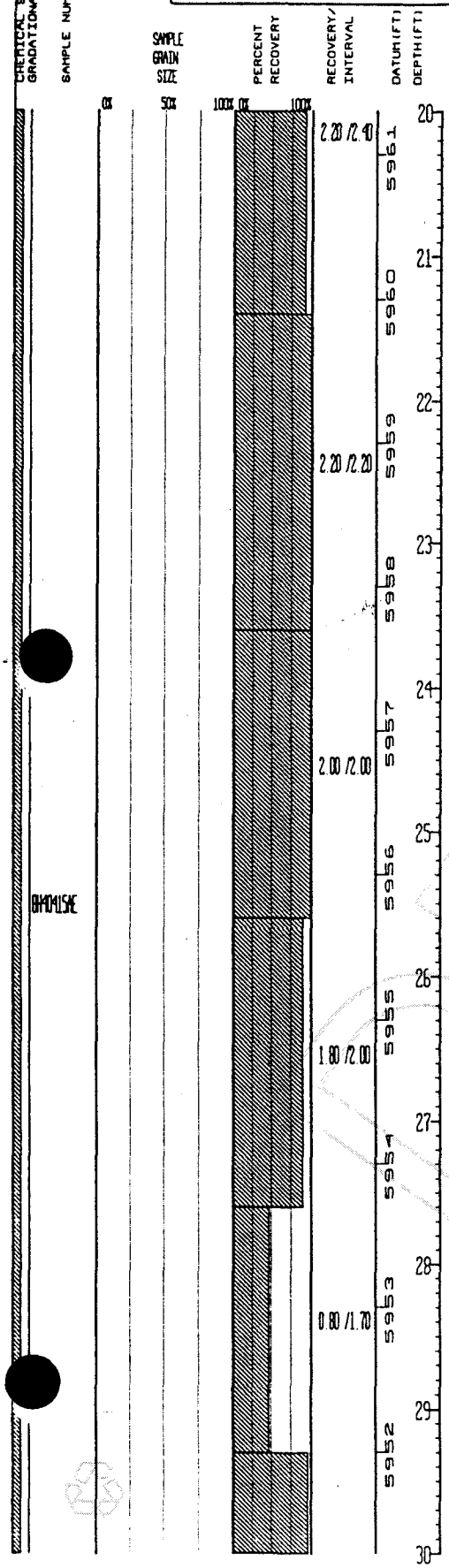
REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COMPLETED AS TWO LYSIMETERS AND NEUTRON ACCESS TUBE. RIG GEOLOGY BY C.D. MURRAY. CORE LOGGING BY C.D. MURRAY AND J.C. EVANS (AE).



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
SILTY SANDSTONE	Silty Sandstone with some clay (9.7-11.5'). Top of Bedrock 9.7'. Mottled light gray (10 YR 7/1) and brownish yellow (10 YR 6/8). Sand moderately to well sorted, sub-angular to rounded, v.f.g to f.g. quartz frosted, approx. 15% porosity, approx. 10% argilloceous cement, highly friable, faint horiz. bedding, moist. Sand 43%, Silt 40%, Clay 17%. No recovery (9.8-10.0')
CLAYSTONE	Claystone with trace of sand (11.5-12.5'). Light yellowish brown (2.5 Y 6/3). F.g. to v.f.g. well sorted, sub-rounded, frosted quartz grains. Clay med. plasticity, moist. Fine Sand 3%, V.f. Sand 2%, Clay 95%
SILTY SANDSTONE	Silty Sandstone with some clay (12.5-15.9'). White (10 YR 8/1) to very pale brown (10 YR 7/3). Sand moderately to well sorted, v.f.g to m.g., sub-angular to rounded, frosted quartz grains. Trace of dark minerals. Approx 10% porosity, 10-15% argilloceous cement, highly friable, moist. Slight horiz. bedding. Sand 58%, Silt 34%, Clay 8%.
CLAYSTONE	Claystone with trace of sand (15.9-16.2'). Same as reference interval 11.5-12.5' above.
SILTY SANDSTONE	Silty Sandstone with some clay (16.2-18.4'). Same as reference interval 12.5-15.9' above.
SANDSTONE	Sandstone with some silt and trace clay (18.4-19.2'). Very pale brown (10 YR 7/3), sand well sorted, v.f.g. to m.g. well rounded, frosted quartz grains, highly friable, 20-25% visible porosity, 2-3% argilloceous cement, no visible bedding, moist. M.g. Sand 4%, V.f.g. Sand 89%, Silt 6%, Clay 1%
SILTY SANDSTONE	Silty Sandstone with some clay (19.2-21.2'). Same as reference interval 12.5-15.9' above.

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 34.50	GROUND ELEVATION (FT): 5981.30	PROJECT NUMBER:	OU4-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750962	AREA: NW CORNER POND 207C	CASING DIAMETER (IN): 2.00	GEOLOGIST:	C.D. MURRAY	40993
EAST:	2084436	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED:	03/23/93	

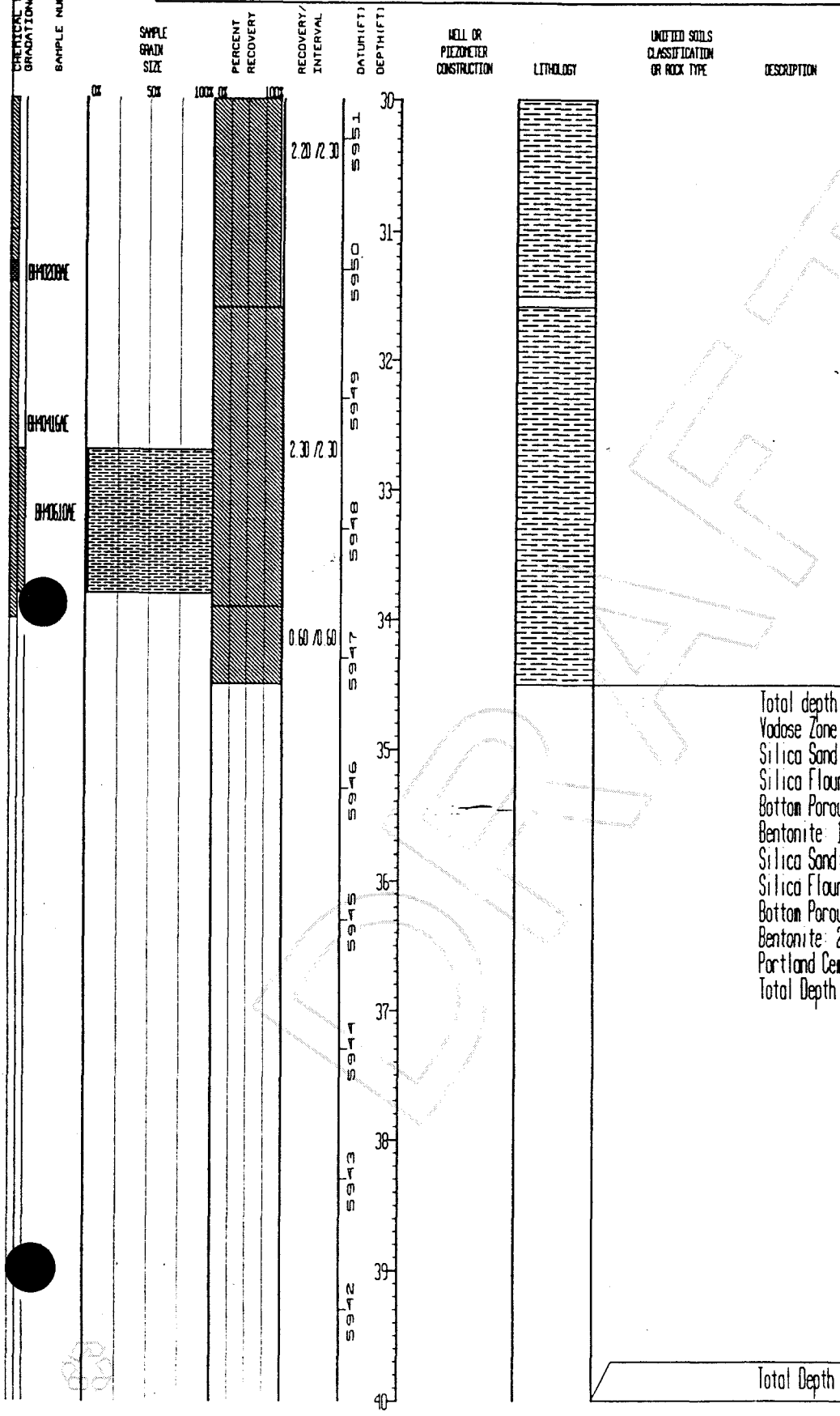
REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COMPLETED AS TWO LYSIMETERS AND NEUTRON ACCESS TUBE. RIG GEOLOGY BY C.D. MURRAY. CORE LOGGING BY C.D. MURRAY AND J.C. EVANS (AE)



LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	NO RECOVERY	No recovery (21.2-21.4')
	SILTY SANDSTONE	Silty Sandstone with some clay (21.4-21.6'). Same as reference interval 12.5-15.9' above.
	CLAYSTONE	Claystone with trace of sand (21.6-21.9'). Same as refrence interval 11.5-12.5' above.
	SILTY SANDSTONE	Silty Sandstone with some clay (21.9-24.0'). Same as refrence interval 12.5-15.9' above.
	CLAYSTONE	Claystone with trace sand (24.0-25.0'). Grayish brown (2.5 Y 5/2). Sand v.f.g. to f.g. frosted quartz, well rounded. Argillaceous cement, massive bedding. Poor visible porosity, moist. F.g. Sand 1%, V.f.g. Sand 3%, Clay 96%.
	SANDSTONE	Sandstone with some silt and clay (25.0-25.6'). Brownish yellow (10 YR 6/8), fine quartz sand, well sorted, sub-angular to rounded, 20-30% visible porosity, some clay cement, very friable, moist, no apparent bedding. Sand 66%, Silt 17%, Clay 17%.
	CLAYSTONE	Claystone with some sand (25.6-26.5'). Light gray (2.5 Y N/6), v.f.g. to f.g. white quartz sand, angular to sub-angular, trace of dark minerals, wet, massive bedding. Sand 23%, Clay 77%.
	SANDSTONE	Sandstone with some silt and clay (26.5-27.4'). Same as refrence interval 25.0-25.6' above.
	NO RECOVERY	No recovery (27.4-27.6')
	CLAYSTONE	Claystone with some sand (27.6-28.4'). Same as reference interval 25.6-26.5' above.
	NO RECOVERY	No recovery (28.4-29.3')
	CLAYSTONE	Claystone with trace sand (29.3-34.5'). Light olive brown (2.5 Y 5/4). Sand v.f.g. to f.g., angular to sub-angular, some frosted, trace of dark minerals, wet. Poor porosity, planar bedding with white sand and yellow Fe-oxide staining on surface. F.g. Sand 1%, V.f.g. Sand 3%, Clay 96%. No recovery (31.5-31.6')

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 34.50	GROUND ELEVATION (FT): 5981.30	PROJECT NUMBER: 004-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750962	AREA: NW CORNER POND 207C	CASING DIAMETER (IN): 2.00	GEOLOGIST: C.D. MURRAY	40993
EAST:	2084436	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 03/23/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COMPLETED AS TWO LYSIMETERS AND NEUTRON ACCESS TUBE. RIG GEOLOGY BY C.D. MURRAY. CORE LOGGING BY C.D. MURRAY AND J.C. EVANS (AE).



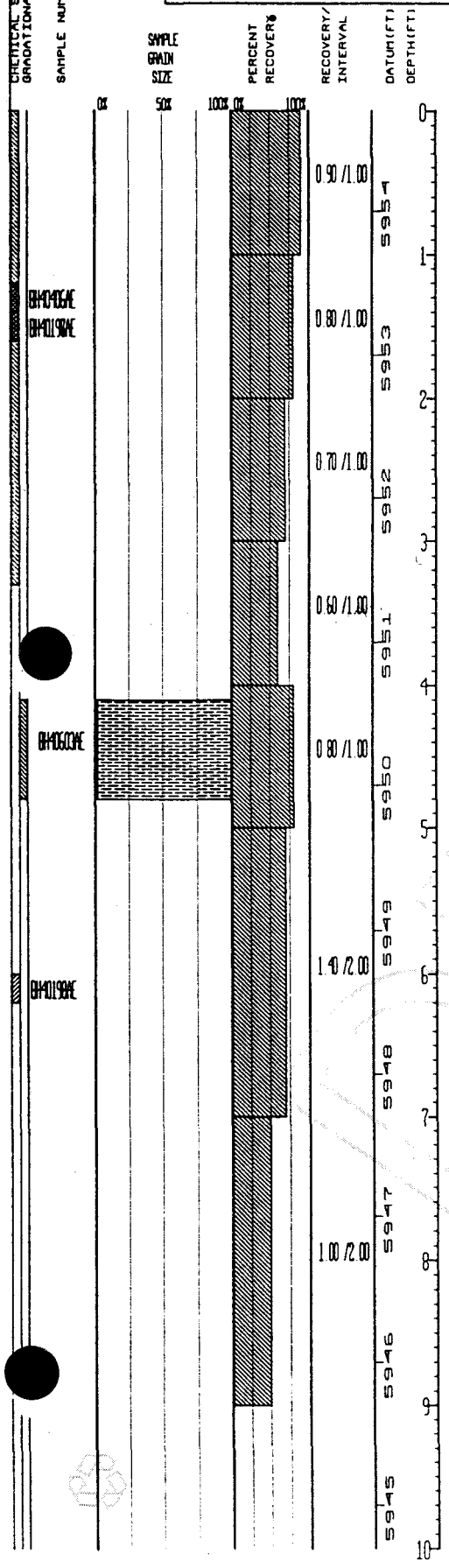
Total depth drilled 34.5'
Vadose Zone Monitoring Borehole Construction Listed Below:
Silica Sand: Base of sand at 11.2'
Silica Flour: 11.2' to 12.2'
Bottom Porous Cup: 12.0'
Bentonite: 12.2" to 12.9'
Silica Sand: 12.9' to 24.9'
Silica Flour: 24.9' to 26.0'
Bottom Porous Cup: 25.8'
Bentonite: 26.0" to 27.0'
Portland Cement: 27.0' to 34.3'
Total Depth Neutron Access Tube: 34.2'

Total Depth Drilled: 34.50

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 9.00	GROUND ELEVATION (FT): 5954.70	PROJECT NUMBER: 0U4-RFI/RI	LOG OF BORING NUMBER:
NORTH:	751047	AREA: PA, N of Pond 2078	CASING DIAMETER (IN): 2.00 3.7	GEOLOGIST: K.R.MIYOSHI	41293
EAST:	2085182	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 02/23/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COMPLETED AS LYSIMETER/NEUTRON ACCESS TUBE. RIG GEOLOGY BY K.R. MIYOSHI. CORE LOGGING BY C.D. MURRAY (AE).



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
SM:	Silty Sand with some gravel (0.0-0.4'). Very dark brown (10 YR 2/2). Poorly graded. Gravel sub-rounded quartz and granitic rock fragments. Sand c.g. to f.g., pred. m.g. and f.g. sand, angular to sub-rounded, quartz, granitic and metamorphic rock fragments. Common mica and root material. Moist. Gravel 9%, Sand 61%, Silt 30%.
GP:	Sandy Gravel with trace silt and clay (0.4-3.3'). Dark grayish brown (10 YR 4/2). poorly graded gravel and cobbles, angular to sub-rounded, 5-60 mm. common, broken by drilling. - Granitic and metamorphic rock fragments. Sand c.g. to f.g., very angular to sub-angular quartz and granitic rock fragments. Caliche present and roots. Low plasticity clay. Moist, no bedding. Gravel 84%, Sand 12%, Silt 1%, Clay 3%. No recovery (0.9-1.0'), (1.8-2.0'), (2.7-3.0')
CLAYSTONE:	Claystone with some fine sand (3.3-8.0'). Top of Bedrock at 3.3'. Olive (5 Y 4/4) to dark gray (5 Y 4/1) with olive yellow (2.5 Y 6/6), Fe-oxide staining. F.g. to v.f.g. sand, rounded to well rounded quartz, non friable, very stiff. Moist, massive bedding. F.g. Sand 3%, V.f.g. Sand 3%, Clay 94%. No recovery (3.6-4.0'), (4.8-5.0'), (6.4-7.0')
NO RECOVERY:	No recovery (8.0-9.0')

Total depth drilled 9.0'.

Vadose Zone Monitoring Borehole Construction Listed Below:
Bentonite: 0.8' to 1.2' Silica Sand: 1.2' to 2.0'
Silica Flour: 2.0' to 3.0' Bottom Porous Cup: 2.8'
Bentonite: 3.0' to 3.5' Portland Cement: 3.5' to 6.8'
Total Depth Neutron Access Tube: 6.8'

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 7.90	GROUND ELEVATION (FT): 5969.43	PROJECT NUMBER: 004-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750922	AREA: PA, INSIDE POND 207A	CASING DIAMETER (IN): 2.00 5.9	GEOLOGIST: C.D. MURRAY	41593
EAST:	2084771	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN): 5.00 13.5	DATE DRILLED: 04/06/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COMPLETED AS LYSIMETER/NEUTRON ACCESS TUBE. RIG GEOLOGY BY C.D. MURRAY, CORE LOGGING BY J.C. EVANS.

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH

SAMPLE NUMBER: BH0613AE, BH0417AE, BH0210AE, BH0418AE, BH0419AE, BH0211AE, BH0426AE, BH0216AE

SAMPLE GRAIN SIZE: 0% 50% 100%

PERCENT RECOVERY: 0% 100%

RECOVERY/INTERVAL: 0.00 /0.40; 1.00 /1.00; 0.70 /1.00; 0.90 /1.30; 0.90 /1.10; 0.50 /1.00; 1.10 /1.10; 1.00 /1.00

DATUM (FT): 5969, 5968, 5967, 5966, 5965, 5964, 5963, 5962, 5961, 5960

DEPTH (FT): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

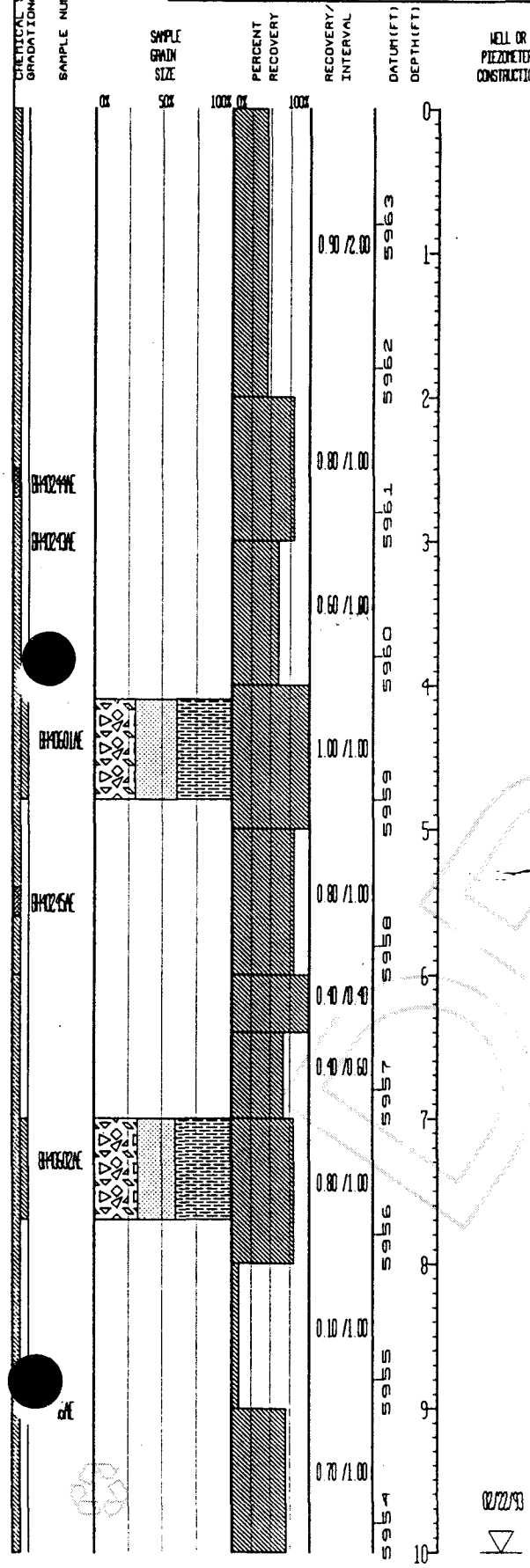
WELL OR PIEZOMETER CONSTRUCTION

LITHOLOGY

UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	Asphalt (0.0-0.4').
	No recovery (0.4-2.4'). All soil used for analytical samples.
ML	Clayey Silt with some sand and trace gravel (2.4-2.9'). Yellowish brown (5 YR 4/6). Sand poorly graded, pred. v.f.g. to f.g., sub-angular, trace sub-rounded gravel. Low plasticity fines, no visible bedding, moist. 2% Gravel, 23% Sand, 45% Silt, 30% Clay.
ML	Sandy Silt with some gravel and clay (2.9-3.3'). Light gray (10 YR 7/1) to white (10 YR 8/1), stiff, slightly friable. Sand f.g. to c.g., moderately graded, sub-angular. Gravel rounded, fine grained with some (20%) caliche. Moist. 10% Gravel, 39% Sand, 41% Silt, 10% Clay.
NO RECOVERY	No recovery (3.3-3.7').
GM	Sandy Gravel with some silt and trace clay (3.7-4.4'). Brownish yellow (10 YR 6/6). Sand well graded, f.g. to c.g., sub-angular. Gravel rounded, pred. coarse, up to 6 cm. in length, some caliche. 80% Gravel, 10% Sand, 6% Silt, 4% Clay.
SM	Silty Sand with some gravel and clay (4.4-5.9'). Light gray (2.5 Y 7/2). Sand pred. m.g., moderately graded, sub-rounded, pred. quartz. Gravel rounded, pred. fine, some up to 3 cm. in length at base of interval. Moist, no visible bedding, with 10% caliche. 17% Gravel, 46% Sand, 26% Silt, 11% Clay. No recovery (4.7-4.8'), (5.3-5.8').
SANDY SILTSTONE	Top of Bedrock at 5.9'. Sandy Siltstone (5.9-7.9'). Light yellowish brown (10 YR 6/4). Sand v.f.g. to f.g., well sorted, angular, pred. quartz, slightly friable, abundant caliche-filled fractures, trace Fe-oxide staining, no visible bedding, pred. argillaceous cement. 17% Sand, 79% Silt, 4% Clay.
	Total depth drilled 7.9'.
	Vadose Zone Monitoring Borehole Construction Listed Below: Bentonite: 2.0-2.5', Silica Sand: 2.5'-3.2', Silica Flour: 3.2'-4.6', Bottom Porous Cup: 4.5', Bentonite: 4.6'-7.9', Total Depth Neutron Access Tube: 7.6'

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 18.00	GROUND ELEVATION (FT): 5963.80	PROJECT NUMBER: OU4-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750897	AREA: E, 207 B N POND, PA	CASING DIAMETER (IN): 2.00	GEOLOGIST: K.R.MIYOSHI	41793
EAST:	2085228	LOCATOR NUMBER: M10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 02/22/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COPLETED AS LYSIMETER/NEUTRON ACCESS TUBE. RIG GEOLOGY BY K.R. MIYOSHI, CORE LOGGING BY K.R. MIYOSHI, C.D. MURRAY, AND J.C. EVANS.



LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	ML	Sandy Silt with some gravel and clay (0.0-0.9'). Dark brown (10 YR 3/3), sand well graded, sub-angular to sub-rounded, f.g. to c.g., pred. quartz. Gravel sub-rounded, up to 4 cm in length. Trace plant roots, low plasticity fines, no visible bedding, moist. 21% Gravel, 27% Sand, 42% Silt, 10% Clay.
	NO RECOVERY	No recovery (0.9-2.0').
	GM/gw	Sandy Gravel with some silt and trace clay (2.0-3.6'). Matrix dark brown (7.5 YR 4/3). Gravel sub-rounded to angular (drilling fractured), well graded, up to 6 cm in length, pred. gray quartzite. Sand f.g. to c.g., well graded, angular to sub- angular, low plasticity fines, no visible bedding, moist. 73% Gravel, 18% Sand, 8% Silt, 1% Clay. No recovery (2.8-3.0').
	NO RECOVERY	No recovery (3.6-4.0').
	GC	Clayey Gravel with some sand and silt (4.0-7.8'). Matrix very pale brown (10 YR 7/3). Gravel rounded to sub-rounded, coarse, up to 4 cm in length, gray quartzite. Sand f.g. to c.g., well graded, sub-angular to sub-rounded. Medium plasticity fines, moist, abundant caliche (especially 6.3-6.8'). 48% Gravel, 17% Sand, 14% Silt, 21% Clay. No recovery (5.8-6.0'), (6.8-7.0').
	NO RECOVERY	No recovery (7.8-8.0').
	GW	Gravel with some sand and trace silt and clay (8.0-10.4'). Matrix pale yellow (2.5 Y 7/2). Gravel coarse, up to 7.5 cm in length, well graded, rounded to sub-rounded, pred. gray quartzite. Sand f.g. to c.g., well graded, low plasticity fines, with trace (5%) caliche, wet. 85% Gravel, 10% Sand, 2% Silt, 3% Clay. No recovery (8.1-9.0'), (9.7-10.0').

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 18.00	GROUND ELEVATION (FT): 5963.80	PROJECT NUMBER: OU4-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750897	AREA: E, 207 B N POND, PA	CASING DIAMETER (IN): 2.00	GEOLOGIST: K.R.MIYOSHI	41793
EAST:	2085228	LOCATOR NUMBER: M10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 02/22/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COPLETED AS LYSIMETER/NEUTRON ACCESS TUBE. RIG GEOLOGY BY K.R. MIYOSHI, CORE LOGGING BY K.R. MIYOSHI, C.D. MURRAY, AND J.C. EVANS.

CHEMICAL SAMPLE DEPTH
GRADATIONAL DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION

RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)
0.40 /1.00	5953	10
0.00 /1.00	5952	11
0.00 /1.00	5951	12
0.00 /1.00	5950	13
0.10 /1.00	5949	14
0.00 /1.00	5948	15
0.20 /2.00	5947	16
	5946	17
	5945	18
	5944	19
		20

NO RECOVERY: No recovery (10.4-14.0'). Driller reports very difficult drilling on cobbles. Driller estimate: Top of Bedrock at 12.3'.

CLAYEY SILTSTONE: Clayey Sandy Siltstone (14.0-16.2'). Light yellowish brown (2.5 Y 6/3), sand well sorted, v.f.g. to f.g., sub-angular. Medium stiff, non-friable, moist. 12% Sand, 53% Silt, 35% Clay. No recovery (14.1-16.0').

NO RECOVERY: No recovery (16.2-18.0').

Total depth drilled: 18.00'

Vadose Zone Monitoring Borehole Construction Listed Below:
Bentonite: 2.8-3.2'
Silica Sand: 3.2-4.2'
Silica Flour: 4.2'-5.0'
Bottom Porous Cup: 4.8'
Bentonite: 5.0'-5.6'
Silica Sand: 5.6'-10.6'
Silica Flour: Not Installed
Bottom Porous Cup: Not Installed
Bentonite: 10.6'-11.2'
Grout: 11.2'-17.9'
Total Depth Neutron Access Tube: 17.5'

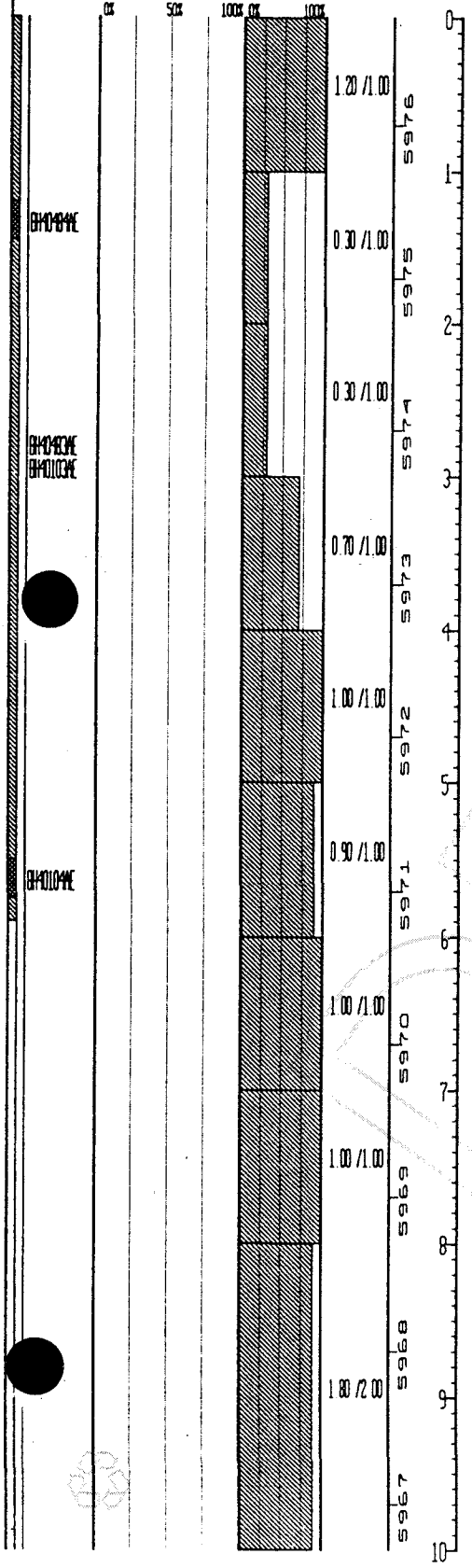
DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 10.00	GROUND ELEVATION (FT): 5976.70	PROJECT NUMBER: 004-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750982	AREA: BLDG. 788	CASING DIAMETER (IN):	GEOLOGIST: C.D.MURRAY	42093
EAST:	2084543	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 01/08/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY AND CORE LOGGING BY C.D. MURRAY (AE).

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH

SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50%) | PERCENT RECOVERY (100% 0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
SM	Gravelly Sand with some silt (0.0-1.2') Strong brown (7.5 YR 4/6) Gravel 5-10 mm. common, sub-angular to sub-rounded quartz. Sand c.g. to f.g., angular to sub-angular quartz grains and broken sandstone. Trace of dark minerals and mica. Moist. Construction fill. Gravel 22%, Sand 58%, Silt 20%.
GM	Sandy Gravel with some silt and trace clay (1.2-2.3') Dark brown (7.5 YR 4/4) Poorly graded. Gravel angular, broken by drlg, quartz and metamorphic material. Sand c.g to f.g., angular to sub-angular quartz and granitic rock fragments. No visible bedding. Moist. Gravel 52%, Sand 31%, Silt 14%, Clay 3%. No recovery (1.5-2.0')
NO RECOVERY	No recovery (2.3-3.0')
CL	Sandy Clay with some silt and trace gravel (3.0-4.8') Reddish brown (5 YR 4/4) Gravel 5-10 mm. common, angular to sub-angular quartz and metamorphic rock fragments. Sand c.g. to f.g., (pred. f.g.), v. angular to sub-angular, quartz and feldspar with some metamorphics and trace of mica. Clay low plasticity. Moist. No visible bedding. Gravel 5%, Sand 35%, Silt 12%, Clay 48%. No recovery (3.7-4.0')
SANDY CLAYSTONE	Sandy Claystone with some silt (4.8-9.8') Top of Bedrock at 4.8'. Light gray (2.5 Y 7/2) with olive yellow (2.5 Y 6/8) staining, and white caliche. Sand f.g. to v.f.g. well sorted, angular to sub-rounded, quartz with 1% dark minerals. Some grains are frosted. Very stiff, claystone is moist, caliche is dry and occurs along fractures. No visible bedding. Fractures occur at 20 degree and 30 degree angle to horizontal. Sand 23%, Silt 19%, Clay 58%. No recovery (5.9-6.0')
NO RECOVERY	No recovery (9.8-10.0')
	Total Depth Drilled 10.00

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 31.30	GROUND ELEVATION (FT): 5971.03	PROJECT NUMBER: 014-RFI/RI	LOG OF BORING NUMBER:
NORTH: 750876	AREA: Pond 207A	CASING DIAMETER (IN):	GEOLOGIST: K.R.MIYOSHI	42193
EAST: 2084701	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 03/31/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY BY K.R. MIYOSHI (TE). CORE LOGGING BY J.C.EVANS AND C.D.MURRAY (AE).

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				0.00 /0.50	5971	0				Asphalt (0.0-0.5').
	BH0425NE			0.70 /1.00	5970	1			ML	Gravelly Silt with some clay and sand (0.5-3.7'). Matrix dark reddish brown (2.5 YR 2.5/4). Gravel sub-rounded, well graded, up to 6 cm. in diameter. Sand well graded, angular to sub-rounded, f.g. to c.g., pred. quartz, dry, low plasticity fines, no visible bedding. 30% Gravel, 15% Sand, 39% Silt, 16% Clay. No recovery (1.2-1.5'), (2.2-2.5'), (2.8-2.9').
	BH0426NE			0.70 /1.00	5969	2				
				0.30 /0.40						
	BH0425NE				5968	3				
	BH0455NE			0.80 /1.10						
					5967	4			NO RECOVERY	No recovery (3.7-4.0').
	BH0427NE			0.80 /1.70	5966	5			GM	Sandy Gravel with some silt and trace clay (4.0-7.4'). Matrix light olive brown (2.5 Y 5/4). Gravel rounded to angular (drilling fractured), well graded, up to 7 cm. in diameter, pred. gray quartzite. Sand well graded, sub-angular, f.g. to c.g., low plasticity fines, white caliche present at 7.0', dry. 49% Gravel, 25% Sand, 21% Silt, 5% Clay. No recovery (4.8-5.7'), (6.5-6.8').
	BH0437NE			0.80 /1.10	5965	6				
	BH0428NE									
				0.60 /0.60	5964	7				
	BH0456NE			0.20 /0.20					CLAYEY SANDSTONE	Clayey Sandstone with some silt (7.4-10.0'). Top of Bedrock at 7.4'. Light gray (10 YR 7/2) to light yellowish brown (10 YR 6/4). Sand v.f.g. to f.g., sub-angular to sub-rounded, well sorted. Trace well rounded, frosted, m.g. quartz grains. Approx. 5-10% visible porosity, 10% argillaceous cement moderately friable, some thin horiz. (ripple) bedding, some vertical, healed, caliche-filled fractures at 8.5', moist. 47% Sand, 21% Silt, 32% Clay.
	BH0432NE				5963	8				
				2.30 /2.30	5962	9				
	BH0430NE					10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 31.30	GROUND ELEVATION (FT): 5971.03	PROJECT NUMBER: 014-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750876	AREA: Pond 207A	CASING DIAMETER (IN):	GEOLOGIST: K.R. MIYOSHI	42193
EAST:	2084701	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 03/31/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY BY K.R. MIYOSHI (TE). CORE LOGGING BY J.C. EVANS AND C.D. MURRAY (AE).

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%						SANDY CLAYSTONE	Sandy Claystone with some silt (10.0-15.4'). Yellowish brown (10 YR 5/8) to light gray 10 YR 6/1). Sand v.f.g to f.g., sub-angular to sub-rounded, well sorted, pred. quartz, slightly friable, argillaceous cement, abundant thin horiz. laminations (possible ripples). Sand content increases upward, moist. 25% Sand, 23% Silt, 52% Clay. No recovery (12.0-12.5'), (13.9-14.2')
				2.10 /2.60	5960	11				
				1.40 /1.70	5958	13				
				1.20 /1.20	5956	15				
				0.90 /0.90	5955	16			CLAYSTONE	Claystone with some silt (15.4-20.3'). Olive brown (2.5 Y 4/3) with olive yellow (2.5 Y 6/8) mottling/laminations. Soft to med. stiff, horiz. laminated, moist, non-friable. 10% Silt, 90% Clay.
				2.00 /2.00	5954	17				
				2.00 /2.00	5952	19				
						20				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 31.30	GROUND ELEVATION (FT): 5971.03	PROJECT NUMBER: 004-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750876	AREA: Pond 207A	CASING DIAMETER (IN):	GEOLOGIST: K.R.MIYOSHI	42193
EAST:	2084701	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 03/31/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY BY K.R. MIYOSHI (TE). CORE LOGGING BY J.C.EVANS AND C.D MURRAY (AE).

CHEMICAL SAMPLE DEPTH / GRADATIONAL DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50%)	PERCENT RECOVERY (100% 0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5951	20			SILTSTONE	Siltstone with some clay and trace of sand (20.3-21.0'). Light brownish gray (2.5 Y 6/2). Sand v.f.g, subangular to subrounded, pred. quartz, with some feldspar and trace of mica, well sorted, somewhat friable, moist, no apparent bedding. 2% V.f.g. Sand, 88% Silt, 10% Clay.
				2.00 /2.00	5950	21			CLAYSTONE	Claystone (21.0-22.0'). Same as reference interval (15.4-20.3')
					5949	22			SILTSTONE	Siltstone with some clay and trace of sand (22.0-24.9'). Light brownish gray (2.5 Y 6/2). Moist. Same as reference interval (20.3-21.0').
				2.00 /2.00	5948	23				
				0.20 /0.20	5947	24				
BHMCORE				1.80 /1.80	5946	25			CLAYEY SILTSTONE	Clayey Siltstone with some sand (24.9-25.5'). Light yellowish brown (2.5 Y 6/4). Sand v.f.g., sub-angular, well sorted. Med. stiff, slightly friable, faint horiz. bedding, moist. 9% Sand, 64% Silt, 27% Clay.
				0.50 /0.50	5945	26			CLAYSTONE	Claystone with some silt (25.5-26.7'). Same as reference interval 15.4'-20.3'
				1.50 /1.50	5944	27			CLAYEY SILTSTONE	Clayey Siltstone with trace sand (26.7-27.9'). Olive brown (2.5 Y 4/3) and light olive brown (2.5 Y 5/6). Sand v.f.g well sorted, horiz. laminations marked by black material, suspect manganese nodule at 27.4'. Stiff, non-friable, moist. 5% Sand, 57% Silt, 38% Clay.
				1.00 /1.00	5943	28			CLAYSTONE	Claystone with some silt (27.9-31.3'). Same as reference interval 15.4'-20.3'
BHMCORE					5942	29				
						30				

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 31.30	GROUND ELEVATION (FT): 5971.03	PROJECT NUMBER: 014-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750876	AREA: Pond 207A	CASING DIAMETER (IN):	GEOLOGIST: K.R.MIYOSHI	42193
EAST:	2094701	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 03/31/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY BY K.R. MIYOSHI (TE). CORE LOGGING BY J.C.EVANS AND C.D.MURRAY (AE).

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50%)	PERCENT RECOVERY (100% 0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				2.00 /2.00	5941	30				
					5940	31				
					5939	32				
					5938	33				
					5937	34				
					5936	35				
					5935	36				
					5934	37				
					5933	38				
					5932	39				
						40				

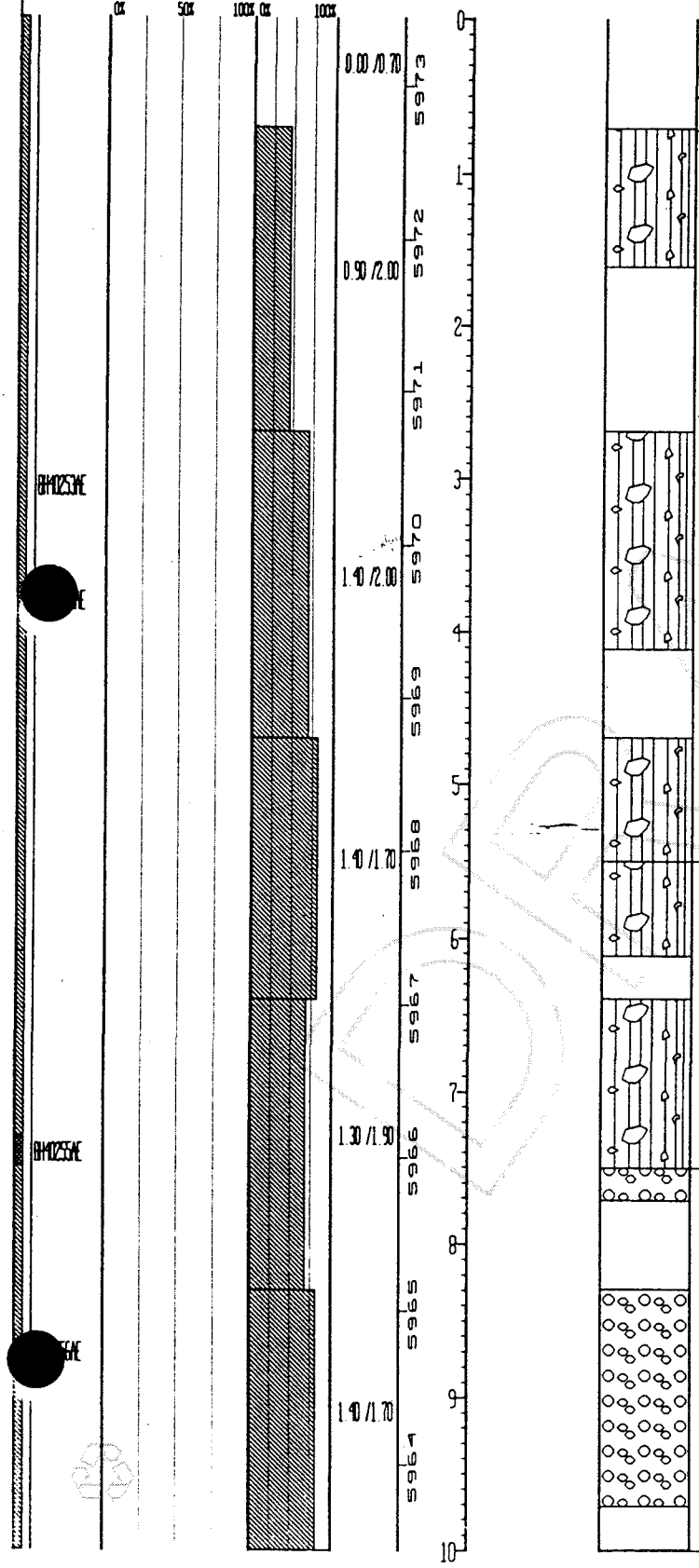
Total Depth Drilled: 31.30

DRAFT

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 12.80	GROUND ELEVATION (FT): 5973.44	PROJECT NUMBER: OU4-RFI/RI	LOG OF BORING NUMBER:	
NORTH: 750797	AREA: 207B NORTH/CENTER	CASING DIAMETER (IN):	GEOLOGIST: K.R.MIYOSHI	42293	
EAST: 2085093	LOCATOR NUMBER: M10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 04/15/93		

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY BY KERRY MIYOSHI, CORE LOGGING BY J.C. EVANS.

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH / SAMPLE NUMBER / SAMPLE GRAIN SIZE (0% 50% 100%) / PERCENT RECOVERY (0% 100%) / RECOVERY/INTERVAL / DATUM (FT) / DEPTH (FT) / WELL OR PIEZOMETER CONSTRUCTION / LITHOLOGY / UNIFIED SOILS CLASSIFICATION OR ROCK TYPE / DESCRIPTION



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	Asphalt (0.0-0.7').
	Surficial soil samples (0.5-0.7').
GM:	Silty Gravel with some sand and trace clay (0.7-5.5'). Matrix brown (10 YR 5/3). Gravel pred. c.g., well graded, sub-rounded. Sand f.g. to c.g., well graded, pred. quartz, no visible bedding, moist. 77% Gravel, 10% Sand, 12% Silt, 1% Clay. No recovery (1.6-2.7'), (4.1-4.7').
GM:	Silty Gravel with some sand and trace clay (5.5-7.5'). Matrix dark yellowish brown (10 YR 4/4) and reddish brown (2.5 YR 4/2). Gravel slightly finer than above, Sand same as above, with some (10%) caliche, moist. 76% Gravel, 10% Sand, 13% Silt, 1% Clay. No recovery (6.1-6.4').
GW/gm	Sandy Gravel with trace silt and clay (7.5-10.3'). Matrix dark brown (7.5YR 3/2). Gravel f.g. to c.g., up to 7 cm in length, well graded, angular, pred. gray quartzite, moist. 73% Gravel, 19% Sand, 5% Silt, 3% Clay. No recovery (7.7-8.3'), (9.7-10.0').

DRAFT

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 12.80	GROUND ELEVATION (FT): 5973.44	PROJECT NUMBER: 014-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750797	AREA: 207B NORTH/CENTER	CASING DIAMETER (IN):	GEOLOGIST: K.R.MIYOSHI	42293
EAST:	2085093	LOCATOR NUMBER: M10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 04/15/93	

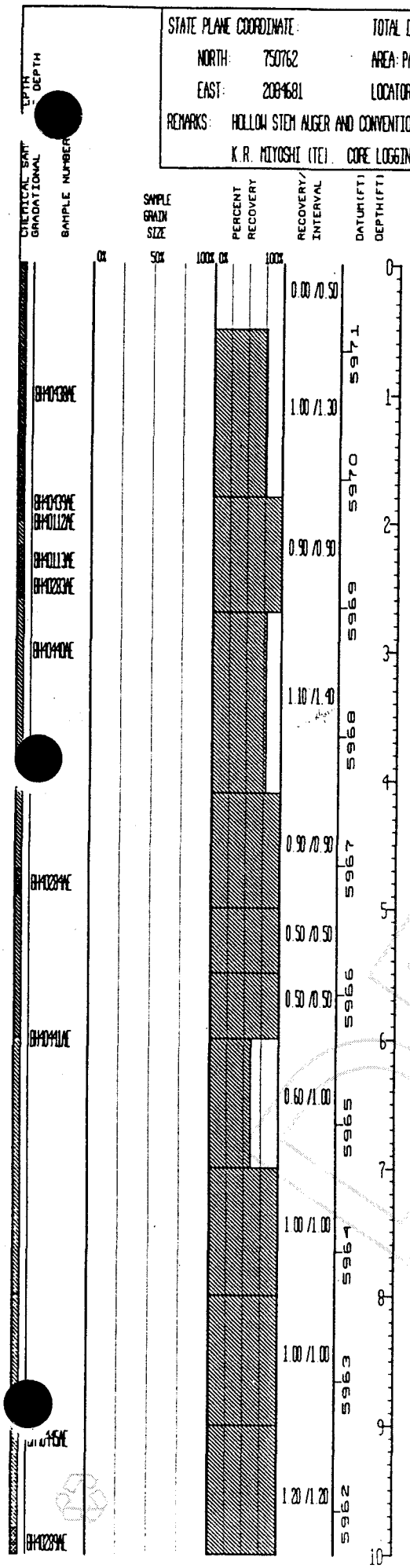
REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY BY KERRY MIYOSHI, CORE LOGGING BY J.C. EVANS.

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				1.30 /1.30	5963	10–11			GM:	Silty Gravel with some sand and trace clay (10.3-11.9'). Matrix dark yellowish brown (10YR 4/6) with some reddish brown (2.5YR 4/3). Gravel 1-4 cm, angular. Sand f.g. to c.g., well graded, no visible bedding. 60% Gravel, 14% Sand, 23% Silt, 3% Clay.
	BH0257NE			0.60 /0.60	5962	11–12				
	BH0258NE			0.90 /0.90	5961	12–13			GC:	Clayey Gravel with some sand and silt (11.9-12.8'). Matrix very pale brown (10YR 7/3). Gravel and sand same as above reference interval (7.5-10.3'), with some (20%) caliche, dry. 58% Gravel, 12% Sand, 12% Silt, 18% Clay.
					5960	13–14				Total depth drilled 12.8'. Note: Bedrock not encountered. Auger refusal at 12.8'. Material is fill material, placed during pond berm construction.
					5959	14–15				
					5958	15–16				
					5957	16–17				
					5956	17–18				
					5955	18–19				
					5954	19–20				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 10.20	GROUND ELEVATION (FT): 5971.66	PROJECT NUMBER: 004-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750762	AREA: PA, POND 207A	CASING DIAMETER (IN): 2.00	GEOLOGIST: K.R.MIYOSHI	42493
EAST:	2084681	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 03/23/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COMPLETED WITH 2 LYSIMETERS AND SINGLE NEUTRON ACCESS TUBE. RIG GEOLOGY BY K.R. MIYOSHI (TE). CORE LOGGING BY J.C. EVANS (AE).



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	Asphalt (0.0-0.5')
SM	Gravelly Sand with some silt and trace clay (0.5-0.9'). Light brown (7.5 YR 6/3). Sand f.g. to c.g., well graded, sub-angular, Gravel f.g., dry. 38% Gravel, 46% Sand, 14% Silt, 2% Clay.
GM/gw	Silty Gravel with trace clay and sand (0.9-2.2'). Reddish brown (2.5 YR 4/3). Gravel c.g., up to 6 cm, well graded, sub-angular, dry, no visible bedding. 85% Gravel, 5% Sand, 6% Silt, 4% Clay. No recovery (1.5-1.8').
GM/gw	Sandy Gravel with some silt and trace clay (2.6-4.5'). Light gray (2.5 Y 7/2). Gravel pred. c.g., same as above. Sand f.g. to c.g., well graded, sub-angular, dry, abundant caliche 2.6-2.7'. 75% Gravel, 14% Sand, 4% Silt, 7% Clay. No recovery (3.8-4.1').
GM	Sandy Gravel with some silt and trace clay (4.5-5.5'). Light gray (2.5 Y 7/2). Gravel pred. f.g., mod. graded. Sand same as above, dry. 44% Gravel, 41% Sand, 11% Silt, 4% Clay.
GM/gw	Sandy Gravel with some silt and trace clay (5.5-6.6'). Gravel c.g., same as reference interval (2.6-4.5') above.
NO RECOVERY	No recovery (6.6-7.0')
SM	Gravelly Sand with some silt and trace clay (7.0-8.1'). Brownish yellow (10 YR 6/6). Sand moderately graded, f.g. to c.g., sub-rounded, pred. quartz, wet. 16% Gravel, 67% Sand, 15% Silt, 2% Clay.
SANDY SILTSTONE	Top of Bedrock at 8.1'. Sandy Siltstone with some clay (8.1-8.9'). Light gray (10 YR 7/1). Sand v.f.g. to f.g., well sorted, rounded, approx. 2-3% visible porosity, approx. 20% argillaceous cement, slightly friable, no visible bedding, with vertical, caliche-filled fractures from 8.3-8.7', moist. 39% Sand, 49% Silt, 12% Clay.
SANDY SILTSTONE	Sandy Siltstone interbedded with Clayey Siltstone (8.9-10.2'). Light gray (10 YR 7/1) with reddish yellow (7.5 YR 6/8) Fe-oxide staining. Sandy siltstone same as above, silty claystone visually estimated as 30% Silt, 70% Clay. With caliche-filled vertical fractures, trace Mg-oxide coating on fractures.

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 10.20	GROUND ELEVATION (FT):	5971.66	PROJECT NUMBER:	OU4-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750762	AREA: PA, POND 207A	CASING DIAMETER (IN):	2.00	GEOLOGIST:	K.R.MIYOSHI	42493
EAST:	2084681	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN):	8.00	DATE DRILLED:	03/23/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COMPLETED WITH 2 LYSIMETERS AND SINGLE NEUTRON ACCESS TUBE. RIG GEOLOGY BY K.R. MIYOSHI (TE). CORE LOGGING BY J.C. EVANS (AE)

CHEMICAL SAMP GRADATIONAL DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/ INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5961	10				Total depth drilled 10.2'.
					5960	11				Vadose Zone Monitoring Borehole Construction Listed Below: Bentonite: 1.9'-2.2' Silica Sand: 2.2'-2.9' Silica Flour: 2.9'-4.0' Bottom Porous Cup: 3.8' Bentonite: 4.0'-4.5' Silica Sand: 4.5'-6.5' Silica Flour: 6.5'-7.2' Bottom Porous Cup: 7.1' Bentonite: 7.2'-9.8' Total Depth Neutron Access Tube: 9.5'
					5959	12				
					5958	13				
					5957	14				
					5956	15				
					5955	16				
					5954	17				
					5953	18				
					5952	19				
						20				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 16.80	GROUND ELEVATION (FT): 5969.81	PROJECT NUMBER: 004-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750748	AREA: PA, POND 207A	CASING DIAMETER (IN):	GEOLOGIST: K.R.MIYOSHI	42593
EAST:	2084826	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN): 12.00	DATE DRILLED: 03/26/93	

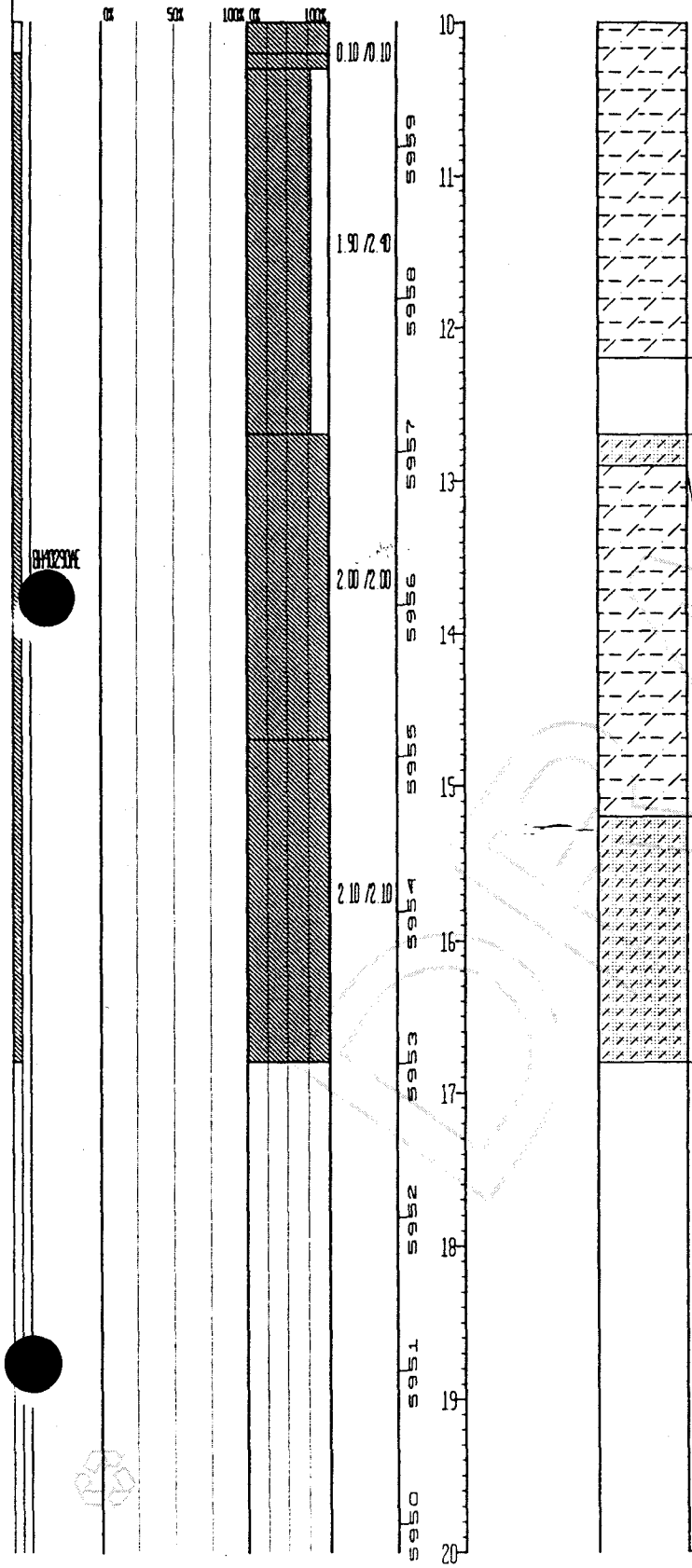
REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY BY K.R. MIYOSHI, CORELOGGING BY J.C. EVANS.

CHEMICAL'S / GRADATIONS	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%	0.00 /0.50		0				Asphalt (0.0-0.5').
	BH0146AE			1.00 /1.00	5969	1			GW/gm	Sandy Gravel with some silt and trace clay (0.5-0.9'). Dark brown (7.5 YR 4/2). Gravel f.g., angular. Sand f.g. to c.g., moist. 73% Gravel, 20% Sand, 6% Silt, 1% Clay.
	BH0291AE BH0147AE			0.50 /0.50 1.00 /1.00	5968	2			GM	Silty Gravel with some silt and clay (0.9-2.0'). Dark reddish brown (2.5 YR 3/4). Gravel c.g., rounded to angular (drilling fractured), well graded. Sand f.g. to c.g., well graded, sub-angular to sub-rounded, pred. quartz, dry. 65% Gravel, 14% Sand, 13% Silt, 8% Clay.
	BH0148AE BH0158AE			0.60 /0.60	5967	3			GW/gm	Sandy Gravel with some silt and trace clay (2.0-7.6'). Brownish yellow (10 YR 6/6). Gravel up to 7 cm. in length, pred. gray quartzite, same as interval (0.9-2.0') above. 74% Gravel, 18% Sand, 6% Silt, 2% Clay. No recovery (5.8-5.9')
				0.70 /0.70	5966	4				
				0.80 /0.80	5965	5				
	BH0292AE			0.70 /0.80	5964					
	BH0149AE			0.30 /0.30		6				
				0.40 /0.40	5963	7				
	BH0159AE			1.00 /1.40						
					5962				NO RECOVERY	No recovery (7.6-8.0')
	BH0150AE			0.10 /0.10		8			SILTY CLAYSTONE	Top of Bedrock at 8.0'. Silty Claystone (8.0-12.2'). Grayish brown (10 YR 5/2) with yellowish brown (10 YR 5/8) staining. Non-friable, no visible bedding, with abundant caliche at 8.3', from 8.9-9.7', at 10.3', and 11.4'. Trace Mg-oxide staining on microfractures, dry. 30% Silt, 70% Clay. No recovery (8.8-8.9')
				0.70 /0.80	5961	9				
				1.30 /1.30	5960	10				
	BH0294AE									

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 16.80	GROUND ELEVATION (FT): 5969.81	PROJECT NUMBER: OU4-RFI/RI	LOG OF BORING NUMBER:	
NORTH: 750748	AREA: PA, POND 207A	CASING DIAMETER (IN):	GEOLOGIST: K.R.MIYOSHI	42593	
EAST: 2084826	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN): 12.00	DATE DRILLED: 03/26/93		

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY BY K.R. MIYOSHI, CORE LOGGING BY J.C. EVANS.

CHEMICAL SAMP. DEPTH
GRADATIONAL DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE
PERCENT RECOVERY
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



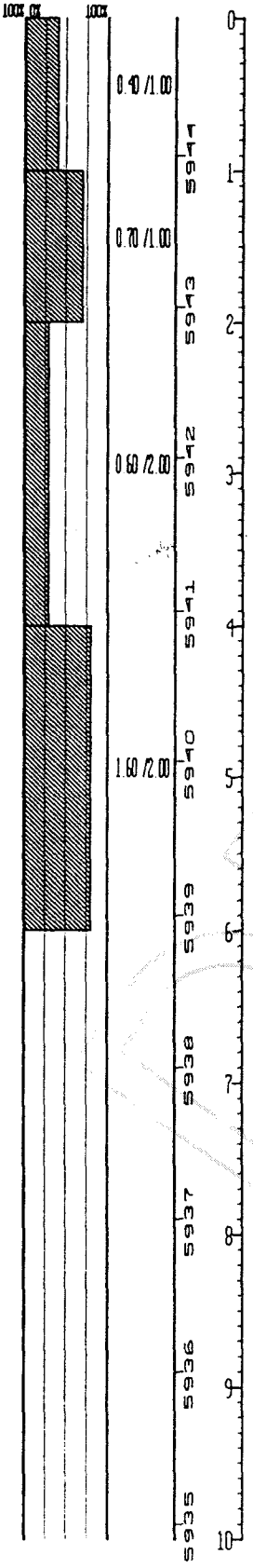
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
NO RECOVERY	No recovery (12.2-12.7')
SANDY SILTSTONE	Sandy Siltstone with some clay (12.7-12.9'). Light gray (10 YR 7/1) with yellowish brown (10 YR5/6) staining. Sand v.f.g., sub-rounded, well sorted. Faint horizontal bedding. Mg-oxide staining on microfractures. Fractures at 0 and 90 degrees, dry. 21% Sand, 63% Silt, 16% Clay.
SILTY CLAYSTONE	Silty Claystone with some sand (12.9-15.2'). Light gray (10 YR 7/1) with yellowish brown (10 YR 5/6) staining. Slightly friable, no visible bedding. Sand v.f.g., sub-rounded, well sorted, Fe-oxide filled fracture at 14.1'. Mg-oxide coating on microfractures throughout interval. Note: grout chips at 14.8'. 10% Sand, 30% Silt, 60% Clay.
SANDY SILTSTONE	Sandy Siltstone with some clay (15.2-16.8'). Same as reference interval (12.7-12.9') above.
	Total Depth Drilled: 16.80

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 6.00	GROUND ELEVATION (FT): 5944.90	PROJECT NUMBER: 014-RFI/RI	LOG OF BORING NUMBER:
NORTH:	751154	AREA: PA, N OF POND 207A	CASING DIAMETER (IN):	GEOLOGIST: C.D. MURRAY	42693
EAST:	2084649	LOCATOR NUMBER: L11	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 02/03/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY AND CORE LOGGING BY CLAUDE MURRAY (AE).

CRITICAL SAMPLE DEPTH
GRADATIONAL DEPTH

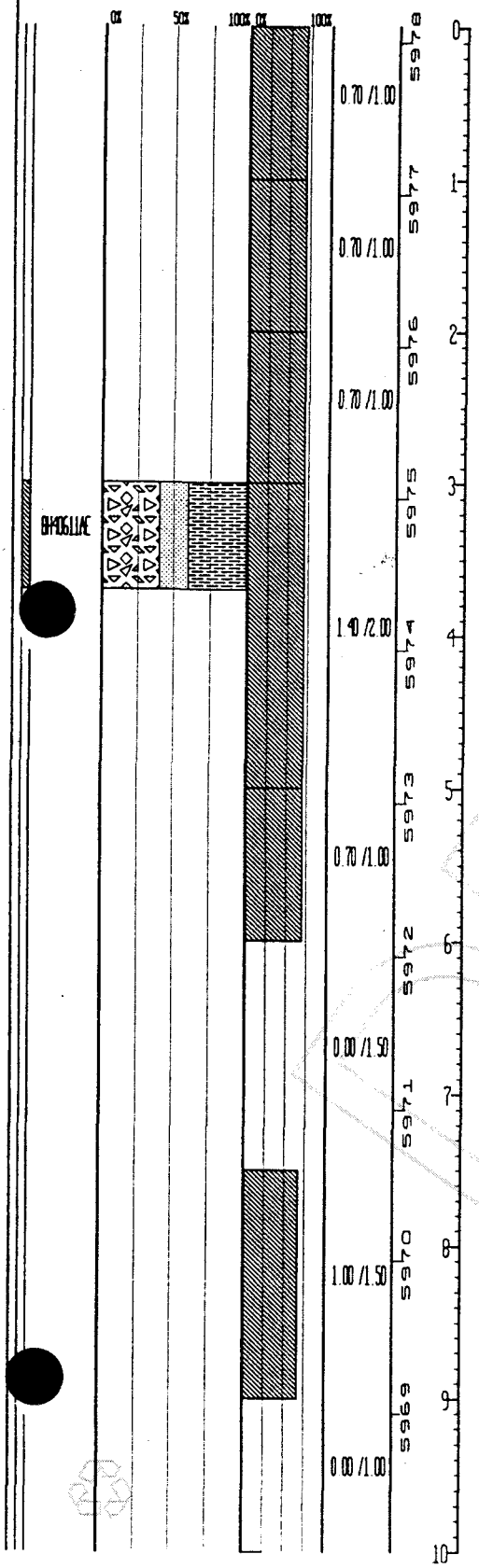
SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50%) | PERCENT RECOVERY (100% 0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION



Unified Soils Classification or Rock Type	Description
OL	Organic Silt with abundant sand and some clay (0.0-0.4'). Black (10 YR 2/1). Pred. f.g. sand, angular to sub-rounded, quartz with granitic and metamorphic grains. Wood and plant material common. Low plasticity clay. Moist. No bedding. 40% Sand, 45% Silt, 15% Clay.
NO RECOVERY	No recovery (0.4-1.0').
SILTSTONE	Top of Bedrock at 1.0'. Siltstone with some sand and clay (1.0-2.6'). Pale olive (5 Y 6/3) with yellowish brown (10 YR 5/8) Fe-oxide staining. Caliche marbleing present. Sand f.g. to v.f.g., sub-angular to rounded, well sorted, pred. quartz with trace of mica and dark minerals, argillaceous cement. Moist. Massive bedding. 62% Silt, 17% Sand, 21% Clay. No recovery (1.7-2.0')
NO RECOVERY	No recovery (2.6-4.0').
CLAYSTONE	Claystone with some sand and silt (4.0-5.6'). Light olive brown (2.5 Y 5/4) with olive yellow (2.5 Y 6/8) staining. Sand f.g. to v.f.g., well sorted, sub-rounded to rounded quartz with trace of dark minerals, moist, no visible bedding. 18% Sand, 12% Silt, 70% Clay.
NO RECOVERY	No recovery (5.6-6.0').
	Total Depth Drilled: 6.00

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 12.00	GROUND ELEVATION (FT): 5978.10	PROJECT NUMBER: 014-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750612	AREA: PA, S POND 207C	CASING DIAMETER (IN): 2.00	GEOLOGIST: K.R. MIYOSHI	42893
EAST:	2084452	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 03/04/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COMPLETED AS LYSIMETER/NEUTRON ACCESS TUBE. RIG GEOLOGY BY K.R. MIYOSHI, CORE LOGGING BY K.R. MIYOSHI AND K.W. PACHECO.



LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	GW	Sandy Gravel with some silt and trace clay (0.0-2.4'). Matrix dark yellowish brown (10 YR 4/4), sand well graded, angular to sub-angular, low plasicity fines, trace of caliche, pred. quartz/feldspar/lithic fragments, gravel to 30 mm., moist, no visible bedding. 55% Gravel, 28% Sand, 15% Silt, 2% Clay. No recovery (0.7-1.0'), (1.7-2.0').
	GW	Sandy Gravel with some silt and trace clay (2.4-4.4'). Matrix brown (7.5 YR 5/4), sand well graded, angular to sub-angular low plasticity fines, no caliche, pred. quartz/feldspar/lithic fragments with red clay, gravel to 30 mm., moist, no visible bedding. 74% Gravel, 17% Sand, 7% Silt, 2% Clay. No recovery (2.7-3.0').
	NO RECOVERY	No recovery (4.4-5.0').
	GC	Clayey Gravel with some sand and silt (5.0-5.7'). Matrix white (10 YR 8/2), sand poorly graded, angular to sub-rounded, moderate to high plasticity fines, abundant caliche, pred. quartz/caliche, no visible bedding, some Fe-oxide staining. 52% Gravel, 13% Sand, 7% Silt, 28% Clay.
	NO RECOVERY	No recovery (5.7-7.5').
	SANDY CLAYSTONE	Top of Bedrock estimated at 7.2'. Sandy Claystone with trace silt (7.5-10.5'). Pale yellow (2.5 YR 7/4), sand well sorted, sub-angular, v.f.g. to f.g. sand, high plasticity fines, mildly calcareous, pred. quartz, moist to wet, some Fe-oxide staining, no visible bedding, soft. 30% Sand, 3% Silt, 67% Clay. No recovery (8.5-10.0')

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 12.00	GROUND ELEVATION (FT):	5978.10	PROJECT NUMBER:	OU4-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750612	AREA: PA, S POND 207C	CASING DIAMETER (IN):	2.00	GEOLOGIST:	K.R.MIYOSHI	42893
EAST:	2084452	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN):	8.00	DATE DRILLED:	03/04/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COMPLETED AS LYSIMETER/NEUTRON ACCESS TUBE. RIG GEOLOGY BY K.R. MIYOSHI, CORE LOGGING BY K.R. MIYOSHI AND K.W. PACHECO.

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH / SAMPLE NUMBER

SAMPLE GRAIN SIZE: 0% 50% 100%

PERCENT RECOVERY: 0% 100%

RECOVERY/INTERVAL: 0.50 /2.00

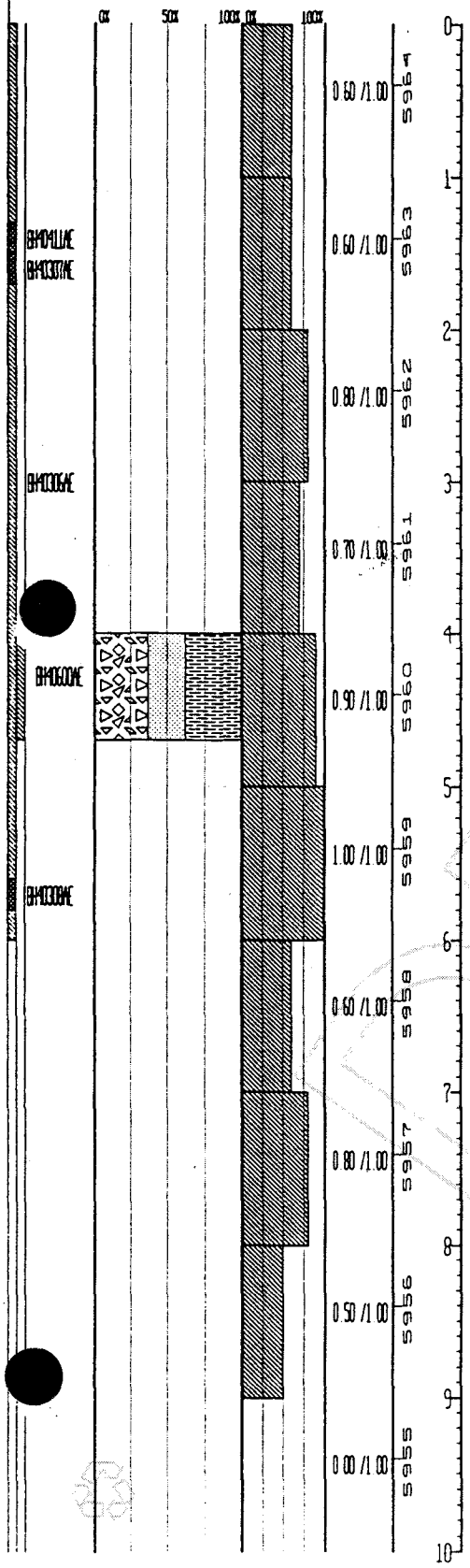
DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
5968	10				
5967	11			NO RECOVERY	No recovery (10.5-12.0')
5966	12				Total Depth Drilled: 12.00
5965	13				
5964	14				
5963	15				
5962	16				
5961	17				
5960	18				
5959	19				
	20				

Vadose Zone Monitoring Borehole Construction Listed Below:
Bentonite: 2.2' to 2.9'
Silica Sand: 2.9' to 5.1'
Silica Flour: 5.1' to 6.4'
Bottom Porous Cup: 5.8'
Bentonite: 6.4' to 7.4'
Portland Cement: 7.4' to 11.95'
Total Depth Neutron Access Tube: 11.95'

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 16.00	GROUND ELEVATION (FT):	5964.40	PROJECT NUMBER:	014-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750704	AREA: PA, E OF B POND	CASING DIAMETER (IN):	2.00	GEOLOGIST:	K.R. MIYOSHI	43193
EAST:	2085229	LOCATOR NUMBER: M10	BOREHOLE DIAMETER (IN):	8.00	DATE DRILLED:	02/15/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COMPLETED AS LYSIMETER/NEUTRON ACCESS TUBE. RIG GEOLOGY BY KERRY MIYOSHI, CORE LOGGING BY K.R. MIYOSHI AND K.W. PACHECO.



WELL OR PIEZOMETER CONSTRUCTION

LITHOLOGY

UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
GW	Sandy Gravel with some silt and trace clay (0.0-1.6'). Dark yellowish brown (10 YR 4/4). Sand well graded, sub-angular to angular, v.f.g. to c.g., low plasticity fines, pred. quartz feldspar, moist, horiz. bedding, some organic material, caliche nodules. 63% Gravel, 24% Sand, 12% Silt, 1% Clay. No recovery (0.6-1.0').
NO RECOVERY	No recovery (1.6-2.0').
GM	Sandy Gravel with some silt and trace clay (2.0-3.7'). Strong brown (7.5 YR 4/6). Poorly graded, angular to sub-angular, v.f.g to c.g., low plasticity fines, pred. quartz/feldspar, moist, no visible bedding. 65% Gravel, 17% Sand, 14% Silt, 4% Clay. No recovery (2.8-3.0').
NO RECOVERY	No recovery (3.7-4.0').
GM	Sandy Gravel with some silt and clay (4.0-5.5'). Yellowish brown (10 YR 5/8). Sand poorly graded, v.f.g. to c.g., angular to sub-angular, low plasticity fines, highly calcerous, pred. quartz, moist, no visible bedding. 36% Gravel, 36% Sand, 20% Silt, 8% Clay. No recovery (4.9-5.0').
SM	Gravelly Sand with some silt and trace clay (5.5-8.5'). Yellowish brown (10 YR 5/8). Sand poorly graded, v.f.g. to c.g., angular to sub-angular, low plasticity fines, mildly calcerous, quartz/feldspar, moist, no visible bedding. 36% Gravel, 55% Sand, 8% Silt, 1% Clay. No recovery (6.6-7.0'), (7.8-8.0').
NO RECOVERY	No recovery (10.0-16.0'). Top of Bedrock estimated at 10.5'. Drillers report "pushing large cobble into soft bedrock."

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 16.00	GROUND ELEVATION (FT):	5954.40	PROJECT NUMBER:	OU4-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750704	AREA: PA, E OF B POND	CASING DIAMETER (IN):	2.00	GEOLOGIST:	K.R. MIYOSHI	43193
EAST:	2085229	LOCATOR NUMBER: M10	BOREHOLE DIAMETER (IN):	8.00	DATE DRILLED:	02/15/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COMPLETED AS LYSIMETER/NEUTRON ACCESS TUBE. RIG GEOLOGY BY KERRY MIYOSHI, CORE LOGGING BY K.R. MIYOSHI AND K.W. PACHECO.

CHEMICAL SAMPLE / GRADATIONAL	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				0.00 /1.00	5954	10				
				0.00 /1.00	5953	11				
					5952	12				
				0.00 /2.00	5951	13				
					5950	14				
				0.00 /2.00	5949	15				
					5948	16				
					5947	17				
					5946	18				
					5945	19				
						20				

Total depth drilled 16.0'

Vadose Zone Monitoring Borehole Construction Listed Below:
Bentonite: 3.0' to 3.5'
Silica Sand: 3.5' to 4.5'
Silica Flour: 4.5' to 5.2'
Bottom Porous Cup: 5.0'
Bentonite: 5.2' to 6.0'
Silica Sand: 6.0' to 7.2'
Silica Flour: 7.2' to 8.0'
Bottom Porous Cup: 7.8'
Native Soil: 8.0' to 10.2'

DRAFT

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 13.60	GROUND ELEVATION (FT): 5972.46	PROJECT NUMBER: OU4-RFI/RI	LOG OF BORING NUMBER:	
NORTH: 750563	AREA: PA, Inside Pond 207A	CASING DIAMETER (IN):	GEOLOGIST: K.R. MIYOSHI	43393	
EAST: 2084680	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 03/18/93		

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY BY K.R. MIYOSHI, CORELOGGING BY J.C. EVANS.

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH

SAMPLE NUMBER

SAMPLE GRAIN SIZE (0% 50% 100%)

PERCENT RECOVERY (0% 100%)

RECOVERY/INTERVAL

DATUM (FT)

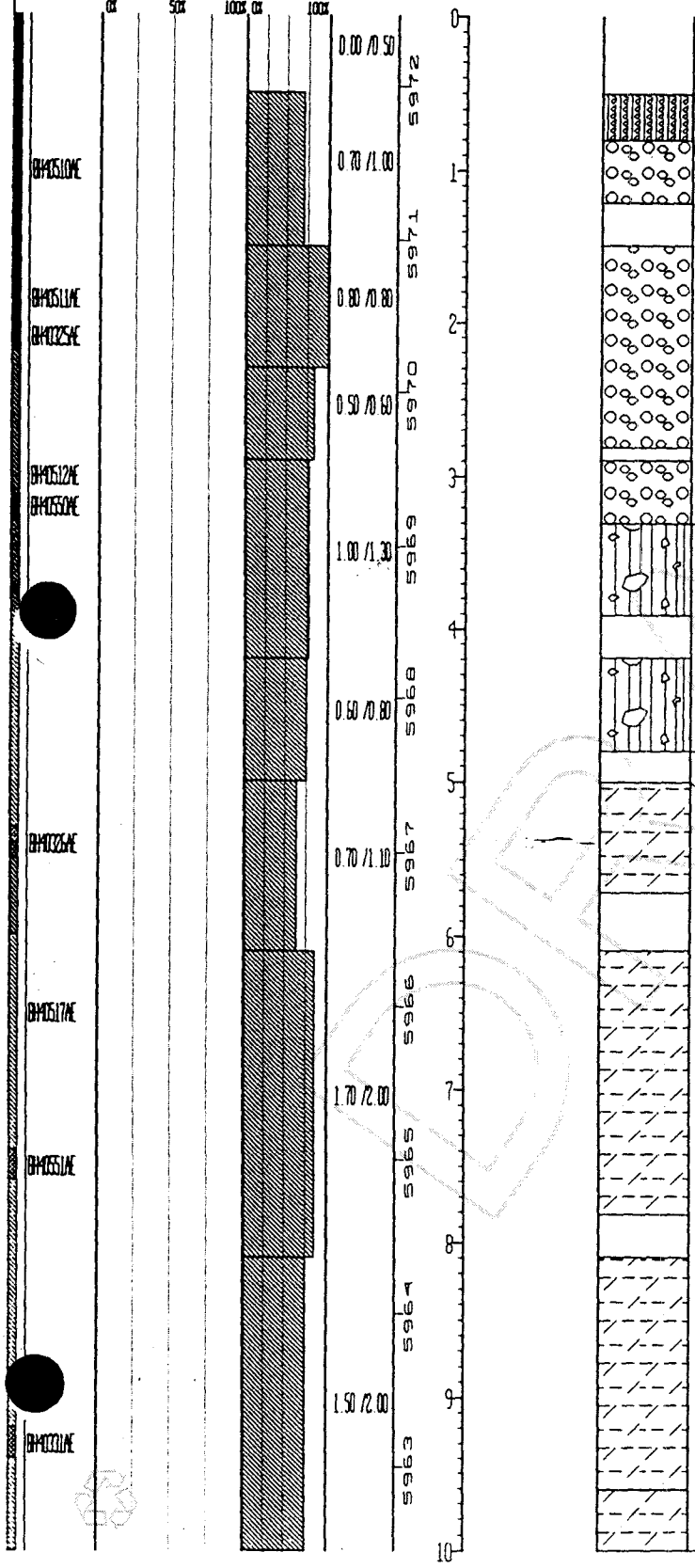
DEPTH (FT)

WELL OR PIEZOMETER CONSTRUCTION

LITHOLOGY

UNIFIED SOILS CLASSIFICATION OR ROCK TYPE

DESCRIPTION



Unified Soils Classification or Rock Type	Description
	Asphalt (0.0-0.5')
SM	Gravelly Sand with some silt and trace clay (0.5-0.8'). Dark yellowish brown (10 YR 4/4). Sand v.f.g. to c.g., poorly graded, angular to sub-angular, pred. quartz, moist. 18% Gravel, 61% Sand, 17% Silt, 4% Clay.
GW	Sandy Gravel with trace silt and clay (0.8-3.3'). Matrix pale yellow (2.5 YR 7/4). Gravel c.g., up to 7 cm in length, well graded, sub-angular. Sand well graded, pred. quartz, abundant caliche from 0.8-1.2'. Dry. 84% Gravel, 10% Sand, 4% Silt, 2% Clay. No recovery (1.2-1.5'), (2.8-2.9').
GM	Sandy Gravel with some silt and clay (3.3-4.8'). Matrix light yellowish brown (2.5 Y 6/3). Gravel pred. f.g., Sand same as above, dry. 53% Gravel, 29% Sand, 9% Silt, 9% Clay. No recovery (3.9-4.2')
NO RECOVERY	No recovery (4.8-5.0')
SILTY CLAYSTONE	Top of Bedrock at 5.0'. Silty Claystone with some sand (5.0-11.8'). Olive yellow (2.5 YR 6/6) with reddish yellow (7.5 YR 6/8). Fe-oxide staining. Slightly friable. Sand v.f.g. to f.g., well sorted, sub-angular to sub-rounded, argillaceous cement, moist, crude, thin horizontal bedding, ironstone concretions at 7.7', 8.5', and 11.0'. Abundant caliche from 5.0-5.5'. 7% Sand, 37% Silt, 56% Clay. No recovery (5.7-6.1'), (7.8-8.1'), (9.6-10.1').

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 13.60	GROUND ELEVATION (FT): 5972.46	PROJECT NUMBER: OU4-RFI/RI	LOG OF BORING NUMBER:	
NORTH: 750563	AREA: PA, Inside Pond 207A	CASING DIAMETER (IN):	GEOLOGIST: K.R.MIYOSHI	43393	
EAST: 2084680	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 03/18/93		

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY BY K.R. MIYOSHI, CORELOGGING BY J.C. EVANS.

CHEMICAL SA GRADATIONAL	SAMPLE NUM	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/ INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH0324AE			1.90 /2.00	5962	10				
					5961	11				
				1.50 /1.50	5960	12			SILTY CLAYSTONE:	Silty Claystone with trace sand (11.8-13.6'). Light gray (2.5 Y N7). Non-friable, dry, no visible bedding-possibly bioturbated, trace (2%) Mg-oxide staining. 3% Sand, 29% Silt, 68% Clay. No recovery (12.0-12.1')
					5959	13				
										Total Depth Drilled: 13.60
					5958	14				
					5957	15				
					5956	16				
					5955	17				
					5954	18				
					5953	19				
						20				

DRAFT

STATE PLANE COORDINATE	TOTAL DEPTH (FT): 11.30	GROUND ELEVATION (FT): 5973.48	PROJECT NUMBER: 0014-RFI/RI	LOG OF BORING NUMBER:
NORTH: 750602	AREA: PA, B POND (S AND C)	CASING DIAMETER (IN):	GEOLOGIST: K.W.PACHECO	43493
EAST: 2085097	LOCATOR NUMBER: M10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 04/21/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY BY K.W. PACHECO, CORELOGGING BY J.C. EVANS.

CHEMICAL SAMPLE DEPTH / GRADATION	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				0.00 /0.50	5973	0				Asphalt (0.0-0.5')
				0.00 /0.30						Soil to analytical sample (0.5-0.8')
				1.30 /1.70	5972	1			GM	Sandy Gravel with some silt and trace clay (0.8-4.0'). Matrix very pale brown (10 YR 7/3). Gravel pred. c.g., up to 7 cm. in length, sub-rounded. Sand f.g. to c.g., with some (20%) caliche in matrix and as coating on gravel, moist. 68% Gravel, 14% Sand, 12% Silt, 5% Clay. No recovery (2.1-2.5')
	BH1020AE					2				
	BH1057AE BH1019AE				5971					
				1.50 /2.00	5970	3				
						4			NO RECOVERY	No recovery (4.0-4.5')
					5969				GW/gm	Sandy Gravel with trace silt and clay (4.5-7.5'). Matrix dark brown (7.5 YR 4/3). Gravel same as above. Sand well graded, f.g. to c.g., sub-angular, trace (5%) caliche, moist, no visible bedding. 83% Gravel, 10% Sand, 5% Silt, 2% Clay. No recovery (5.5-6.5')
	BH1021AE			1.00 /2.00	5968	5				
					5967	6				
				1.00 /1.00		7				
					5966				GM	Sandy Gravel with some silt and clay (7.5-9.5'). Matrix reddish brown (5 YR 4/4). Gravel pred. 1-4 cm., well graded, sub-rounded to angular (drilling fractured), pred. gray quatrzite. Sand same as above, moist. 53% Gravel, 25% Sand, 13% Silt, 9% Clay. No recovery (8.2-8.5')
				0.70 /1.00		8				
	BH1022AE				5965					
				1.00 /1.00		9				
					5964				GM	Sandy Gravel with some silt and trace clay (9.5-10.7'). Same as reference interval 0.8-4.0' above, with some (10%) caliche.
				0.80 /0.80		10				

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 11.30	GROUND ELEVATION (FT): 5973.48	PROJECT NUMBER: OU4-RFI/RI	LOG OF BORING NUMBER:	
NORTH: 750602	AREA: PA, B POND (S AND C)	CASING DIAMETER (IN):	GEOLOGIST: K.W. PACHECO	43493	
EAST: 2085097	LOCATOR NUMBER: M10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 04/21/93		

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY BY K.W. PACHECO, CORE LOGGING BY J.C. EVANS.

CHEMICAL SAMPLE DEPTH / GRADATION / SAMPLE NUMBER / SAMPLE GRAIN SIZE (0% 50% 100%) / PERCENT RECOVERY (0% 100%) / RECOVERY/INTERVAL / DATUM (FT) / DEPTH (FT) / WELL OR PIEZOMETER CONSTRUCTION / LITHOLOGY / UNIFIED SOILS CLASSIFICATION OR ROCK TYPE / DESCRIPTION

BH4D23AE

1.00 /1.00

DEPTH (FT)	DATUM (FT)
10	5963
11	5962
12	5961
13	5960
14	5959
15	5958
16	5957
17	5956
18	5955
19	5954
20	

CL: Sandy Clay with some silt (10.7-11.3'). White (2.5 Y N8/). Sand pred. m.g., moderately graded, sub-angular, no visible bedding, dry. Abundant (80%) caliche, low plasticity fines. 23% Sand, 8% Silt, 69% Clay.

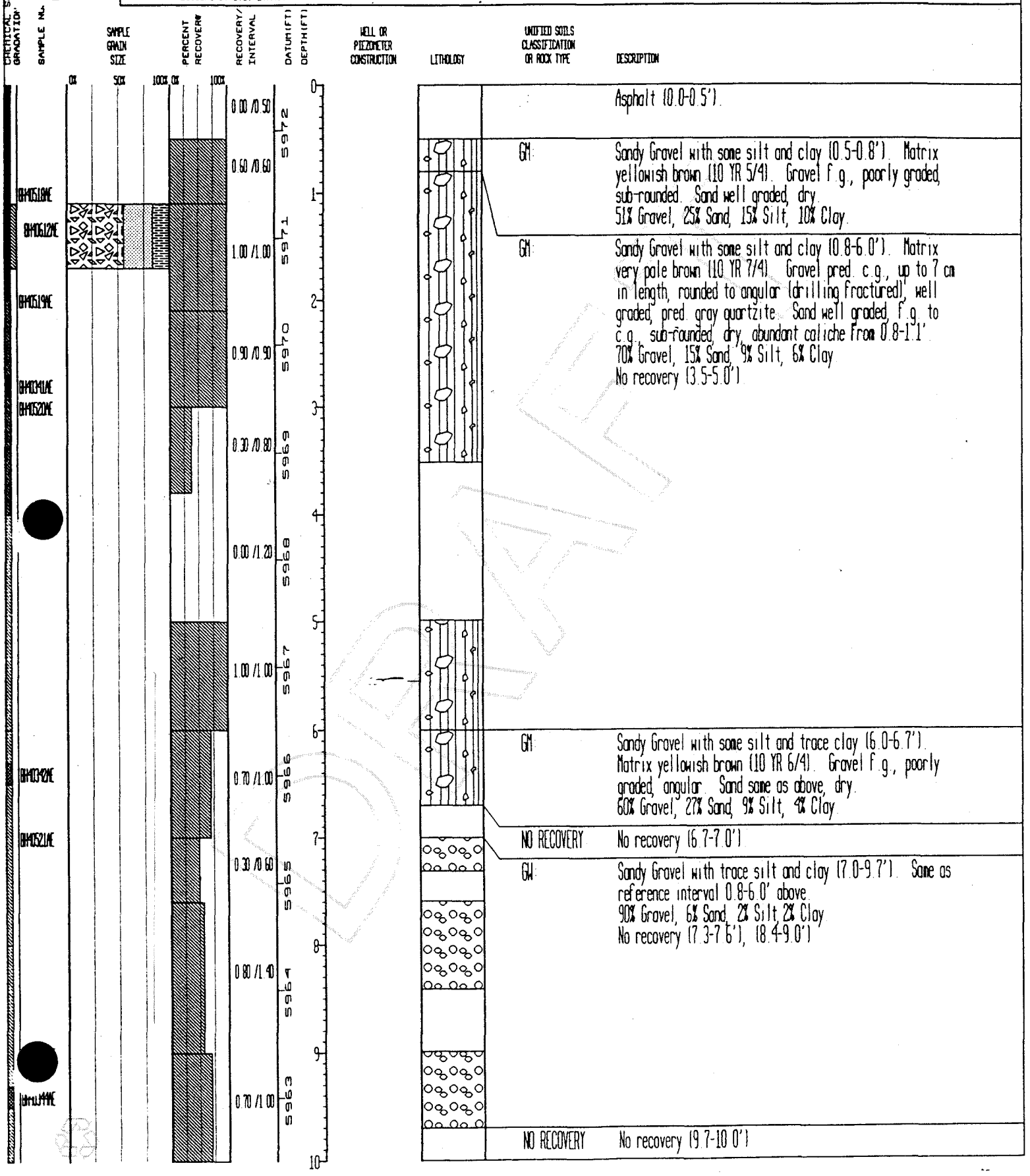
Total depth drilled 11.3'.

Note: Bedrock not encountered. Auger refusal at 11.3'. Material is fill material, placed during pond berm construction.

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 13.00	GROUND ELEVATION (FT): 5972.42	PROJECT NUMBER: 014-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750521	AREA: PA, POND 207A	CASING DIAMETER (IN): 2.00	GEOLOGIST: K.R.MIYOSHI	43693
EAST:	2084727	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 03/24/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COMPLETED AS LYSIMETER/NEUTRON ACCESS TUBE. RIG GEOLOGY BY K.R. MIYOSHI, CORE LOGGING BY J.C. EVANS.



STATE PLANE COORDINATE		TOTAL DEPTH (FT): 13.00	GROUND ELEVATION (FT): 5972.42	PROJECT NUMBER: OU4-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750521	AREA: PA, POND 207A	CASING DIAMETER (IN): 2.00	GEOLOGIST: K.R.MIYOSHI	43693
EAST:	2084727	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 03/24/93	

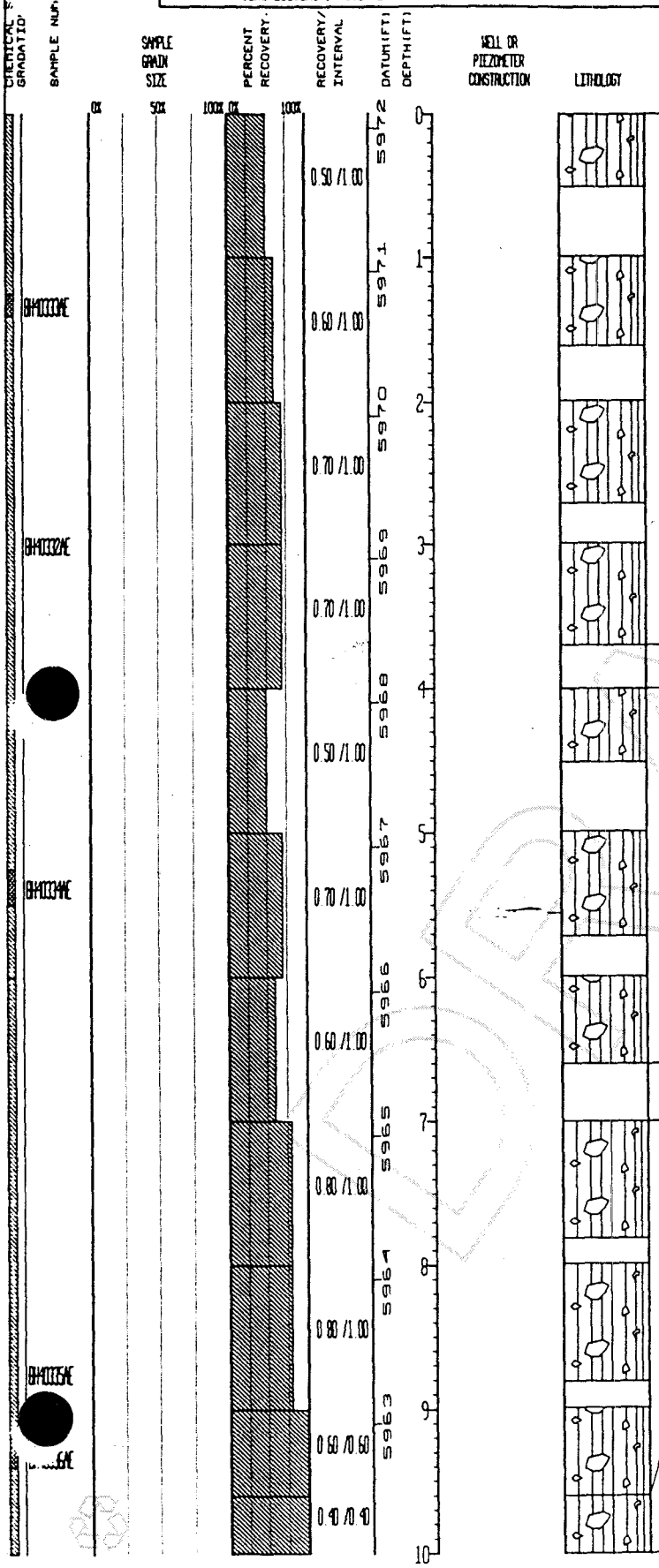
REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COMPLETED AS LYSIMETER/NEUTRON ACCESS TUBE. RIG GEOLOGY BY K.R. MIYOSHI, CORE LOGGING BY J.C. EVANS.

CHEMICAL SAMPLE DEPTH / GRADATION / SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				0.80 /0.80	5962	10			SILTY CLAYSTONE	Top of Bedrock at 10.0'. Claystone (10.0-13.0'). Light gray (10 YR 7/1) and yellow (10 YR 7/6). Non-friable, dry, with crude horizontal bedding, ironstone concretions present from 10.0-10.4'. Mg-oxide coating on microfractures from 11.2-11.6'. 10% Silt, 90% Clay.
	BH40563AE BH40525AE			1.20 /1.20	5961	11				
				1.00 /1.00	5960	12				
	BH40347AE					13				Total depth drilled 13.0'
					5959					Vadose Zone Monitoring Borehole Construction Listed Below: Bentonite: 3.0' to 4.0' Silica Sand: 4.0' to 7.3' Silica Flour: 7.3' to 8.0' Bottom Porous Cup: 7.9' Bentonite: 8.0' to 8.6' Silica Sand: 8.6' to 10.0' Bentonite: 10.0' to 12.9' Total Depth Neutron Access Tube: 12.6'
					5958	14				
					5957	15				
					5956	16				
					5955	17				
					5954	18				
					5953	19				
						20				

DRAFT

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 17.00	GROUND ELEVATION (FT):	5972.10	PROJECT NUMBER:	OU4-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750688	AREA: PA, E OF POND 207A	CASING DIAMETER (IN):	2.00	GEOLOGIST:	C.D. MURRAY	43793
EAST:	2084908	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN):	8.00	DATE DRILLED:	02/23/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COMPLETED AS 2 LYSIMETERS AND NEUTRON ACCESS TUBE. RIG GEOLOGY BY C.D. MURRAY, CORE LOGGING BY J.C. EVANS.



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
GM/gw:	Gravel with some sand and silt and trace clay (0.0-3.7'). Grayish brown (10 YR 5/2). Gravel c.g., up to 5 cm. in length, sub-rounded, poorly graded. Sand f.g. to c.g., moderately graded, sub-angular, pred. quartz, moist. 81% Gravel, 12% Sand, 6% Silt, 1% Clay. No recovery (0.5-1.0'), (1.6-2.0'), (2.7-3.0').
NO RECOVERY:	No recovery (3.7-4.0').
GM:	Sandy Gravel with some silt and trace clay (4.0-6.6'). Dark reddish brown (2.5 YR 3/4). Gravel c.g., up to 7 cm. in length. Sand same as above, moist. 72% Gravel, 15% Sand, 10% Silt, 3% Clay. No recovery (4.5-5.0'), (5.7-6.0')
NO RECOVERY:	No recovery (6.6-7.0').
GM:	Sandy Gravel with some silt and trace clay (7.0-9.6'). Yellowish brown (10 YR 5/6). Gravel same as above. Sand f.g. to c.g., well graded, sub-angular to sub-rounded, pred. quartz, moist. 66% Gravel, 21% Sand, 8% Silt, 5% Clay. No recovery (7.8-8.0'), (8.8-9.0').
GM:	Sandy Gravel with some silt and trace clay (9.6-11.3'). Same as reference interval (7.0-9.6') above. 62% Gravel, 23% Sand, 9% Silt, 6% Clay. No recovery (10.3-11.0')

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 17.00	GROUND ELEVATION (FT): 5972.10	PROJECT NUMBER: 014-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750688	AREA: PA, E OF POND 207A	CASING DIAMETER (IN): 2.00	GEOLOGIST: C.D. MURRAY	43793
EAST:	2084908	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 02/23/93	

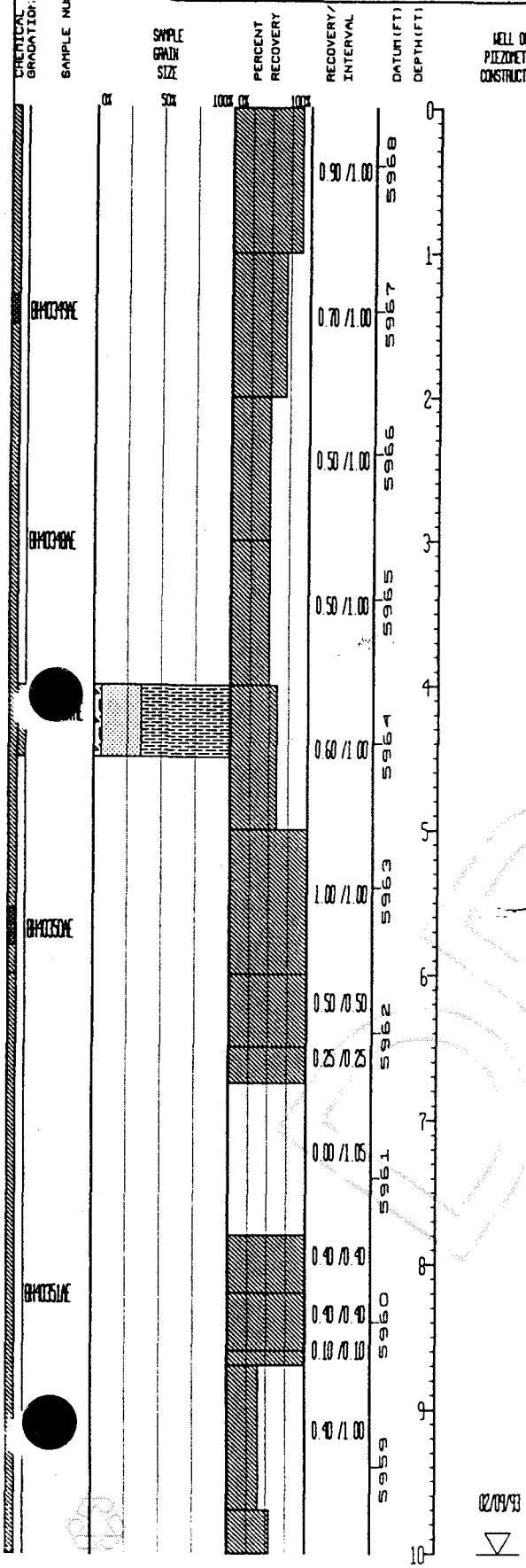
REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COMPLETED AS 2 LYSIMETERS AND NEUTRON ACCESS TUBE. RIG GEOLOGY BY C.D. MURRAY, CORE LOGGING BY J.C. EVANS.

CHEMICAL / GRADATION	SAMPLE NUMBER	SAMPLE DEPTH	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
			0% 50% 100%	0% 100%	0.30 /1.00	5962	10				
					0.80 /1.00	5961	11			CLAYSTONE:	Top of Bedrock at 11.3'. Claystone with some silt and trace sand (11.3-16.9'). Light gray (10 YR 7/1) and brownish yellow (10 YR 6/8), grading to gray (10 YR 5/1) from 15.8 to 16.9'. Non-friable, no visible bedding - possibly bioturbated, with caliche nodules and fractures filling from 14.1-14.7'. Mg-oxide coating on microfractures from 15.0-16.9'. 11% Sand, 4% Silt, 85% Clay. No recovery (11.8-12.0'), (12.75-13.0'), (14.7-15.0').
	BH06D4AE				0.75 /1.00	5960	12				
						5959	13				
	BH10D3AE				1.70 /2.00	5958	14				
						5957	15				
					1.90 /2.00	5956	16			NO RECOVERY:	No recovery (16.9-17.0')
						5955	17				Total depth drilled 17.0'
						5954	18				Vadose Zone Monitoring Borehole Construction Listed Below: Bentonite: 1.6'-2.1' Silica Sand: 2.1'-3.7' Silica Flour: 3.7'-4.6' Bottom Porous Cup: 4.5' Bentonite: 4.6'-5.1' Silica Sand: 5.1'-9.8' Silica Flour: 9.8'-10.9' Bottom Porous Cup: 10.8' Bentonite: 10.9'-11.5' Grout: 11.5'-17.0' Total Depth Neutron Access Tube: 16.6'
						5953	19				
							20				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 16.30	GROUND ELEVATION (FT): 5968.40	PROJECT NUMBER: OU4-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750463	AREA: PA, east of ponds	CASING DIAMETER (IN): 2.00	GEOLOGIST: J.C. EVANS	44093
EAST:	2085223	LOCATOR NUMBER: M10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 02/09/93	

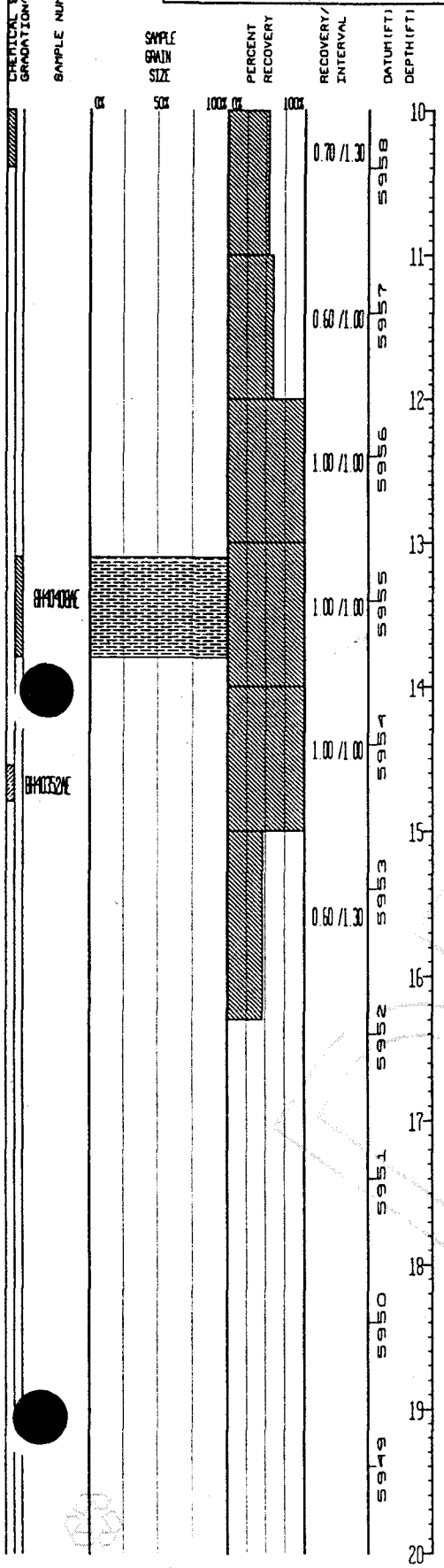
REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COMPLETED AS TWO LYSIMETERS AND ONE NEUTRON ACCESS TUBE. RIG GEOLOGY BY J.C. EVANS, CORE LOGGING BY J.C. EVANS.



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
ML	Sandy Silt with some clay and gravel (0.0-0.9'). Pale brown (10 YR 6/3), very stiff, low plasticity fines. Sand well graded, v.f.g. to c.g., sub-angular to rounded, pred. quartz, trace (3%) scattered white caliche grains, dry. 12% Gravel, 31% Sand, 34% Silt, 22% Clay.
NO RECOVERY	No recovery (0.9-1.0').
SM	Silty Sand with some clay and trace gravel (1.0-1.5'). Very pale brown (10 YR 7/3). Sand v.f.g. to f.g., mod. graded, angular to sub-rounded, pred. quartz, low plasticity fines, dry, no visible bedding. 2% Gravel, 70% Sand, 20% Silt, 8% Clay.
GM	Silty Gravel with some sand and trace clay (1.5-3.5'). Reddish brown (5 YR 5/3) to dark red (2.5 YR 3/6). Gravel rounded to angular (drilling fractured), up to 7 cm in length, well graded, pred. gray quartzite. Sand m.g. to f.g., moderately sorted, angular to sub-rounded, low plasticity fines, moist. 78% Gravel, 7% Sand, 11% Silt, 4% Clay. No recovery (1.7-2.0'), (2.5-3.0').
NO RECOVERY	No recovery (3.5-4.0').
GW/gm	Sandy Gravel with some silt and trace clay (4.0-6.0'). Brownish yellow (10 YR 6/6). Gravel rounded to sub-rounded, well graded, up to 7 cm in length. Sand well graded, f.g. to c.g., sub-angular to rounded, pred. quartz, low plasticity fines, caliche abundant (40%) from 4.5 to 4.8'). 76% Gravel, 16% Sand, 7% silt, 1% Clay. No recovery (4.6-5.0')
GM	Sandy Gravel with some silt and trace clay (6.0-6.5'). Brownish yellow (10 YR 6/8). Gravel well graded, pred. fine grained, sub-angular, gray quartzite and metamorphic rock fragments. Sand well graded, f.g. to c.g. 63% gravel, 27% Sand, 9% Silt, 1% Clay
GW/gm	Sandy Gravel (6.5-10.4'). Same as reference interval (4.0-6.0') above. No recovery (6.75-7.8'), (9.1-9.7')

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 16.30	GROUND ELEVATION (FT): 5968.40	PROJECT NUMBER: OU4-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750463	AREA: PA, east of ponds	CASING DIAMETER (IN): 2.00	GEOLOGIST: J.C. EVANS	44093
EAST:	2085223	LOCATOR NUMBER: M10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 02/09/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COMPLETED AS TWO LYSIMETERS AND ONE NEUTRON ACCESS TUBE. RIG GEOLOGY BY J.C. EVANS, CORE LOGGING BY J.C. EVANS.



WELL OR PIEZOMETER CONSTRUCTION

LITHOLOGY

UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
NO RECOVERY	No recovery (10.4-11.0').
CL	Sandy Clay with some silt and trace gravel (11.0-11.4'). Light gray (10 YR 7/1) to white (10 YR 8/1). Soft, low plasticity fines. Sand pred. m.g., also v.f.g. to c.g., sub-angular, moderately sorted, wet, with abundant (40%) caliche. 4% Gravel, 36% Sand, 18% Silt, 42% Clay.
CLAYSTONE	Claystone (11.4-15.6'). Top of Bedrock at 11.4'. Light gray (10 YR 6/1) to gray (10 YR 5/1) with yellow (10 YR 7/6) staining. Very stiff to stiff, moist, non-friable, no visible bedding, Fe-oxide and manganese coating on scattered fractures from 12.5-15.6'. Healed, Fe-oxide filled, vertical fractures at 14.5' and 15.2'. Highly fractured from 14.0-15.6'. 10% Silt, 90% Clay. No recovery (11.6-12.0')
NO RECOVERY	No recovery (15.6-16.3')

Total depth drilled 16.3'.

Vadose Zone Monitoring Borehole Construction Listed Below:
Bentonite: 2.7'-3.4'
Silica Sand: 3.4'-4.4'
Silica Flour: 4.4'-7.1'
Bottom Porous Cup: 5.6'
Bentonite: 7.1'-8.8'
Silica Sand: 8.8'-10.3'
Silica Flour: 10.3'-11.2'
Bottom Porous Cup: 11.0'
Bentonite: 11.2'-11.8'
Grout: 11.8'-16.2'
Total Depth Neutron Access Tube: 15.9'

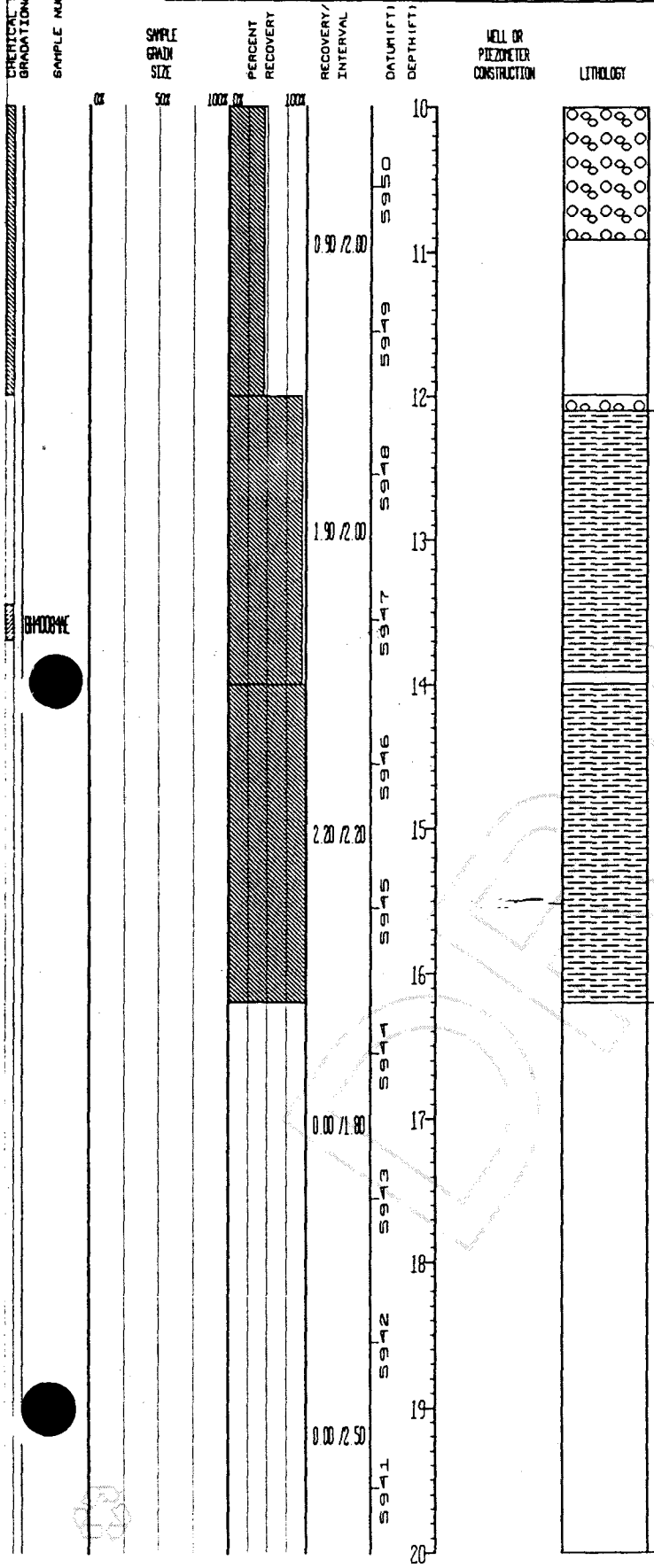
STATE PLANE COORDINATE		TOTAL DEPTH (FT): 50.40	GROUND ELEVATION (FT): 5960.55	PROJECT NUMBER: 014-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750435	AREA: E OF 207B S	CASING DIAMETER (IN):	GEOLOGIST: JCE/KWP	44193
EAST:	2085601	LOCATOR NUMBER: M10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 03/30/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY BY J.C. EVANS (AE) AND K.W. PACHECO (TE), CORE LOGGING BY C.D. MURRAY (AE). DRILLED TO 16.2' ON 12-21-92. DRILLED TO 50.4' ON 3-31-93.

CHEMICAL SAMPLE DEPTH / GRADATION	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	GH0079AE			0.70 /2.00	5960	0–1			GM	Sandy Gravel with some silt and trace of clay (0.0-0.7'). Matrix very dark grayish brown (10 YR 3/2). Gravel 1-2 cm. sub-rounded. Sand m.g. to c.g., angular to sub-rounded, moderately graded, abundant quartz and common hornblend and biotite, moist. 62% Gravel, 26% Sand, 10% Silt, 2% Clay.
					5959	1–2			NO RECOVERY	No recovery (0.7-2.0').
	GH0079AE			1.30 /2.00	5958	2–3			GW	Sandy Gravel with trace of silt and clay (2.0-12.1'). Matrix dark reddish brown (2.5 YR 3/4) to brownish yellow (10 YR 6/6). Gravel 1-5 cm. (fractured by drilling). Sand f.g. to c.g., moderately graded, angular to sub-rounded, quartz common with trace of hornblend and biotite, argillaceous cement. Moist, fair porosity. 64% Gravel, 30% Sand, 3% Silt, 3%Clay. No recovery (3.3-4.0'), (4.7-6.0'), (6.55-7.0'), (7.9-8.0') No recovery (9.0-10.0'), (10.9-12.0')
					5957	3–4				
	GH0080AE			0.70 /2.00	5956	4–5				
					5955	5–6				
				0.55 /1.00	5954	6–7				
				0.90 /1.00	5953	7–8				
	GH0082AE			1.00 /2.00	5952	8–9				
					5951	9–10				

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 50.40	GROUND ELEVATION (FT):	5960.55	PROJECT NUMBER:	OU4-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750435	AREA: E OF 207B S	CASING DIAMETER (IN):		GEOLOGIST:	JCE/KWP	44193
EAST:	2085601	LOCATOR NUMBER: M10	BOREHOLE DIAMETER (IN):	8.00	DATE DRILLED:	03/30/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY BY J.C. EVANS (AE) AND K.W. PACHECO (TE), CORE LOGGING BY C.D. MURRAY (AE). DRILLED TO 16.2' ON 12-21-92. DRILLED TO 50.4' ON 3-31-93.



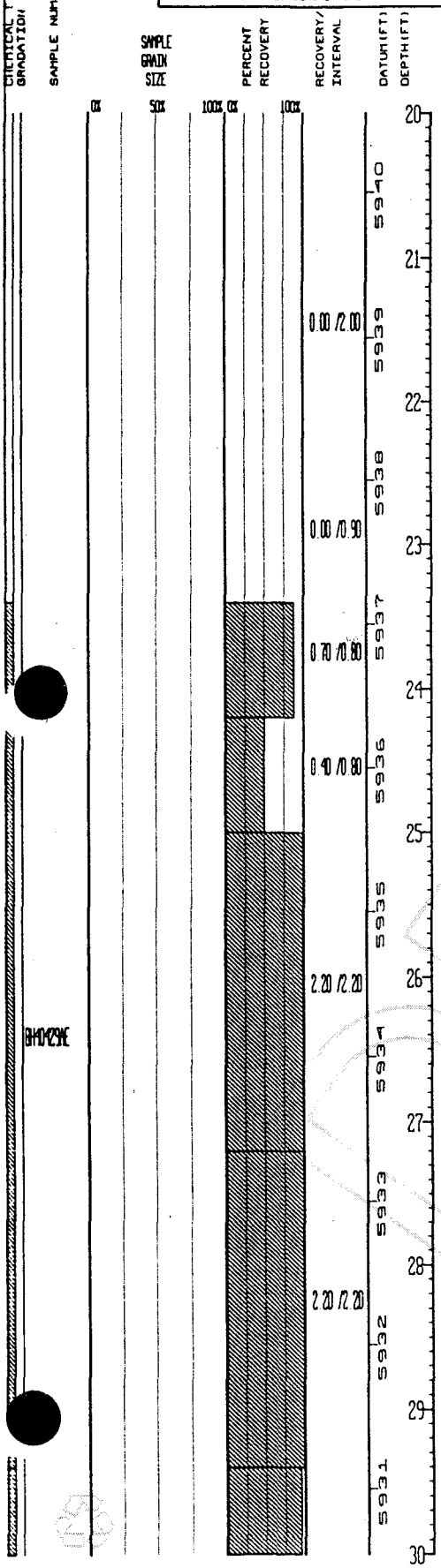
CLAYSTONE: Top of Bedrock at 12.1'. Claystone with abundant sand (12.1-16.2'). Grayish brown (10 YR 5/2) with light yellowish brown (10 YR 6/4), mottling and staining. Trace of gravel scattered throughout. Sand, f.g. to m.g. common, rounded to sub-angular, quartz abundant. Moist.
27% Sand, 73% Clay
No recovery (13.9-14.0').

NO RECOVERY: No recovery (16.2-23.4'). Note: Wood plug blocking barrel from 16.2-23.4'.

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 50.40	GROUND ELEVATION (FT): 5960.55	PROJECT NUMBER: 014-RFI/RI	LOG OF BORING NUMBER
NORTH:	750435	AREA: E OF 2078 S	CASING DIAMETER (IN):	GEOLOGIST: JCE/KWP	44193
EAST:	2085601	LOCATOR NUMBER: M10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 03/30/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY BY J.C. EVANS (AE) AND K.W. PACHECO (TE), CORE LOGGING BY C.D. MURRAY (AE). DRILLED TO 16.2' ON 12-21-92. DRILLED TO 50.4' ON 3-31-93.



WELL OR PIEZOMETER CONSTRUCTION

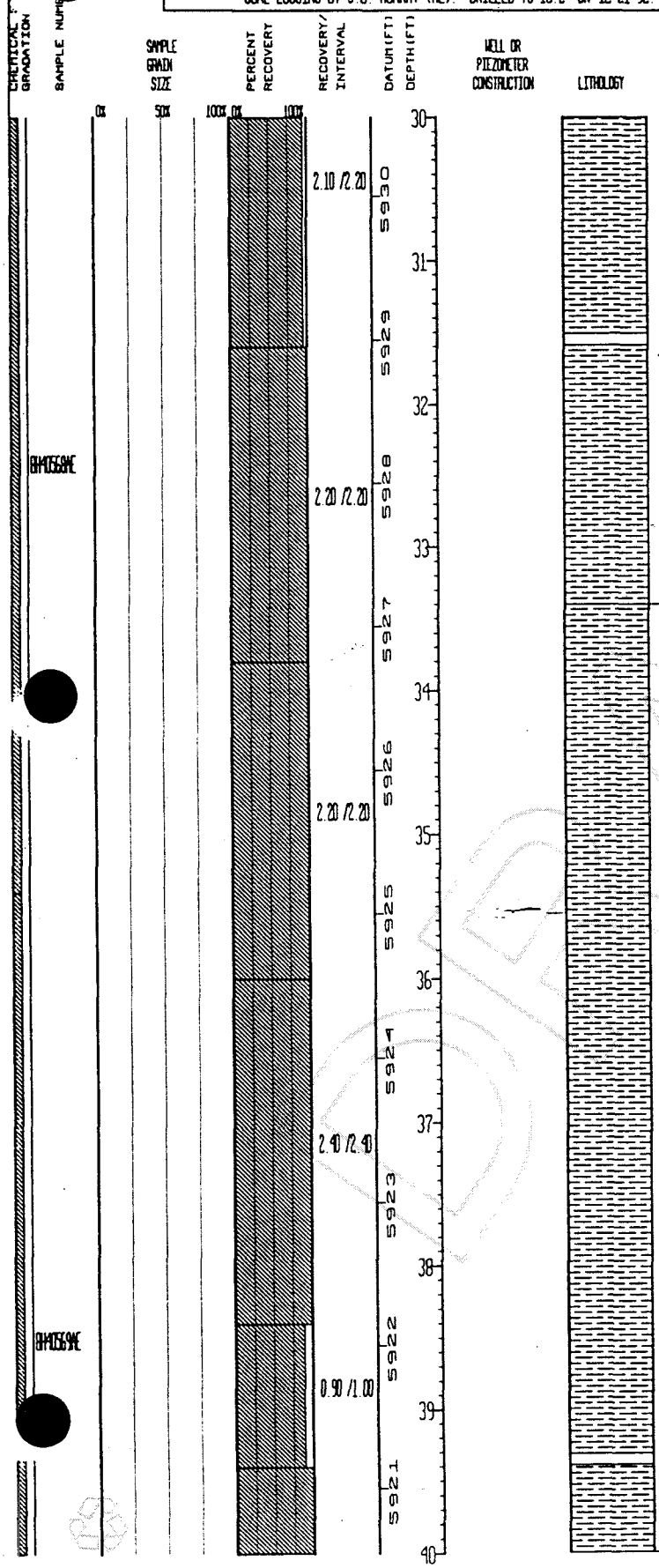
LITHOLOGY

UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CLAYSTONE	Claystone with some silt and trace of v.f.g. sand (23.4-33.4'). Gray (5 Y 5/1) to dark olive gray (5 Y 3/2), with light olive brown (2.5 Y 5/6) staining along fractures, slickenslides. V.f.g. sand sub-rounded to rounded, quartz. Fractures common at 20-30 degrees from horiz., very poor porosity, very stiff, non-friable, no bedding, moist. 1% Sand, 10% Silt, 89% Clay. No recovery (24.1-24.2'), (24.6-25.0'), (31.5-31.6').

DRAFT

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 50.40	GROUND ELEVATION (FT): 5960.55	PROJECT NUMBER: 0U4-RFI/RI	LOG OF BORING NUMBER:	
NORTH: 750435	AREA: E OF 2078 S	CASING DIAMETER (IN):	GEOLOGIST: JCE/KWP	44193	
EAST: 2085601	LOCATOR NUMBER: M10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 03/30/93		

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY BY J.C. EVANS (AE) AND K.W. PACHECO (TE), CORE LOGGING BY C.D. MURRAY (AE). DRILLED TO 16.2' ON 12-21-92. DRILLED TO 50.4' ON 3-31-93.



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CLAYSTONE	Claystone with some silt and trace of v.f.g. sand (33.4-40.0'). Gray (5 Y 5/1) to dark olive gray (5 Y 3/2) with light olive brown (2.5 Y 5/6) staining along fractures. V.f.g. sand, sub-rounded to rounded quartz with a trace of mica. Non-friable, moist, no bedding. Fractures common from 10 to 40 degrees. 1% Sand, 10% Silt, 89% Clay. No recovery (39.3-39.4')

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 50.40	GROUND ELEVATION (FT): 5960.55	PROJECT NUMBER: 0U4-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750435	AREA: E OF 2078 S	CASING DIAMETER (IN):	GEOLOGIST: JCE/KWP	44193
EAST:	2085601	LOCATOR NUMBER: M10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 03/30/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY BY J.C. EVANS (AE) AND K.W. PACHECO (TE), CORE LOGGING BY C.D. MURRAY (AE). DRILLED TO 16.2' ON 12-21-92. DRILLED TO 50.4' ON 3-31-93.

DEPTH / SAMPLE DEPTH	CHEMICAL / GRADATION	SAMPLE NUM	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
			0% 50%	100% 0% 100%	2.20/2.20	5920	40				SILTY CLAYSTONE: Silty Claystone with trace of v.f.g. sand (40.0-50.4'). Dark gray (2.5 Y N4) with olive yellow (2.5 Y 6/8) staining on fractures and slickensides. Very friable in areas, very stiff, moist, very faint horiz. bedding. Some vertical 90 degrees fractures, and common 30-50 degrees fractures and slickenslides throughout. 2% Sand, 39% Silt, 59% Clay.
						5919	41				
					2.20/2.20	5918	42				
						5917	43				
						5916	44				
		CLAYSTONE			2.20/2.20	5915	45				
						5914	46				
					2.20/2.20	5913	47				
						5912	48				
					2.20/2.20	5911	49				
							50				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 50.40	GROUND ELEVATION (FT): 5960.55	PROJECT NUMBER: 014-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750435	AREA: E OF 2078 S	CASING DIAMETER (IN):	GEOLOGIST: JCE/KWP	44193
EAST:	2085601	LOCATOR NUMBER: M10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 03/30/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY BY J.C. EVANS (AE) AND K.W. PACHECO (TE), CORE LOGGING BY C.D. MURRAY (AE). DRILLED TO 16.2' ON 12-21-92. DRILLED TO 50.4' ON 3-31-93.

CHEMICAL / GRADATION	SAMPLE NUMBER / DEPTH	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/ INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50%	100% 0% 100%		5910	50				Total depth taped at 50.2', but measured core indicates 50.4', discrepency due to hole cave in at bottom of hole.
					5909	51				
					5908	52				
					5907	53				
					5906	54				
					5905	55				
					5904	56				
					5903	57				
					5902	58				
					5901	59				
						60				

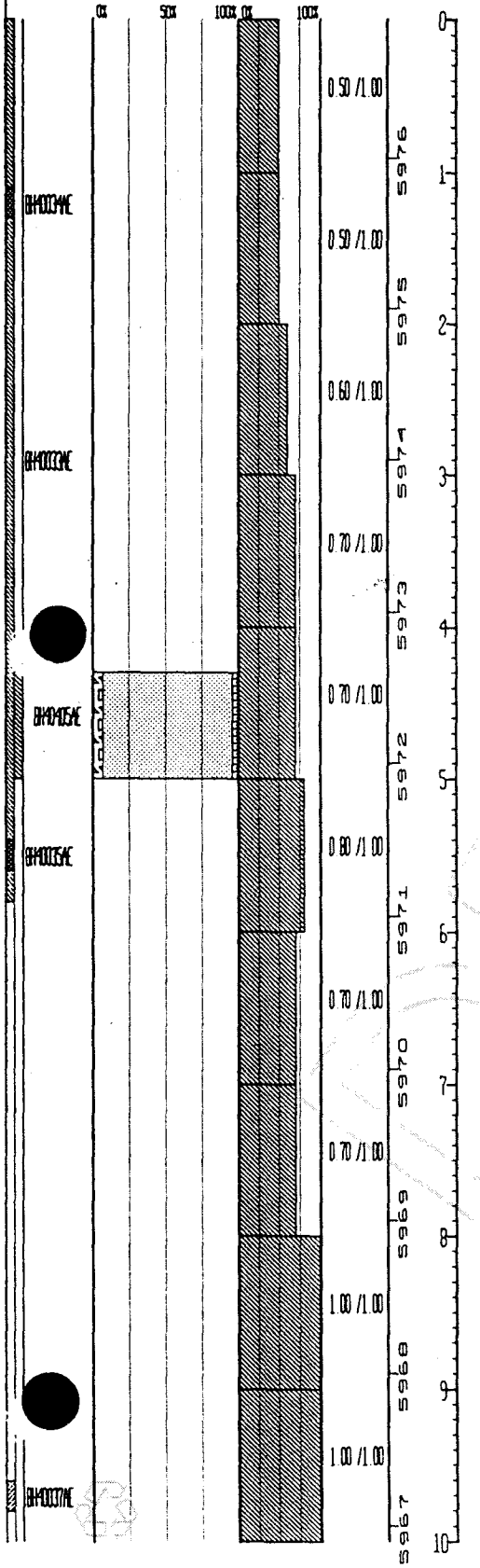
Total Depth Drilled: 50.40

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 13.00	GROUND ELEVATION (FT):	5976.90	PROJECT NUMBER:	OU4-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750286	AREA: PA, S OF POND 207A	CASING DIAMETER (IN):	2.00	GEOLOGIST:	C.D. MURRAY	44393
EAST:	2084665	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN):	8.00	DATE DRILLED:	02/08/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COMPLETED AS 2 LYSIMETERS AND NEUTRON ACCESS TUBE. RIG GEOLOGY BY C.D. MURRAY, CORE LOGGING BY J.C. EVANS.

CHEMICAL SAMPLE DEPTH / GRADATION / SAMPLE DEPTH / SAMPLE NUMBER / SAMPLE GRAIN SIZE (0% 50% 100%) / PERCENT RECOVERY (0% 100%) / RECOVERY/INTERVAL / DATUM (FT) / DEPTH (FT) / WELL OR PIEZOMETER CONSTRUCTION / LITHOLOGY / UNIFIED SOILS CLASSIFICATION OR ROCK TYPE / DESCRIPTION



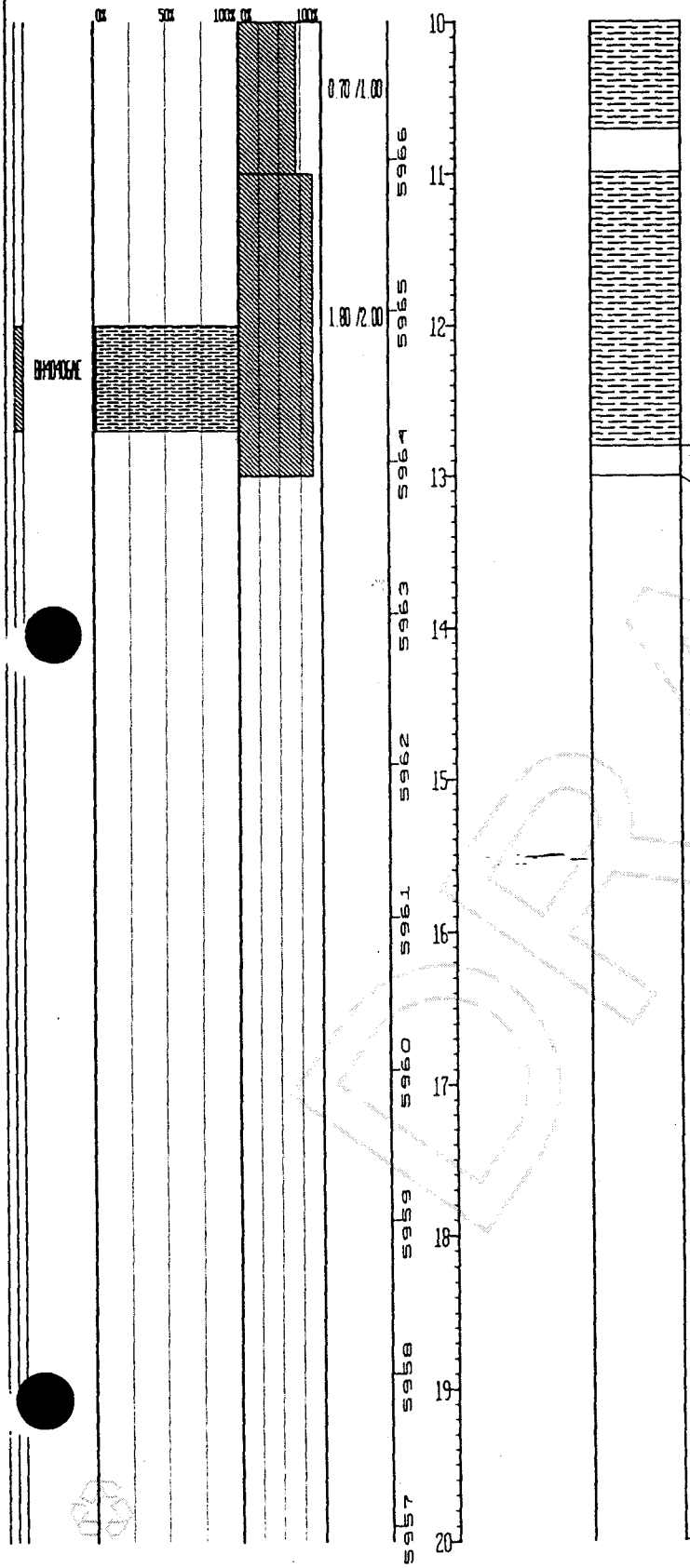
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
GM:	Sandy Gravel with some silt and trace clay (0.0-5.8'). Matrix pale brown (10 YR 6/3). Gravel f.g. to c.g., well graded, subrounded, some up to 7 cm. in length. Sand f.g. to c.g., sub-angular to sub-rounded, moist, trace (3%) caliche throughout interval, possible fill material. 64% Gravel, 29% Sand, 8% Silt, 4% Clay. No recovery (0.5-1.0'), (1.5-2.0'), (2.6-3.0'), (3.7-4.0'). No recovery (4.8-5.0')
NO RECOVERY:	No recovery (5.8-6.0').
GW:	Sandy Gravel with trace silt and clay (6.0-7.5'). Matrix strong brown (7.5 YR 5/6). Gravel pred. 1.0-4.0 cm. in length, sub-angular, poorly graded, pred. gray quartzite. Sand same as reference interval 0.0-5.8' above, moist. 74% Gravel, 21% Sand, 4% Silt, 1% Clay. No recovery (6.7-7.0')
CLAYSTONE:	Top of Bedrock at 7.5'. Claystone with trace sand and silt (7.5-12.8'). Light gray (10 YR 7/1) to grayish brown (10 YR 5/2) with brownish yellow (10 YR 6/8). Non-friable, with thin horizontal bedding, core very fractured at 8.2-8.6', 9.2-9.6', and 11.3-11.7'. Caliche present from 8.5-8.7'. Trace Mg-oxide staining. 5% Sand, 5% Silt, 90% Clay. No recovery (7.7-8.0'), (10.7-11.0')

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 13.00	GROUND ELEVATION (FT): 5976.90	PROJECT NUMBER: 004-RFI/RI	LOG OF BORING NUMBER
NORTH:	750286	AREA: PA, S OF POND 207A	CASING DIAMETER (IN): 2.00	GEOLOGIST: C.D. MURRAY	44393
EAST:	2084665	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 02/08/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BOREHOLE COMPLETED AS 2 LYSIMETERS AND NEUTRON ACCESS TUBE. RIG GEOLOGY BY C.D. MURRAY, CORE LOGGING BY J.C. EVANS.

CHEMICAL SAMPLE DEPTH / GRADATION / SAMPLE NUMBER / SAMPLE GRAIN SIZE / PERCENT RECOVERY / RECOVERY/INTERVAL / DATUM (FT) / DEPTH (FT) / WELL OR PIEZOMETER CONSTRUCTION / LITHOLOGY / UNIFIED SOILS CLASSIFICATION OR ROCK TYPE / DESCRIPTION



NO RECOVERY: No recovery (12.8-13.0').

Total depth drilled 13.0'

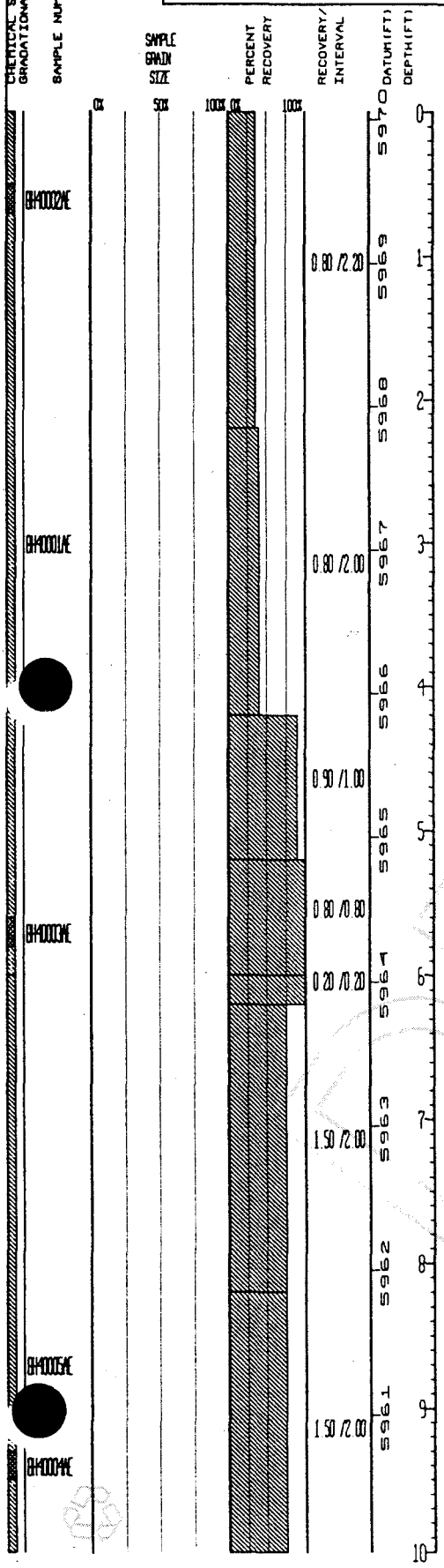
Note: Borehole 44393 originally drilled to 12.0', abandoned, moved 3' south and redrilled. This log represents redrilled core. Sample BH40105AE (4.3-5.0') taken from original borehole.

Vadose Zone Monitoring Borehole Construction Listed Below:
Bentonite: 2.2'-2.5'
Silica Sand: 2.5'-3.0'
Silica Flour: 3.0'-4.2'
Bottom Porous Cup: 4.0'
Bentonite: 4.2'-4.6'
Silica Sand: 4.6'-6.7'
Silica Flour: 6.7'-7.8'
Bottom Porous Cup: 7.6'
Bentonite: 7.8'-8.2'
Grout: 8.2'-13.4'
Total Depth Neutron Access Tube: 12.9'

DRAFT

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 14.20	GROUND ELEVATION (FT):	5970.05	PROJECT NUMBER:	OU4-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750305	AREA: SOLAR PONDS/PA	CASING DIAMETER (IN):		GEOLOGIST:	C.D. MURRAY	44593
EAST:	2085199	LOCATOR NUMBER: M10	BOREHOLE DIAMETER (IN):	8.00	DATE DRILLED:	12/14/92	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORE. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY BY C.D. MURRAY (AE). CORE LOGGING BY J.C. EVANS (AE).

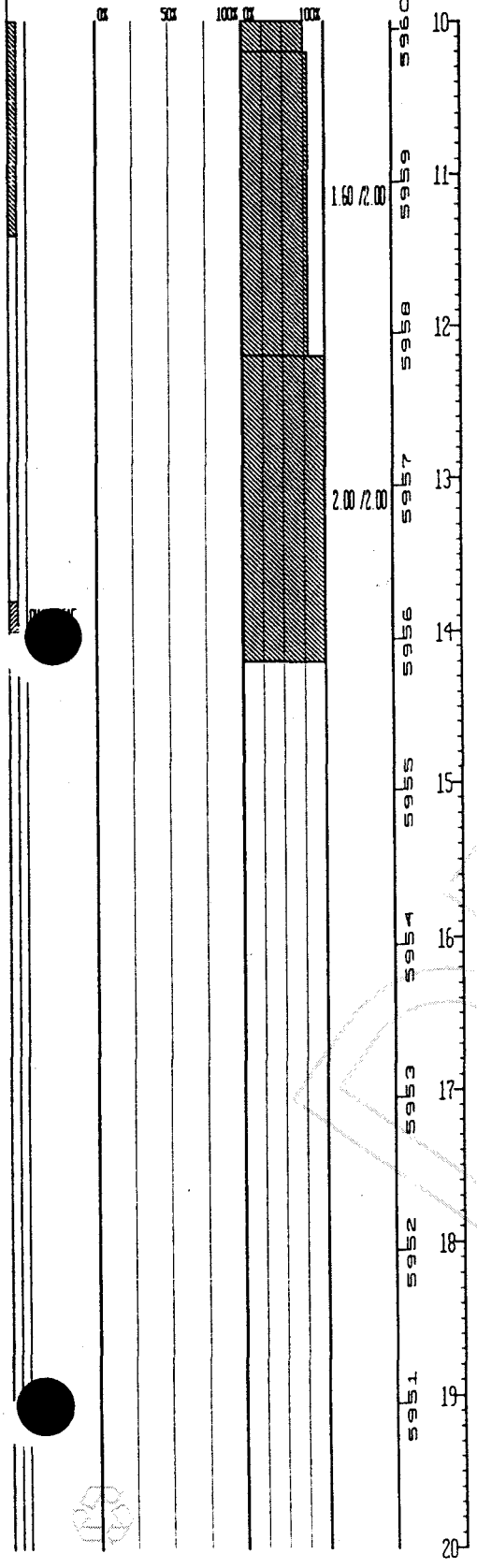


LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	SM:	Gravelly Sand with some silt and trace clay (0.0-0.8'). Brown (7.5 YR 5/2). Sand f.g. to c.g., angular. Gravel 0.6-1.3 cm., sub-rounded. Gravel 29%, Sand 62%, Silt 7%, 2% Clay.
	NO RECOVERY:	No recovery (0.8-2.2').
	SM:	Gravelly Sand with some silt and trace clay (2.2-2.5'). Very dark grayish brown (10 YR 3/2). Sand f.g. to c.g., sub-angular, feldspathic. Gravel 0.6-1.3 cm., sub-rounded to angular. Gravel 35%, Sand 55%, Silt 10%.
	SM:	Gravelly Sand with some silt and trace clay (2.5-4.5'). Dark reddish brown (2.5 YR 3/3). Gravel 0.6-1.3 cm., angular to sub-angular. Sand f.g. to c.g., feldspathic, angular, poorly sorted. Gravel 22%, Sand 66%, Silt 6%, Clay 2%. No recovery (3.0-4.2')
	SP:	Sand with some gravel, trace of silt and clay (4.5-5.1'). Yellowish brown (10 YR 5/6). Gravel, rounded, moderately graded. Sand sub-angular poorly graded. Gravel 8%, Sand 86%, Silt 4%, Clay 2%.
	NO RECOVERY:	No recovery (5.1-5.2')
	SP:	Sand with some silt and trace clay (5.2-5.9'). Strong brown (7.5 YR 5/6). Sand poorly graded, sub-angular to very angular, very calcareous (caliche). Abundant quartz and feldspar, trace of biotite and hornblend. Sand 92%, Silt 7%, Clay 1%.
	GM:	Sandy Gravel with some clay and silt (5.9-6.2'). Strong brown (7.5 YR 4/6). Gravel 1-4 cm., fractured by drilling, sub-rounded to sub-angular. Sand moderately graded, sub-angular to very-angular. Abundant quartz, and feldspar, trace biotite, hornblend, calcite cement. Gravel 44%, Sand 46%, Silt 5%, Clay 5%.
	SW:	Gravelly Sand with trace silt and clay (6.2-9.5'). Mod graded, strong brown (7.5 YR 5/6). Gravel mod. graded, rounded, 1-3 cm diameter, fractured by drilling. Sand f.g., to c.g., well-graded, sub-rounded to angular. Quartz and feldspar abundant with trace of biotite and hornblend. $CaCO_3$ common. Gravel 29%, Sand 67%, Silt 3%, Clay 1%. No recovery (7.7-8.2')

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 14.20	GROUND ELEVATION (FT): 5970.05	PROJECT NUMBER: 014-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750305	AREA: SOLAR PONDS/PA	CASING DIAMETER (IN):	GEOLOGIST: C.D. MURRAY	44593
EAST:	2085199	LOCATOR NUMBER: M10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 12/14/92	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORE. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY BY C.D. MURRAY (AE). CORE LOGGING BY J.C. EVANS (AE)

CHEMICAL DATA | GRADATION | SAMPLE DEPTH | SAMPLE NUMBER | SAMPLE GRAIN SIZE | PERCENT RECOVERY | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION



NO RECOVERY:	No recovery (9.7-10.2').
SM:	Sand with some gravel and silt with trace clay (10.2-11.4'). Gravel poorly graded, 1-3 cm. sub-rounded. Sand mod. graded, sub-angular to angular, f.g. to c.g. Abundant quartz and feldspar. Some biotite and hornblend. Abundant calcite cement. Gravel 12%, Sand 78%, Silt 8%, Clay 2%.
CLAYSTONE:	Claystone with some sand and silt (11.4-14.2'). Top of Bedrock 11.4'. Light olive gray (5 Y 5/2) to dusky yellow (5 Y 6/4) and light olive brown (5 Y 5/6) mottled. Bedding appears massive, well-sorted, calcite present, non-friable, moist. Sand moderately sorted, sub-rounded, clear fractured quartz grains with trace of dark metamorphic grains. Trace of scattered fine gravel. Sand 9%, Silt 10%, Clay 81%. No recovery (11.8-12.2')
	Total Depth Drilled: 14.20

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 14.00	GROUND ELEVATION (FT):	5894.97	PROJECT NUMBER:	OU4-RFI/RI	LOG OF BORING NUMBER:
NORTH: 751480	AREA: Buffer Zone	CASING DIAMETER (IN):		GEOLOGIST:	J.C.EVANS	44693
EAST: 2085999	LOCATOR NUMBER: N11	BOREHOLE DIAMETER (IN):	8.00	DATE DRILLED:	01/21/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BORING PLUGGED AND ABANDONED. RIG GEOLOGY BY J.C. EVANS (AE), CORE LOGGING BY C.D. MURRAY (AE).

DEPTH SAMPLE DEPTH	CHEMICAL ST GRADATIONA	SAMPLE NUMBE	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/ INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
			0% 50%	100% 0% 100%			0			CLAYSTONE:	Claystone (0.0-8.5'). Olive (5 Y 5/3) to light olive brown (2.5 Y 5/6) mottling and staining. Massive bedding, moist. Clay 100%. No recovery (1.6-2.0'), (3.1-4.0'), (5.5-6.0').
		GH0497AE			1.60 /2.00	5894	1				
						5893	2				
		GH0499AE			1.10 /2.00	5892	3				
						5891	4				
					1.50 /2.00	5890	5				
		GH0498AE				5889	6				
					2.00 /2.00	5888	7				
						5887	8				
					1.00 /1.00	5886	9			IRONSTONE:	Ironstone (8.5-10.0'). Dark reddish brown (2.5 YR 4), leaf imprints, hard to very hard, dry.
					1.00 /1.00	5885	10				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 14.00	GROUND ELEVATION (FT): 5894.97	PROJECT NUMBER: 004-RFI/RI	LOG OF BORING NUMBER:
NORTH:	751480	AREA: Buffer Zone	CASING DIAMETER (IN):	GEOLOGIST: J.C.EVANS	44693
EAST:	2085999	LOCATOR NUMBER: N11	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 01/21/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BORING PLUGGED AND ABANDONED. RIG GEOLOGY BY J.C. EVANS (AE), CORE LOGGING BY C.D. MURRAY (AE).

CHEMICAL SAMPLE DEPTH / GRADATION SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
0%		50%	100% 0% 100%	1.30 /2.00	5884	10			CLAYSTONE:	Claystone with some sand (10.0-14.0'). Light olive gray (5 Y 6/2). Massive bedding, core broken up from 10.0 to 11.3'. Probably from drlg. Leaf imprint at 13.8'. Sand f.g., well sorted, mostly quartz with trace of dark metamorphic minerals, angular to sub-angular. Trace sub-horiz. limonite coated fractures and vertical, mineral coated (manganese) fractures from 12.2-12.8'. Sand 13%, Clay 87%. No recovery (11.3-12.0').
					5883	11				
					5882	12				
				2.00 /2.00	5881	13				
					5880	14				Total Depth Drilled: 14.00
					5879	15				
					5878	16				
					5877	17				
					5876	18				
					5875	19				
						20				

DRAFT

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 12.00	GROUND ELEVATION (FT): 5913.13	PROJECT NUMBER: OU4-RFI/RI	LOG OF BORING NUMBER:	
NORTH: 751198	AREA: Buffer Zone	CASING DIAMETER (IN):	GEOLOGIST: C.D. MURRAY	44793	
EAST: 2086072	LOCATOR NUMBER: N11	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 01/12/93		

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BORING PLUGGED AND ABANDONED. RIG GEOLOGY BY C.D. MURRAY (AE), CORE LOGGING BY J.C. EVANS (AE).

CHEMICAL S GRADATION/ DEPTH PLE DEPTH | SAMPLE NUMB | SAMPLE GRAIN SIZE | PERCENT RECOVERY | RECOVERY/ INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION

0% 50% 100% 0% 100%

BH0133AE
BH0137AE
...0135AE

0.80 /1.00
0.60 /1.00
0.70 /1.00
0.70 /1.00
0.55 /2.00
1.20 /2.00
1.35 /2.00

5913 5912 5911 5910 5909 5908 5907 5906 5905 5904

0 1 2 3 4 5 6 7 8 9 10

SM: Silty Sand with some clay and gravel (0.0-2.5'). Dark yellowish brown (10 YR 4/4), low to medium plasticity fines. Sand and gravel well graded, sub-angular to sub-rounded, pred. quartz, no visible bedding, abundant roots. 8% Gravel, 41% Sand, 31% Silt, 20% Clay.
No recovery (0.8-1.0'), (1.5-2.0').

CLAYSTONE: Claystone with some silt (2.5-4.55'). Top of Bedrock at 2.5'. Yellowish-brown (10 YR 5/4) to dark gray (10 YR 4/1), mottled with scattered white (5 YR 8/1) calcium carbonate (caliche) from 3.5 to 4.55', very stiff to hard, no visible bedding, interval dry, interval is highly weathered bedrock. 20% Silt, 80% Clay.
No recovery (2.7-3.0'), (3.7-4.0').

NO RECOVERY: No recovery (4.55-6.0')

CLAYSTONE: Claystone with some silt (6.0-12.0'). Mottled light grayish brown (2.5 Y 6/2) and olive yellow (2.5 Y 6/8) from 6.0 to 8.9' and dark olive gray (5 Y 3/2) from 8.9 to 12.0'. Core becomes less weathered with depth, medium stiff to stiff, trace carbonaceous material, some vertical, anastomosing, limonite-filled fractures at 11.5', moist, faint horizontal bedding. 10-20% Silt, 80-90% Clay.
No recovery (7.2-8.0'), (9.3-10.0').

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 12.00	GROUND ELEVATION (FT): 5913.13	PROJECT NUMBER: 014-RFI/RI	LOG OF BORING NUMBER:
NORTH:	751198	AREA: Buffer Zone	CASING DIAMETER (IN):	GEOLOGIST: C.D. MURRAY	44793
EAST:	2086072	LOCATOR NUMBER: N11	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 01/12/93	

REMARKS: HOLLOW STEM AUGER AND CONVENTIONAL CORING. BORING PLUGGED AND ABANDONED. RIG GEOLOGY BY C.D. MURRAY (AE), CORE LOGGING BY J.C. EVANS (AE).

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
0%		50%	100% 0% 100%	2.00 /2.00	5903	10				
					5902	11				
					5901	12				Total Depth Drilled: 12.00
					5900	13				
					5899	14				
					5898	15				
					5897	16				
					5896	17				
					5895	18				
					5894	19				
						20				

DRAFT

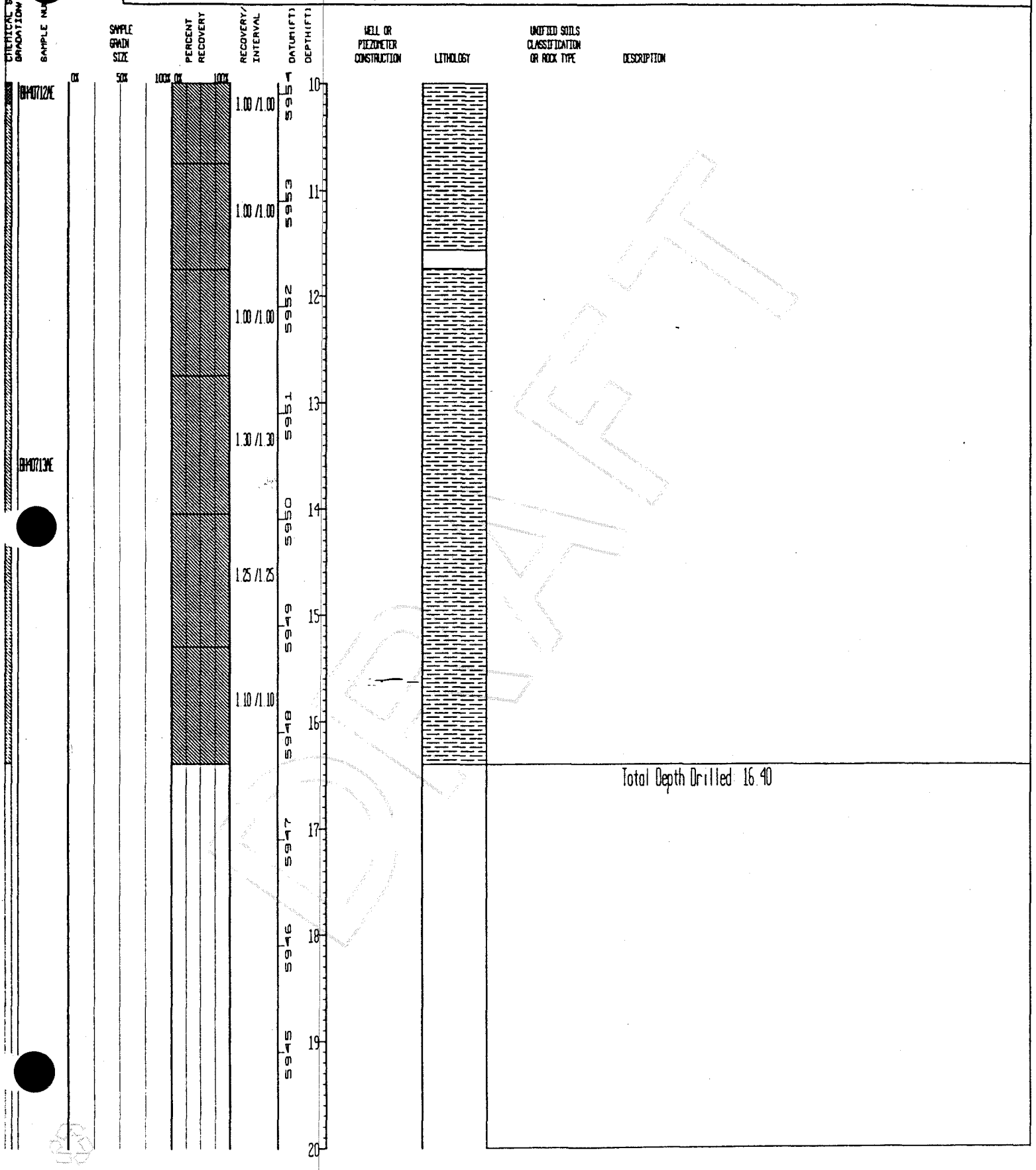
STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 16.40	GROUND ELEVATION (FT): 5964.10	PROJECT NUMBER: 014-RFI/RI	LOG OF BORING NUMBER:	
NORTH: 750857	AREA: PA, 207B NORTH POND	CASING DIAMETER (IN): 7.4	GEOLOGIST: J.D.BROOKSHIRE	46593	
EAST: 2085002	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN): 8.66.3	DATE DRILLED: 11/08/93		

REMARKS: HOLLOW STEM AUGERING. SAMPLES COLLECTED BY SPLIT SPOON SAMPLER DRIVEN 140 LB. HAMMER. BOREHOLE PLUGGED AND A BANDONED. RIG GEOLOGY BY J.D. BROOKSHIRE. CORE LOGGING BY J.C. EVANS.

DEPTH SAMPLE DEPTH	CHEMICAL & GRADATION	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		AS4D507AE			0.00 /0.80	5964	0				Asphalt (0.0-0.7').
		SS4D140AE									Surficial Soil Sample (0.7-0.8').
						5963	1			GM:	Sandy Gravel with some silt and trace clay (0.8-1.4'). Matrix dark brown (7.5 YR 3/3). Gravel c.g., up to 6 cm. in length, sub-rounded. Sand f.g. to m.g., pred. quartz with trace feldspar and dark minerals, moist. 50% Gravel, 30% Sand, 16% Silt, 4% Clay.
		BH4D700AE			1.85 /1.95	5962	2			GM:	Sandy Gravel with some silt and trace clay (1.4-4.25'). Matrix brownish yellow (10 YR 6/6). Sand and gravel same as reference interval (0.8-1.4') above, dry. 43% Gravel, 42% Sand, 11% Silt, 4% Clay. No recovery (2.65-2.75').
		BH4D701AE									
		BH4D785AE				5961	3				
		BH4D786AE BH4D702AE			1.50 /2.00	5960	4				
										NO RECOVERY:	No recovery (4.25-4.75').
					0.90 /1.00	5959	5	11/08/93		GM:	Sandy Gravel with some silt and trace clay (4.75-7.25'). Matrix reddish yellow (7.5 YR 6/8). Gravel f.g. to c.g., some cobbles up to 7 cm. in length, gray quartzite and granite rock fragments. Sand f.g. to m.g., sub-angular, moist to wet. Water encountered at 5.75'. 45% Gravel, 39% Sand, 10% Silt, 6% Clay. No recovery (5.65-5.75'), (6.45-6.75').
		BH4D703AE									
		BH4D704AE			0.70 /1.00	5958	6				
		BH4D787AE									
					0.50 /1.00	5957	7				
										NO RECOVERY:	No recovery (7.25-7.75').
		BH4D705AE								CLAYSTONE:	Top of Bedrock at 7.75'. Claystone with some silt (7.75-16.4'). Light olive brown (2.5 Y 5/3) to light brownish gray (2.5 Y 6/2) with yellowish brown (10 YR 5/8) mottling, no visible bedding. Fe-oxide staining on fracture surfaces throughout interval, white caliche nodules present at 9.2' and 11.8'. Slightly silty from 11.3-11.55' and 15.0-15.2', trace Mg-oxide staining, moist. 10% Silt, 90% Clay. No recovery (8.05-8.75'), (11.55-11.75').
					0.30 /1.00	5956	8				
					1.00 /1.00	5955	9				
		BH4D711AE BH4D750AE					10				

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 16.40	GROUND ELEVATION (FT):	5964.10	PROJECT NUMBER:	OU4-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750857	AREA: PA, 207B NORTH POND	CASING DIAMETER (IN):		GEOLOGIST:	J.D.BROOKSHIRE	46593
EAST:	2085002	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN):	8.00	DATE DRILLED:	11/08/93	

REMARKS: HOLLOW STEM AUGERING. SAMPLES COLLECTED BY SPLIT SPOON SAMPLER DRIVEN 140 LB. HAMMER. BOREHOLE PLUGGED AND A BANDONED. RIG GEOLOGY BY J.D. BROOKSHIRE. CORE LOGGING BY J.C. EVANS.



DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 14.80	GROUND ELEVATION (FT): 5963.20	PROJECT NUMBER: 014-RFI/RI	LOG OF BORING NUMBER:
NORTH:	750953	AREA: PA, 207B NORTH POND	CASING DIAMETER (IN):	GEOLOGIST: J.D. BROOKSHIRE	46693
EAST:	2085073	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 11/09/93	

REMARKS: HOLLOW STEM AUGERING, SPLIT SPOON SAMPLER DRIVEN BY A 140 LB. HAMMER. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY BY J.D. BROOKSHIRE. CORE LOGGING BY J.C. EVANS.

CHEMICAL SAMPLE DEPTH / GRADATION / SAMPLE NUMBER	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					Asphalt (0.0-0.3').
					Surficial Soil Sample (0.3-0.5').
MS1058AE, SS1014AE, BH1715AE, BH1716AE	0.00 /0.50; 1.15 /1.75	5963, 5962	0, 1	GC:	Clayey Gravel with some sand and silt (0.5-1.2'). Matrix dark reddish brown (2.5 YR 3/3). Gravel f.g. to c.g., pred. c.g., sub-rounded, pred. gray quartzite. Sand f.g. to c.g., sub-angular, pred. quartz with some feldspar, low plasticity fines, moist. 54% Gravel, 15% Sand, 10% Silt, 21% Clay.
BH1791AE, BH1717AE, BH1792AE	0.90 /1.00; 1.00 /1.35	5961, 5960, 5959	2, 3, 4	GM:	Sandy Gravel with some silt and clay (1.2-4.25'). Matrix very pale brown (10 YR 7/4). gravel c.g., up to 7 cm. in length, sub-rounded. Sand f.g. to c.g., sub-angular to sub-rounded, pred. quartz with some feldspar. Moist. 42% Gravel, 38% Sand, 12 % Silt, 8% Clay. No recovery (1.65-2.25'), (3.15-3.25')
				NO RECOVERY:	No recovery (4.25-4.6').
BH1718AE, BH1719AE	0.80 /1.00; 0.60 /1.00	5958, 5957	5, 6	GM:	Sandy Gravel with some silt and trace clay (4.6-6.9'). Matrix brownish yellow (10 YR 6/6) to pale yellow (2.5 Y 7/3). Gravel and sand same as reference interval (1.2-4.25') above. Trace caliche present, especially as grain coating on gravel. Moist. 44% Gravel, 38% Sand, 13% Silt, 5% Clay. No recovery (5.4-5.6'), (6.2-6.6').
BH1725AE, BH1796AE	1.00 /1.00	5956	7	CLAYSTONE:	Top of Bedrock at 6.9'. Claystone (6.9-14.8'). Light brownish gray (10 YR 6/2) to brownish yellow (10 YR 6/6). Contorted, high angle bedding visible in lower part of interval (contorted bedding due to claystone being squeezed past cobble into sampler). Caliche nodule at 7.3', Fe-oxide concretion at 11.6', trace Mg-oxide staining, moist. 100% Clay. No recovery (7.6-10.8').
	0.00 /1.20; 0.00 /1.00	5955, 5954	8, 9, 10		

SAMPLE GRAIN SIZE: 0% 50% 100%. PERCENT RECOVERY: 0% 100%. WELL OR PIEZOMETER CONSTRUCTION. LITHOLOGY.

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 14.80	GROUND ELEVATION (FT): 5963.20'	PROJECT NUMBER: 014-RFI/RI	LOG OF BORING NUMBER:	
NORTH: 750953	AREA: PA, 2078 NORTH POND	CASING DIAMETER (IN):	GEOLOGIST: J.D.BROOKSHIRE		
EAST: 2085073	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 11/09/93	46693	

REMARKS: HOLLOW STEM AUGERING, SPLIT SPOON SAMPLER DRIVEN BY A 140 LB. HAMMER. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY BY J.D. BROOKSHIRE. CORE LOGGING BY J.C. EVANS.

DEPTH SAMPLE DEPTH	CHEMICAL GRADATION	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					0.00 /1.00	5953	10				
					1.00 /1.00	5952	11				
		GH4072ZNE			1.00 /1.00	5951	12				
					1.00 /1.00	5950	13				
		GH4072ZNE			1.00 /1.00	5949	14				Total Depth Drilled: 14.80
						5948	15				
						5947	16				
						5946	17				
						5945	18				
						5944	19				
							20				

DRAFT

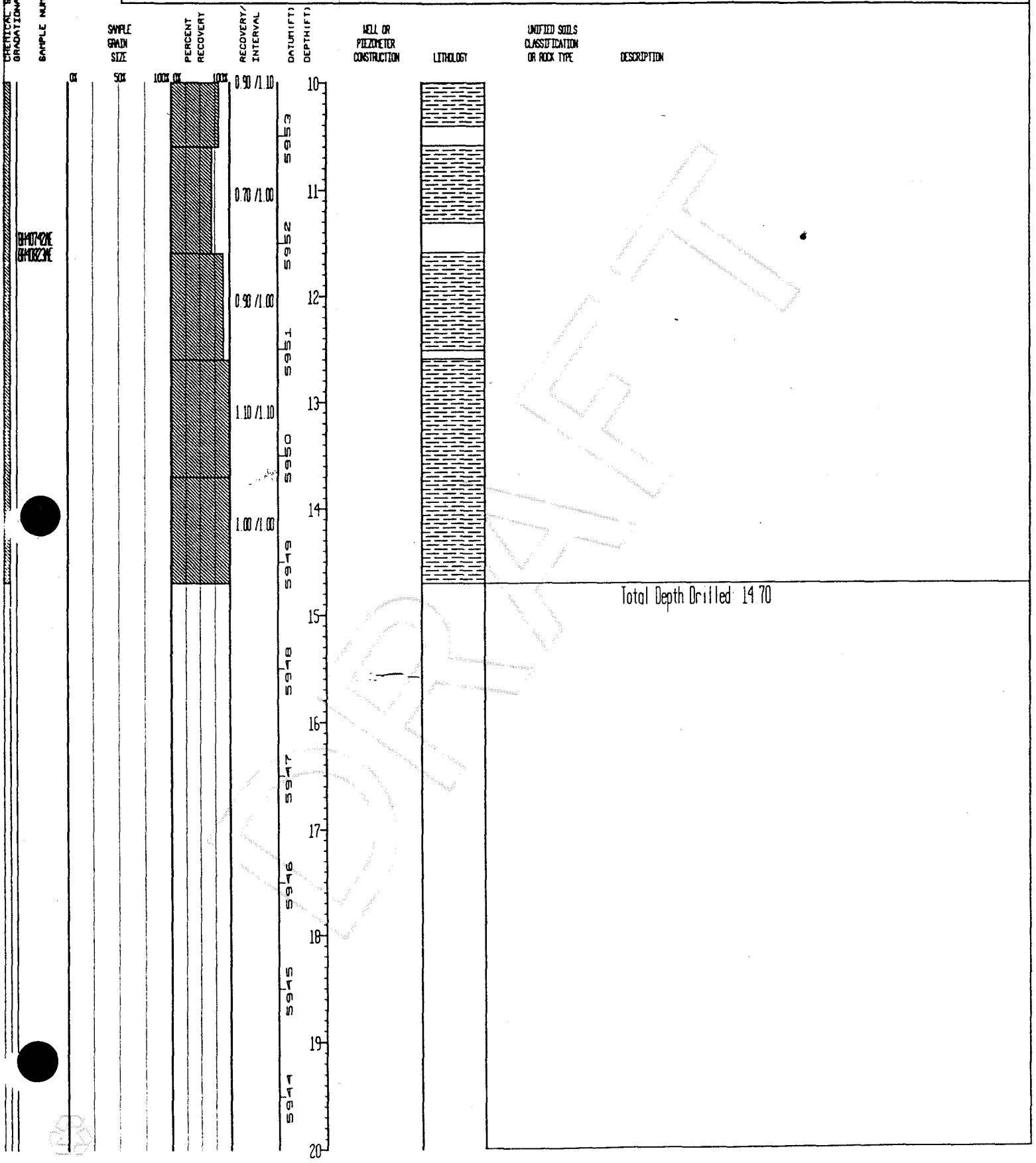
STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 14.70	GROUND ELEVATION (FT): 5963.50	PROJECT NUMBER: 014-RFI/RI	LOG OF BORING NUMBER:	
NORTH: 750888	AREA: PA, 2078 NORTH POND	CASING DIAMETER (IN):	GEOLOGIST: J.D. BROOKSHIRE	46793	
EAST: 2035113	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN): 3.00	DATE DRILLED: 11/10/93		

REMARKS: SAMPLES COLLECTED WITH SPLIT SPOON SAMPLER DRIVEN WITH 140 LB. HAMMER, AUGERS NOT USED. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY BY J.D. BROOKSHIRE. CORE LOGGING BY J.C. EVANS.

CHEMICAL SAMPLE DEPTH / GRADATIONAL	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	MS41509ME			0.00 /0.60	5963	0				Asphalt (0.0-0.4').
	SS41142ME									Surficial soil sample (0.4-0.6').
	BH41729ME BH41730ME			1.00 /1.90	5962	1 2			GM	Sandy Gravel with some silt and clay (0.6-2.6'). Matrix dark brown (7.5 YR 4/3). Gravel pred. f.g., sub-rounded to angular (drilling fractured), pred. gray quartzite. Sand f.g. to c.g., low plasticity fines, dry. 50% Gravel, 23% Sand, 16% Silt, 11% Clay. No recovery (1.6-2.5').
	BH41791ME			0.70 /1.00	5961	3			CL	Gravelly Clay with some sand and silt (2.6-4.7'). White (10 YR 8/1) to light gray (10 YR 7/1). Predominately (50%) caliche. Gravel angular (drilling fractured), gray quartzite. Sand f.g. to c.g., trace plant roots, low plasticity fines, dry. 35% Gravel, 9% Sand, 6% Silt, 50% Clay. No recovery (3.2-3.5').
	BH41798ME			1.00 /1.00	5960	4				
	BH41731ME			0.70 /1.00	5959	5			CL	Clay with some silt and trace sand and gravel (4.7-6.2'). White (10 YR 8/1). Predominately (85%) caliche, low plasticity fines, dry. 4% Gravel, 3% Sand, 8% Silt, 85% Clay. No recovery (5.2-5.5').
	BH41732ME BH41733ME			0.70 /1.00	5958	6				
					5957				NO RECOVERY	No recovery (6.2-6.5').
	BH41740ME BH41802ME			1.00 /1.00	5956	7			CLAYSTONE	Top of Bedrock at 6.5'. Claystone with some silt (6.5-14.7'). Grayish brown (2.5 Y 5/2) with brownish yellow (10 YR 6/8) mottling. Non-friable. Caliche fracture filling and nodules from 6.5 to 10.0'. Fe-oxide fracture filling from 12.6 to 14.4'. Mg-oxide fracture filling at 13.1'. Interval silty from 12.6 to 13.5'. Crystalline fracture fill material (anhydrite?) from 9.5 to 9.7'. Moist, core intensely fractured from 10.3 to 14.7'. 5% Silt, 95% Clay. No recovery (9.4-9.5'), (10.4-10.6'), (11.3-11.6') No recovery (12.5-12.6')
	BH41741ME			1.00 /1.00	5955	8				
				0.90 /1.00	5954	9 10				

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 14.70	GROUND ELEVATION (FT): 5963.50	PROJECT NUMBER: 014-RFI/RI	LOG OF BORING NUMBER:
NORTH: 750888	AREA: PA, 207B NORTH POND	CASING DIAMETER (IN):	GEOLOGIST: J.D.BROOKSHIRE	46793
EAST: 2035113	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN): 3.00	DATE DRILLED: 11/10/93	

REMARKS: SAMPLES COLLECTED WITH SPLIT SPOON SAMPLER DRIVEN WITH 140 LB. HAMMER, AUGERS NOT USED. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY BY J.D. BROOKSHIRE. CORE LOGGING BY J. C. EVANS.



DRAFT

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 9.80	GROUND ELEVATION (FT): 5964.70	PROJECT NUMBER: OU4-RFI/RI	LOG OF BORING NUMBER:	
NORTH: 750656	AREA: PA, 207B CENTER POND	CASING DIAMETER (IN):	GEOLOGIST: J.D. BROOKSHIRE	47093	
EAST: 2085047	LOCATOR NUMBER: L10	BOREHOLE DIAMETER (IN): 8.00	DATE DRILLED: 11/17/93		

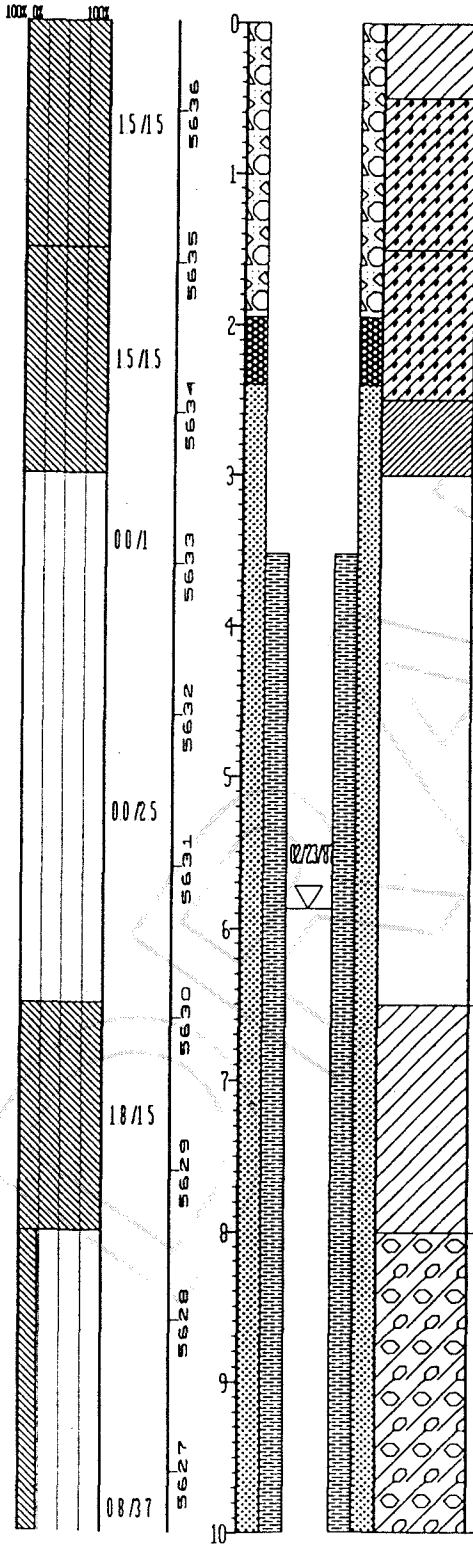
REMARKS: HOLLOW STEM AUGERING. SAMPLES COLLECTED WITH SPLIT SPOON SAMPLER DRIVEN BY A 140 LB. HAMMER. BOREHOLE PLUGGED AND ABANDONED. RIG GEOLOGY BY J.D. BROOKSHIRE. CORE LOGGING BY J.C. EVANS.

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH / SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
AS40512AE			0.00 /0.70		0				Asphalt (0.0-0.5').
SS40145AE				5964					Surficial soil sample (0.5-0.7').
					1			SM:	Gravelly Sand with some silt and clay (0.7-1.2'). Dark brown (7.5 YR 3/2) to yellowish brown (10 YR 5/6). Sand f.g. to c.g., sub-angular to sub-rounded. Gravel f.g., low plasticity fines, dry. 31% Gravel, 42% Sand, 19% Silt, 8% Clay.
BH40771AE			1.50 /2.00	5963					
BH40772AE					2			GM:	Sandy Gravel with some silt and clay (1.2-3.7'). Matrix light gray (10 YR 7/2). Gravel c.g., up to 6.5 cm. in length, pred. gray quartzite. Sand f.g. to c.g., abundant (30%) caliche from 2.7-3.4', low plasticity fines, dry. 55% Gravel, 30% Sand, 9% Silt, 6% Clay. No recovery (2.2-2.7').
BH40815AE				5962					
BH40824AE					3				
			1.00 /1.00						
BH40773AE				5961					
BH40816AE					4			GM/gw:	Sandy Gravel with trace silt and clay (3.7-4.8'). Matrix very pale brown (10 YR 7/4). Gravel c.g., up to 6 cm. in length, sub-rounded, pred. gray quartzite. Sand f.g. to c.g., well graded, dry. 75% Gravel, 19% Sand, 5% Silt, 1% Clay.
			1.10 /1.10	5960					
					5			GM/gw:	Sandy Gravel with trace silt and clay (4.8-7.8'). Matrix brownish yellow (10 YR 6/6). Gravel f.g. to c.g., up to 7 cm. in length. Sand f.g. to c.g., moist to wet, water encountered at 6.0'. 65% Gravel, 26% Sand, 5% Silt, 4% Clay.
			1.00 /1.00						
BH40774AE				5959		11/17/93			
					6				
			1.00 /1.00						
BH40775AE				5958					
BH40817AE					7				
			1.00 /1.00						
BH40776AE				5957					
					8			NO RECOVERY:	No recovery (7.8-9.8').
			0.00 /1.00	5956					
					9				
			0.00 /1.00	5955					
					10				Total Depth Drilled: 9.80

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 18	GROUND ELEVATION (FT): 5636.6	PROJECT NUMBER: 667.11	LOG OF BORING NUMBER
NORTH:	753439	AREA: BUFFER EAST	CASING DIAMETER (IN): 2.10	GEOLOGIST: DAT	4-86
EAST:	2093878	LOCATOR NUMBER: U13	BOREHOLE DIAMETER (IN): 7 1/4	DATE DRILLED: 04/21/86	

REMARKS: Hollow Stem Auger

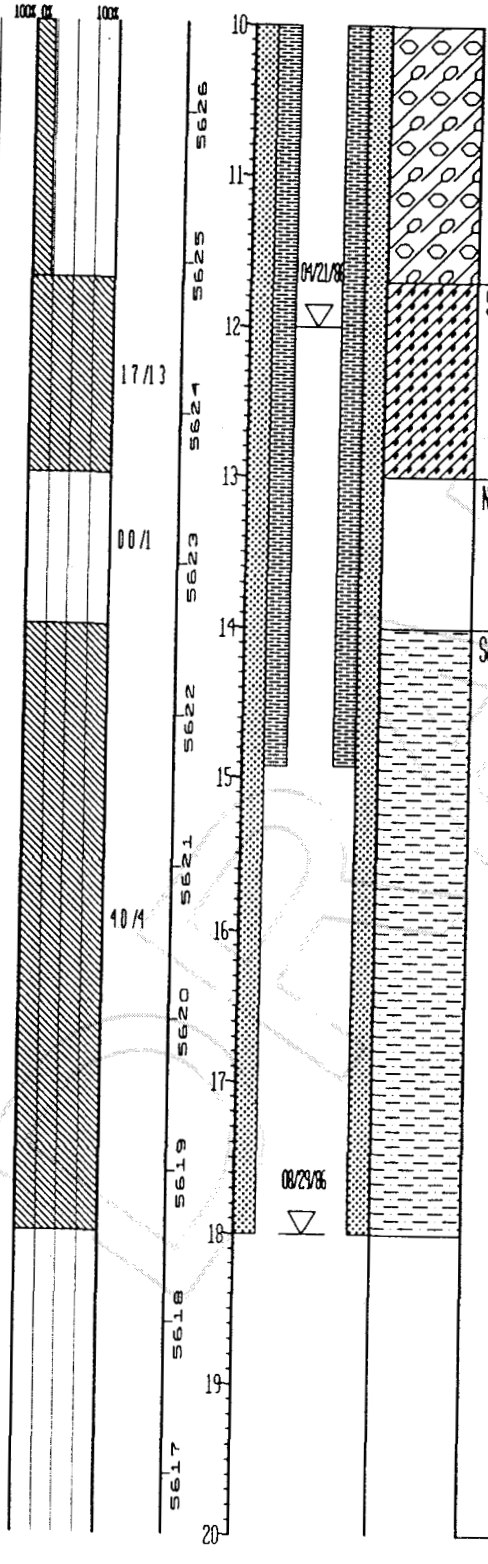
CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CL	SANDY CLAY, dark yellowish brown (10 YR 4/2), mod. plast., some gravel, some roots.
SC	Clayey Sand, very pale orange (10 YR 8/2), sub-angular-sub-rounded, poorly graded, increasing clay fraction at bottom 3.2 in. of interval, sand is VFG-FG
SC	Same as above: mod. yellowish brown (10 YR 5/4), sand is FG-CG, slightly calc.
CH	Clay, dark yellowish brown (10 YR 4/2), mod.-high plast., some possible root holes (1-4 mm diameter) w/trace of desiccated carb. material in holes, abundant iron staining filling micro-fractures, some roots, trace of gravel, some sand
NO SAMPLE	Removed Aug. 13, 1986 by Ward Hurst. Sample sent to Chen & Associates
NO SAMPLE	
CL	CLAY, dark yellowish brown (10 YR 4/2), est. mod. plast., some sand MG-FG, v. slightly calc.
GC	Clayey Gravel, dark yellowish brown (10 YR 4/2), sub-angular-sub-rounded, poorly graded, max size = 7 cm

STATE PLANE COORDINATE	TOTAL DEPTH (FT) 18	GROUND ELEVATION (FT) 5636.6	PROJECT NUMBER 667 11	LOG OF BORING NUMBER
NORTH 753439	AREA BUFFER EAST	CASING DIAMETER (IN) 2 ID	GEOLOGIST DAT	4-86
EAST 2093878	LOCATOR NUMBER U13	BOREHOLE DIAMETER (IN) 7 1/4	DATE DRILLED 04/21/86	
REMARKS Hollow Stem Auger				

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
OR
SAMPLE GRAIN SIZE
PERCENT RECOVERY
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



SC — Gravelly Clayey Sand, dark yellowish orange (10 YR 6/6), angular-sub-angular, mod graded, sand size = VFG-FG, max gravel size = 7 cm (at base of interval), iron staining as mottles

NO SAMPLE

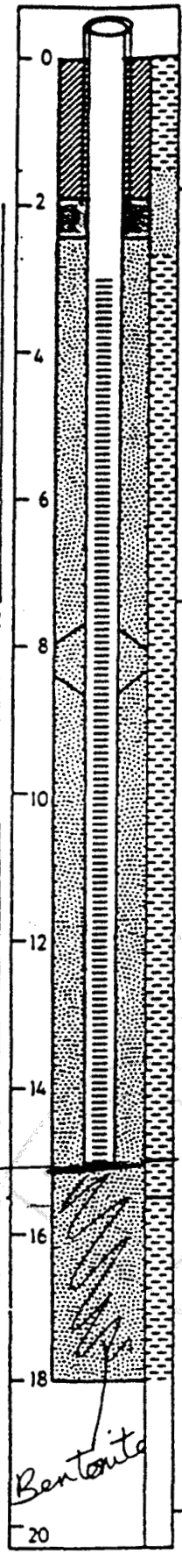
SANDY CLAYSTONE Top of Bedrock
Sandy Claystone, light gray (N7) and grayish orange (10 YR 7/4), mod-high plast, sand is VFG-FG, trace of iron staining as mottles and nodules

WELL 4-86

WELL CONSTRUCTION SUMMARY

LOCATION or COORDS:

ELEVATION: GROUND LEVEL 5645'
TOP OF CASING 5646.75'



LOCATION Golden, CO
PERSONNEL S. Paschke
PROJECT 106006222 Rocky Flats Plant

Shown as 15.5' on drafted well log incorrectly

14.90' QWF Ka

DRILLING SUMMARY:

TOTAL DEPTH Well: 14.92' Hole: 18.00'
BOREHOLE DIAMETER 7½"

DRILLER Boyles Brothers Drilling Co.
15865 W. 5th Avenue
Golden, CO (Doyle Styles)
RIG Mobile B-57
BIT(S) Blade bit

DRILLING FLUID None

SURFACE CASING 5" x 4' steel w/ locking cap

WELL DESIGN:

BASIS: GEOLOGIC LOG X GEOPHYSICAL LOG

CASING STRING(S): C=CASING S=SCREEN

0.00'	3.52'	C1
3.52'	14.92'	S1

CASING: C1 2" I.D. Sch. 5 type 316 stainless steel, threaded and flush jointed.

SCREEN: S1 2" I.D. Sch. 5 type 316 stainless steel, threaded and flush jointed, 0.020" wire wrap screen, 0.25' welded bottom cap.

CENTRALIZERS Centralizer placed approximately mid-point on screened interval.

FILTER MATERIAL 12-20 silica sand
2.40' - 18.00'

CEMENT Portland Type I
0.00' - 1.95'

OTHER 3/8" bentonite pellets
1.95' - 2.40'

CONSTRUCTION TIME LOG:

TASK	START DATE 1986	START TIME	FINISH DATE 1986	FINISH TIME
DRILLING:				
7½" auger	4/24	1440	4/24	1600
GEOPHYS. LOGGING:	—	—	—	—
CASING:				
2" stainless	4/24	1725	4/24	1730
FILTER PLACEMENT:	4/24	1730	4/24	1810
CEMENTING:	4/25	1010	4/25	1020
DEVELOPMENT:	8/29	1606	8/29	1606
OTHER:				
Bentonite	4/25	1000	4/25	1010

WELL DEVELOPMENT

See Well Development Summary Sheet.

COMMENTS:

Water encountered at 12.00' during drillin

Top of stainless steel casing: 1.75'

HYDRO-SEARCH RENO•DENVER

CONSULTING HYDROLOGISTS-GEOLOGIST

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 14	GROUND ELEVATION (FT):	5720 07	PROJECT NUMBER:	667 11	LOG OF BORING NUMBER:
NORTH:	753697	AREA: BUFFER EAST	CASING DIAMETER (IN):	2 10	GEOLOGIST:	LAA	5-86
EAST:	2089803	LOCATOR NUMBER: 013	BOREHOLE DIAMETER (IN):	7 1/4	DATE DRILLED:	04/21/86	

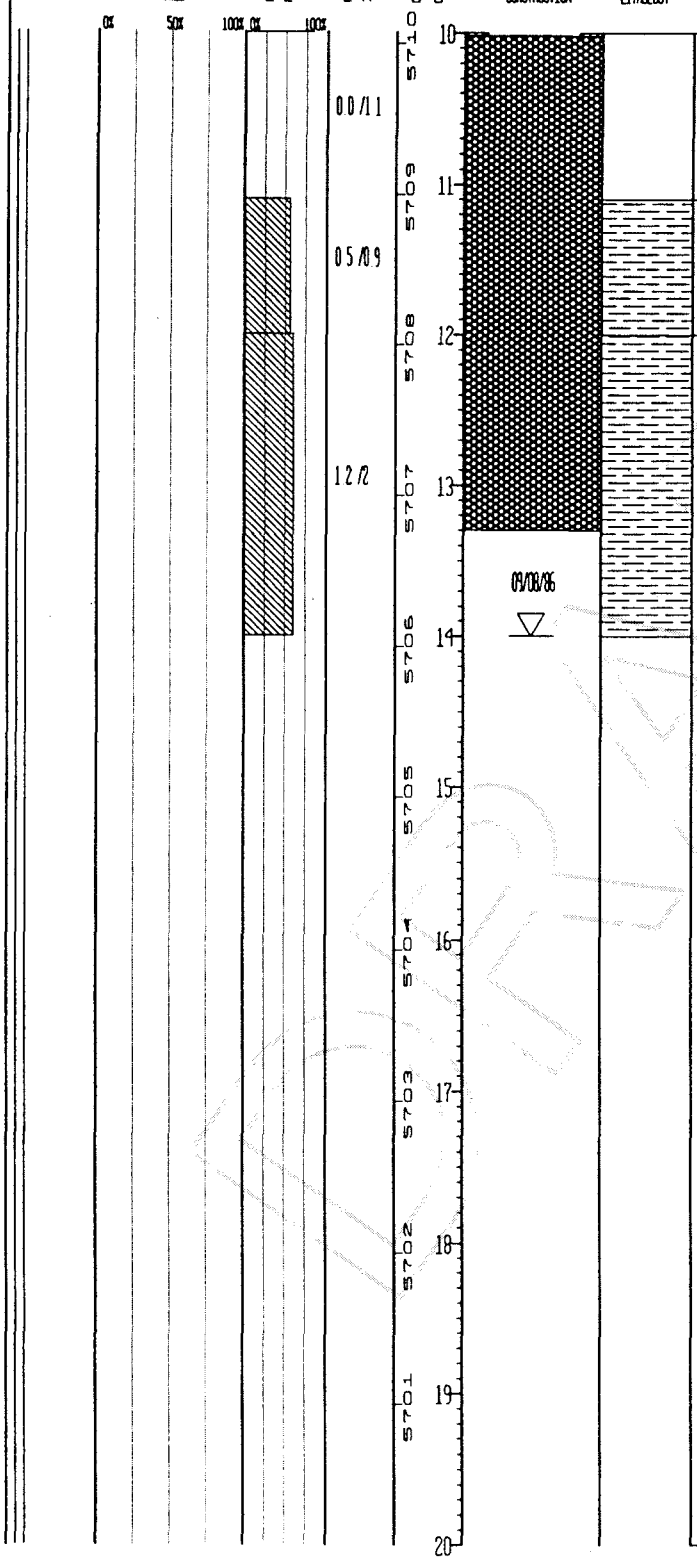
REMARKS: Hollow Stem Auger Cave from 10 to 13 0'

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%	0 4/12	5720 5719	0 1			CH	Silty Clay, pale to dk. yellowish brown (10 YR 4/2) Est. plast. mod. to high. Abundant roots and grass. Trace of VFG sand
				0 4/28	5718 5717	2 3			GC	Clayey Gravel, no predom. color. Angular to sub-rounded. Poorly graded. Max size 6 cm. Matrix dk. yellowish brown (10 YR 4/2). Silty clay. Trace sand VFG to VCG
				0 0/05	5716	4			NO SAMPLE	
				1 3/15	5715 5714	5 6			CL	GRAVELLY CLAY, dk. yellowish brown (10 YR 4/2). Est. plast. mod. to high. Some roots and grass. Gravel angular to sub-angular. Mod. to well graded. 6 cm. Trace sand
				1 1/2	5713	7	02/01/87		CL	Clay, grayish orange to dk. yellowish orange (10 YR 7/4 to 6/6). Est. plast. mod. Some sand and gravel. Sand VFG to granules, gravel to 1 cm.
				0 0/14	5712 5711	8 9	01/01/87		NO SAMPLE	
				0 5/06		10			CLAYSTONE	Top of Bedrock As above. Color dk. yellowish brown (10 YR 4/2)
									CLAYSTONE	As above

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 14	GROUND ELEVATION (FT)	5720.07	PROJECT NUMBER:	667.11	LOG OF BORING NUMBER:
NORTH:	753697	AREA: BUFFER EAST	CASING DIAMETER (IN)	2 ID	GEOLOGIST:	LAA	5-86
EAST:	2089803	LOCATOR NUMBER: 013	BOREHOLE DIAMETER (IN)	7 1/4	DATE DRILLED:	04/21/86	

REMARKS: Hollow Stem Auger. Cave From TD to 13.0'

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



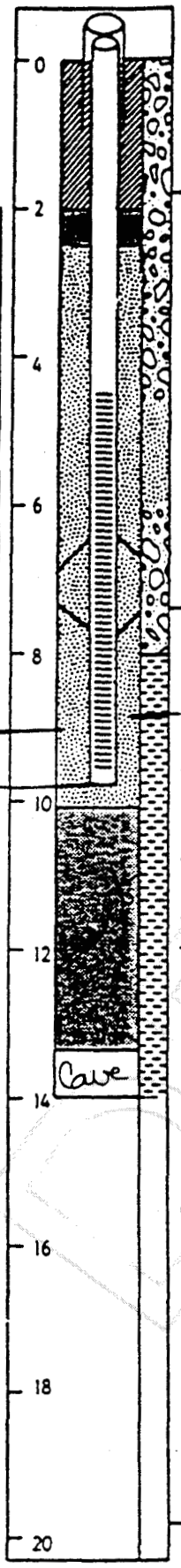
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
NO SAMPLE	
CLAYSTONE	Pale yellowish brown (10 YR 6/2) to dk. yellowish orange (10 YR 6/6). Some silt. Some iron oxide concretions.
CLAYSTONE	Same as above.

WELL S-86

WELL CONSTRUCTION SUMMARY

LOCATION or COORDS: _____

ELEVATION: GROUND LEVEL 5714'
TOP OF CASING 5716.50'



QUF
Ka
TD = 9.76'

LOCATION Golden, CO
PERSONNEL J. Bergman
PROJECT 106106222 Rocky Flats Plant

DRILLING SUMMARY:

TOTAL DEPTH Well: 9.76' Hole: 14.0'
BOREHOLE DIAMETER 7¼"

DRILLER Boyles Brothers Drilling Co.
15365 W. 5th Avenue
Golden, CO (Tony Robinson)
RIG Acker
BIT(S) Bull nose bit

DRILLING FLUID None

SURFACE CASING 5" x 4' steel w/ locking cap

WELL DESIGN:

BASIS: GEOLOGIC LOG X GEOPHYSICAL LOG ___

CASING STRING(S): C=CASING S=SCREEN

0.0'	4.40'	C1			
4.40'	9.76'	S1			

CASING: C1 2" I.D. Sch. 5 type 316 stainless steel, threaded and flush jointed.

SCREEN: S1 2" I.D. Sch. 5 type 316 stainless steel, threaded and flush jointed. 0.010" wire wrap screen, 0.25' welded bottom cap.

CENTRALIZERS Type 304 stainless steel.
6.54' - 7.71'

FILTER MATERIAL 32-42 silica sand
2.50' - 10.02'

CEMENT Portland Type I
0.00' - 2.00'

OTHER 3/8" bentonite pellets
2.00' - 2.50'
10.02' - 13.30'

CONSTRUCTION TIME LOG:

TASK	START DATE 1986	START TIME	FINISH DATE 1986	FINISH TIME
DRILLING:				
7¼" auger	9/4	1500	9/4	1635
GEOPHYS. LOGGING:	—	—	—	—
CASING:				
2" stainless	9/5	1040	9/5	1045
FILTER PLACEMENT:	9/5	1045	9/5	1050
CEMENTING:	9/5	1100	9/5	1105
DEVELOPMENT:	9/8	1515	9/8	1515
OTHER:				
Bentonite	9/5	1050	9/5	1055
	9/5	1035	9/5	1040

WELL DEVELOPMENT

See Well Development Summary Sheets.

COMMENTS:

No water encountered during drilling.

Top of stainless steel casing: 2.50'

Cave from TD to 13.30'

HYDRO-SEARCH RENO•DENVER CONSULTING HYDROLOGISTS-GEOLOGIS

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 14	GROUND ELEVATION (FT):	5806.1	PROJECT NUMBER:	667.11	LOG OF BORING NUMBER:
NORTH:	753590	AREA: BUFFER NORTH	CASING DIAMETER (IN):	2 ID	GEOLOGIST:	DCB	6-86
EAST:	2086681	LOCATOR NUMBER: N13	BOREHOLE DIAMETER (IN):	7 1/4	DATE DRILLED:	09/04/86	

REMARKS: Hollow Stem Auger. Cave from TD to 12.9'.

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER

SAMPLE GRAIN SIZE: 0% 50% 100%

PERCENT RECOVERY: 0% 100%

RECOVERY/INTERVAL: 0.2/0.2; 0.7/1.91; 1.5/1.5; 0.17/0.17; 0.3/2; 0.3/1.6; 0.2/0.4; 0/2

DATUM (FT): 5806, 5805, 5804, 5803, 5802, 5801, 5800, 5799, 5798, 5797

DEPTH (FT): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

WELL OR PIEZOMETER CONSTRUCTION: 04/01/87; 05/07/87; 01/01/87

LITHOLOGY

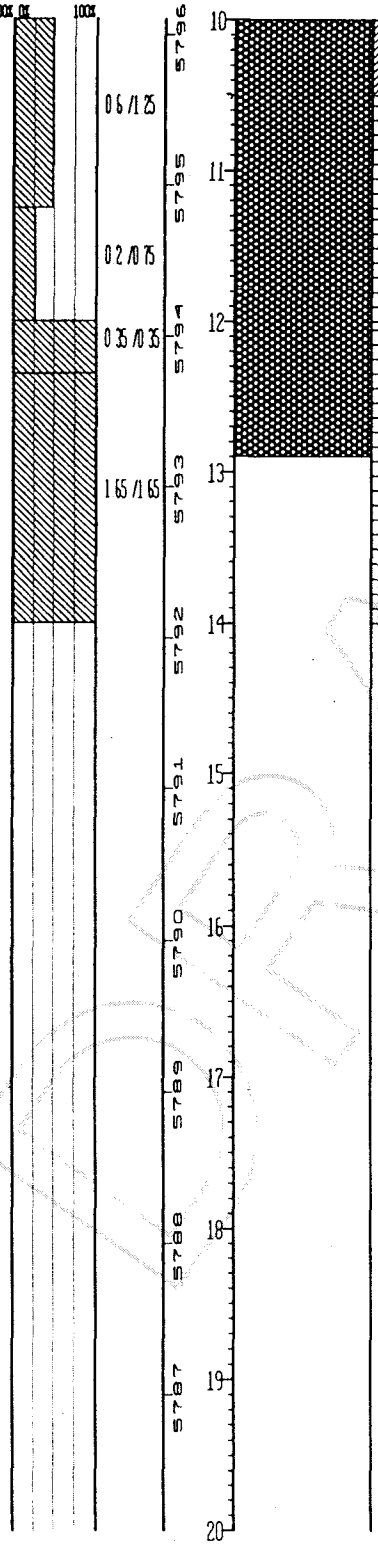
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CL	CLAY, pale yellowish brown (10 YR 6/2), moderate plasticity (est.), some silt and roots.
NO SAMPLE	
CL	CLAY, pale yellowish brown (10 YR 6/2), low to moderate plasticity, some silt and gravel, some plant debris in upper 0.3 ft
CL	Same as above
CL	Same as above
CL	CLAY as above with decrease in gravel fraction with depth
CL	Same as above
NO SAMPLE	

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 14	GROUND ELEVATION (FT)	5806.1	PROJECT NUMBER	667.11	LOG OF BORING NUMBER
NORTH	753590	AREA BUFFER NORTH	CASING DIAMETER (IN)	2 ID	GEOLOGIST	DCB	6-86
EAST	2086681	LOCATOR NUMBER N13	BOREHOLE DIAMETER (IN)	7 1/4	DATE DRILLED	09/04/86	

REMARKS: Hollow Stem Auger Cave from TD to 12.9'

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY



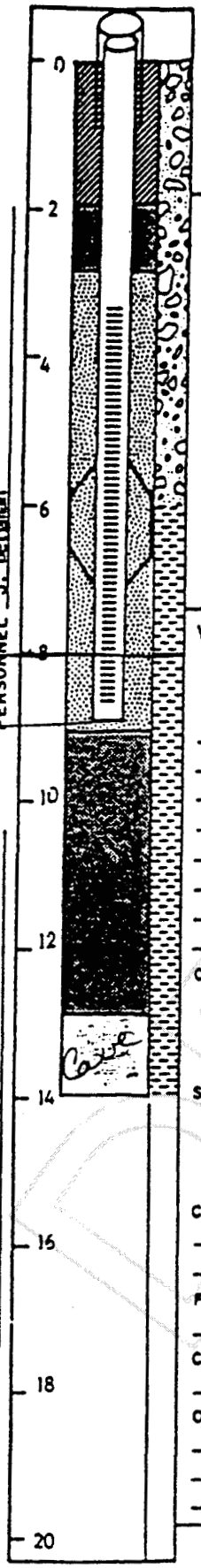
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CH	Clay, light brownish gray (5 YR 6/1), moderately high plasticity, cobble at 10.0 ft., decrease in silt fraction with depth and color change below 11.25 ft. to medium light gray (N6).
CLAYSTONE	Top of Bedrock Light brownish gray (5YR 6/1) decrease in silt fraction with depth and color change below 11.25 feet to medium light gray (N6).
CLAYSTONE	Same as above
CLAYSTONE	Same as above
CLAYSTONE	Same as above Note: No water encountered while drilling

WELL 6-86

WELL CONSTRUCTION SUMMARY

LOCATION or COORDS: _____

ELEVATION: GROUND LEVEL 5814'
TOP OF CASING 5816.50'



PROJECT 106106222 Rocky Flats Plant
LOCATION Golden, CO
PERSONNEL J. Bergman

0 QVE
Ka
r - 8.88'

DRILLING SUMMARY:

TOTAL DEPTH Well: 8.88' Hole: 14.0'
BOREHOLE DIAMETER 7¼"

DRILLER Boyles Brothers Drilling Co.
15865 W. 5th Avenue
Golden, CO (Tony Robinson)
RIG Acker
BIT(S) Bull nose bit

DRILLING FLUID None

SURFACE CASING 5" x 5' steel w/ locking cap

WELL DESIGN:

BASIS: GEOLOGIC LOG X GEOPHYSICAL LOG ___

CASING STRING(S): C=CASING S=SCREEN

0.0'	-	3.28'	C1		-	
3.28'	-	8.88'	S1		-	
	-				-	
	-				-	
	-				-	
	-				-	
	-				-	
	-				-	

CASING: C1 2" I.D. Sch. 5, type 316 stainless steel, threaded and flush jointed.

SCREEN: S1 2" I.D. Sch. 5, type 316 stainless steel, threaded and flush jointed, 0.010" wire wrap screen, 0.25' welded bottom cap.

CENTRALIZERS Type 304 stainless steel
5.47' - 6.65'

FILTER MATERIAL 32-42 silica sand
9.10' - 2.75'

CEMENT Portland Type I
0.00' - 1.91'

OTHER 3/8" bentonite pellets
1.91' - 2.75'
9.10' - 12.90'

CONSTRUCTION TIME LOG:

TASK	START DATE 1986	START TIME	FINISH DATE 1986	FINISH TIME
DRILLING:				
7¼" auger	9/4	0930	9/4	1140
GEOPHYS. LOGGING:	—	—	—	—
CASING:				
2" stainless	9/4	1310	9/4	1312
FILTER PLACEMENT:	9/4	1312	9/4	1315
CEMENTING:	9/4	1340	9/4	1345
DEVELOPMENT:	9/8	1515	9/8	1515
OTHER:				
Bentonite	9/4	1315	9/4	1320
	9/4	1305	9/4	1310

WELL DEVELOPMENT

See Well Development Summary Sheet.

COMMENTS:

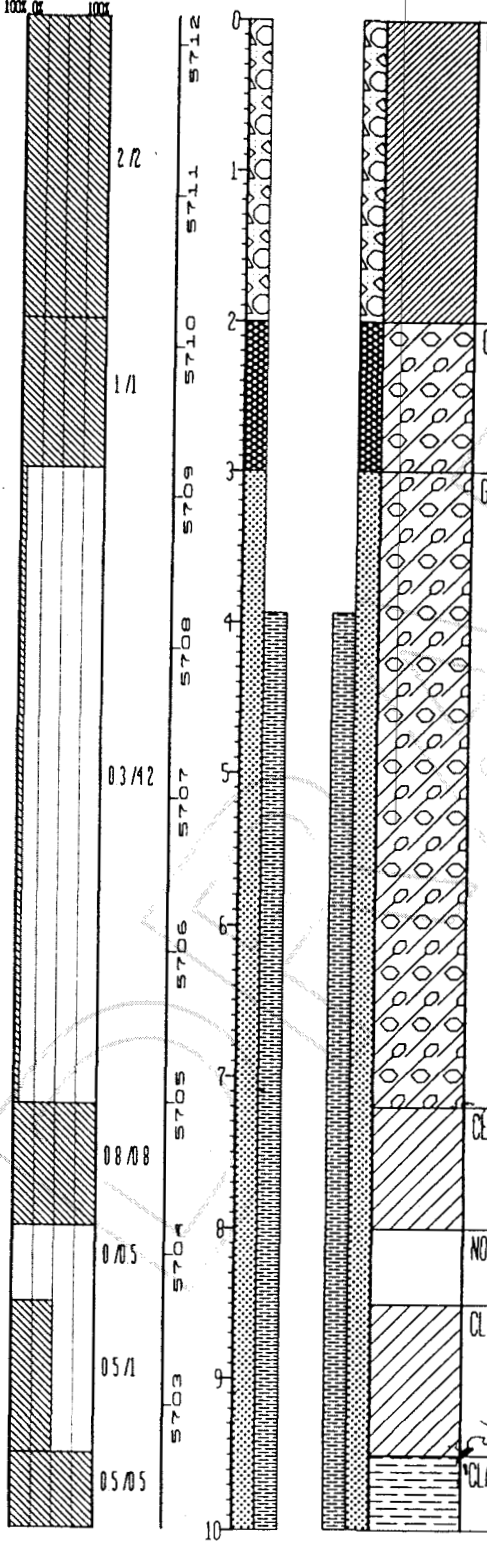
No water encountered during drilling.

Top of stainless steel casing: 2.50'

Cave from TD to 12.90'

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 15	GROUND ELEVATION (FT):	5712.19	PROJECT NUMBER	667 11	LOG OF BORING NUMBER:
NORTH:	753323	AREA: BUFFER EAST	CASING DIAMETER (IN):	2 ID	GEOLOGIST:	DCB	11-86
EAST:	2090035	LOCATOR NUMBER: R13	BOREHOLE DIAMETER (IN):	7.5	DATE DRILLED	9/05/86	
REMARKS:	Hollow Stem Auger						

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CH	Clay, pale brown, (5YR 5/2), high plasticity, some silt and roots.
GC	Clayey Gravel, dominantly light grey (N7), matrix is pale brown (5YR 5/2), sub-angular, moderately graded, max size, 4 cm, some silt, trace of roots.
GC	1 cobble, very light gray (N7), rounded, approx 7 cm diam. NOTE: Lithology is inferred
CL	GRAVELLY CLAY, dark yellowish brown (10YR 4/2), moderate to low plasticity (est 1), some silt, trace of sand
NO SAMPLE	
CL	CLAY, dark yellowish brown (10YR 4/2) moderate plasticity, some silt, color grades to yellowish grey (5 YR 7/2) below 9.5 Ft
CLAYSTONE	Top of Bedrock Dark yellowish brown (10YR 4/2) moderate plasticity, some silt, color

5712.19
9.5
5703.4

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 15	GROUND ELEVATION (FT)	5712.19	PROJECT NUMBER	667.11	LOG OF BORING NUMBER
NORTH:	753323	AREA: BUFFER EAST	CASING DIAMETER (IN)	2 ID	GEOLOGIST	DCB	11-86
EAST:	2090035	LOCATOR NUMBER: R13	BOREHOLE DIAMETER (IN)	7.5	DATE DRILLED	9/05/86	

REMARKS: Hollow Stem Auger

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRADN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				0.5/0.5	5702	10				grades to yellowish gray (5 YR 7/2) below 9.5 ft.
									CLAYSTONE	Same as above
				1.5/1	5701	11			SILTY SANDSTONE	Interval grades to Silty Sandstone, very light gray (N8), bedding not apparent, well weathered, moderate to slightly friable, very fine grained sand, abundant silt, iron staining both locally and on fractures.
				1.5/1.5	5700	12			SILTY SANDSTONE	Same as above
				0.8/1	5699	13			SILTY SANDSTONE	Same as above
				1/1	5698	14			SILTY SANDSTONE	Same as above. NOTE: No water encountered while drilling.
					5697	15				
					5696	16				
					5695	17				
					5694	18				
					5693	19				
						20				

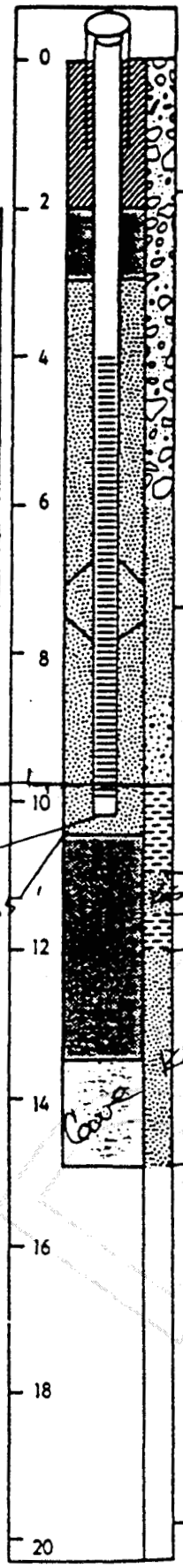
DRAFT

WELL 11-86

WELL CONSTRUCTION SUMMARY

LOCATION or COORDS: _____

ELEVATION: GROUND LEVEL 5723'
TOP OF CASING 5725.50'



PROJECT 106T06222 Rocky Flats Plant
LOCATION Golden, CO
PERSONNEL J. Bergman

DRILLING SUMMARY:

TOTAL DEPTH Well: 10.25' Hole: 15.00'
BOREHOLE DIAMETER 7¼"
DRILLER Bowles Brothers Drilling Co.
15865 W. 5th Avenue
Golden, CO (Tony Robinson)
RIG Acker
BIT(S) Bull nose bit
DRILLING FLUID None
SURFACE CASING 5" x 4' steel w/ locking cap

WELL DESIGN:

BASIS: GEOLOGIC LOG X GEOPHYSICAL LOG ___
CASING STRING(S): C=CASING S=SCREEN

0.0'	3.94'	C1	
3.94'	10.25'	S1	

CASING: C1 2" I.D. Sch. 5 type 316 stainless steel, threaded and flush jointed.

SCREEN: S1 2" I.D. Sch. 5 type 316 stainless steel, threaded and flush jointed, 0.010" wire wrap screen 0.25' welded bottom cap.

CENTRALIZERS Type 304 stainless steel
6.32' - 7.51'

FILTER MATERIAL 32.42 silica sand
3.00' - 10.50'

CEMENT Portland Type I
0.00' - 2.00'

OTHER 3/8" bentonite pellets
2.00' - 3.00'
10.50' - 13.75'

CONSTRUCTION TIME LOG:

TASK	START DATE 1986	START TIME	FINISH DATE 1986	FINISH TIME
DRILLING:				
7¼" auger	9/5	1315	9/5	1600
GEOPHYS. LOGGING:	—	—	—	—
CASING:				
2" stainless	9/6	1020	9/6	1025
FILTER PLACEMENT:	9/6	1025	9/6	1030
CEMENTING:	9/6	1045	9/6	1050
DEVELOPMENT:	9/8	1500	9/18	1000
OTHER:				
Bentonite	9/6	1030	9/6	1035
	9/6	1015	9/6	1020

WELL DEVELOPMENT

See Well Development Summary Sheets.

COMMENTS:

No water encountered during drilling.

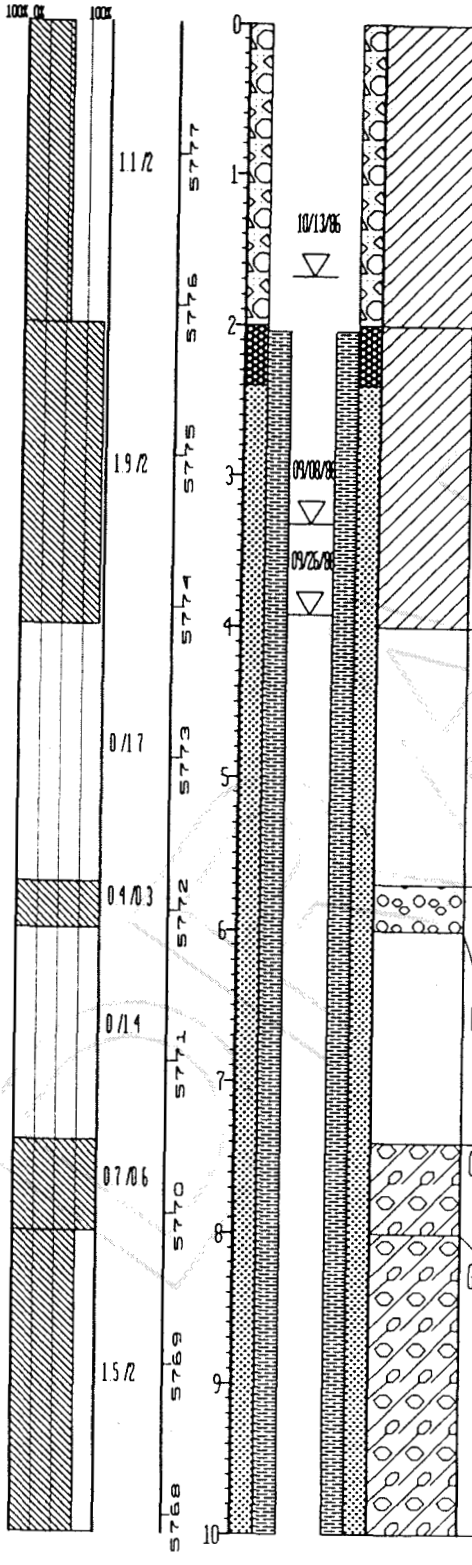
Top of stainless steel casing: 2.50'

Cave from TD to 13.75'

HYDRO-SEARCH RENO•DENVER CONSULTING HYDROLOGISTS-GEOLOGIST

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 16	GROUND ELEVATION (FT) 5777 88	PROJECT NUMBER 667 11	LOG OF BORING NUMBER
NORTH	752345	AREA BUFFER EAST	CASING DIAMETER (IN) 2 ID	GEOLOGIST LAA	12-86
EAST	2087894	LOCATOR NUMBER 012	BOREHOLE DIAMETER (IN) 7 1/4	DATE DRILLED 09/06/86	
REMARKS Hollow Stem Auger					

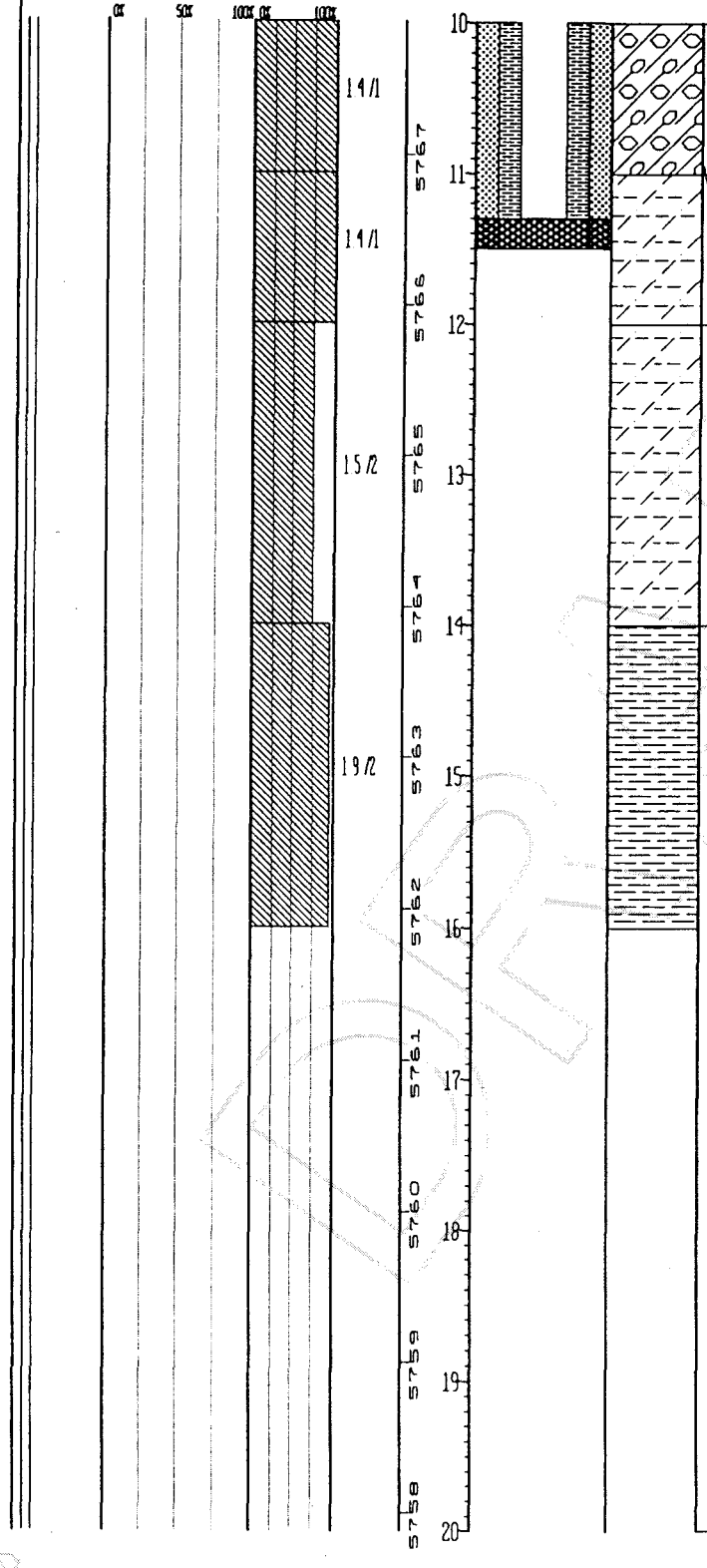
CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CL	SILTY CLAY, dark yellowish brown (10 YR 4/2), est plast mod Abundant surficial grass and root material Some VF to FG sand
CL	SILTY GRAVELLY CLAY, dark yellowish brown (10 YR 4/2), est plast mod Gravel angular to sub-rounded, mod well graded, (1 cm to 5 cm), some spotty iron staining More gravel toward bottom Trace root material
NO SAMPLE	
GW	Clayey Gravel, cannot determine gravel color Mod well graded granules to 6 5 cm sub-angular to sub-rounded Matrix mod yellowish brown (10 YR 5/4) Some silt
NO SAMPLE	
GC	Clayey Gravel, no predom gravel color Angular to sub-angular Poorly graded Max size 5 5 cm Matrix dark yellowish brown (10 YR 4/2) Some silt and VFG sand
GC	Clayey Gravel, no predom gravel color sub-angular to rounded Mod well graded Granules to 6 cm Matrix grayish orange (10 YR 7/4) Est plasticity mod to high Some silt and sand VFG to VCG

STATE PLANE COORDINATE	TOTAL DEPTH (FT): 16	GROUND ELEVATION (FT): 5777.88	PROJECT NUMBER: 667.11	LOG OF BORING NUMBER:	
NORTH: 752345	AREA: BUFFER EAST	CASING DIAMETER (IN): 2 ID	GEOLOGIST: LAA	12-86	
EAST: 2087894	LOCATOR NUMBER: 012	BOREHOLE DIAMETER (IN): 7 1/4	DATE DRILLED: 09/06/86		
REMARKS: Hollow Stem Auger					

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



GC — Clayey Gravel, no predom. gravel color, sub-angular to rounded. Mod. well graded. Granules to 6 cm. Matrix grayish orange (10 YR 7/4). Est. plast. mod., some silt and sand, VFG to VCG.

SILTY CLAYSTONE — Top of Bedrock. Light olive gray (5 Y 6/1) to dark yellowish orange (10 YR 6/6). Est. plast. mod. Possible highly weathered claystone. Some iron staining.

SILTY CLAYSTONE — Same as above.

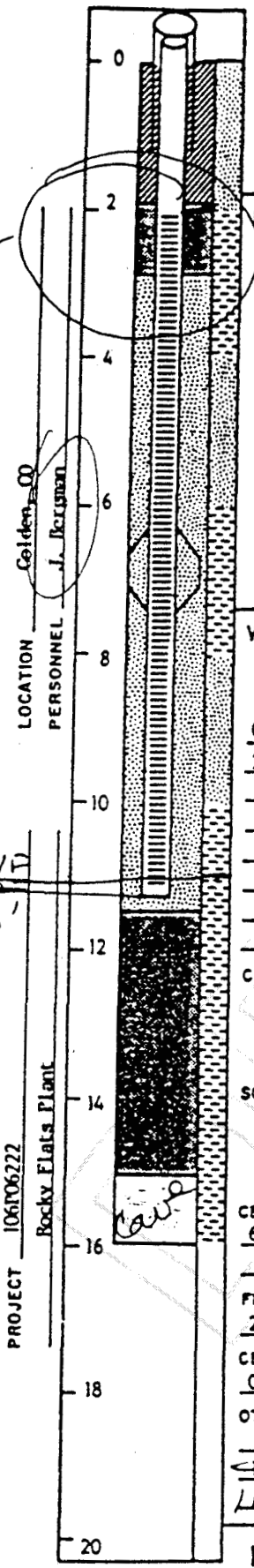
CLAYSTONE — Light brownish gray (5 YR 6/1) to light brown (5 YR 5/6). Est. plast. mod. to high. Some iron staining and iron concretions. Some carb. material.

WELL 12-86

WELL CONSTRUCTION SUMMARY

LOCATION or COORDS: _____

ELEVATION: GROUND LEVEL 5788'
TOP OF CASING 5790.50'



LOCATION Golden, CO
PERSONNEL J. Bergman
PROJECT 106P06222 Rocky Flats Plant

11.0' QVF
TD
=11.30'

DRILLING SUMMARY:

TOTAL DEPTH Well: 11.30' Hole: 16.00'
BOREHOLE DIAMETER 7¼"

DRILLER Boyles Brothers Drilling Co.
15865 W. 5th Avenue
Golden, CO (Tony Robinson)
RIG Acker
BIT(S) Bull nose bit

DRILLING FLUID None

SURFACE CASING 5" x 4' steel w/ locking cap

WELL DESIGN:

BASIS: GEOLOGIC LOG X GEOPHYSICAL LOG ___

CASING STRING(S): C=CASING S=SCREEN

0.0'	2.04'	C1			
2.04'	11.3'	S1			

CASING: C1 2" I.D. Sch. 5 type 316 stainless steel threaded and flush jointed.

SCREEN: S1 2" I.D. Sch. 5 type 316 stainless steel, threaded and flush jointed. 0.010" wire wrap screen. 0.25' welded bottom cap.

CENTRALIZERS Type 304 stainless steel
6.18' - 7.36'

FILTER MATERIAL 32-42 silica sand
2.40' - ~~11.50'~~ ~~11.30'~~ 11.50'

CEMENT Portland Type I
0.00' - 2.00'

OTHER 3/8" bentonite pellets
2.00' - 2.40'
~~11.00' - 11.50'~~ 15.10
11.50' - 15.10'

CONSTRUCTION TIME LOG:

TASK	START DATE 1986	START TIME	FINISH DATE 1986	FINISH TIME
DRILLING:				
7¼" auger	9/6	1315	9/6	1500
GEOPHYS. LOGGING:	—	—	—	—
CASING:				
2" stainless	9/6	1655	9/6	1600
FILTER PLACEMENT:	9/6	1700	9/6	1730
CEMENTING:	9/6	1735	9/6	1740
DEVELOPMENT:	9/8	1345	9/9	1505
OTHER:				
Bentonite	9/6	1730	9/6	1735
	9/6	1650	9/5	1655

WELL DEVELOPMENT

See Well Development Summary Sheets.

COMMENTS:

Water encountered at 9.0' during drilling

Top of stainless steel casing: 2.50'

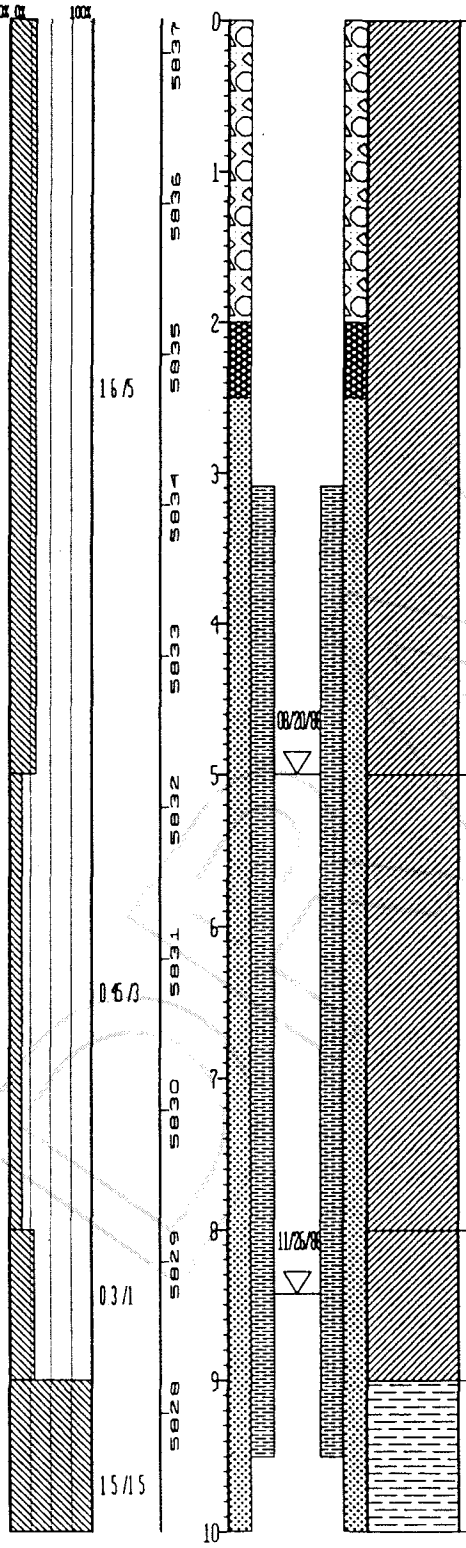
Cave from TD to 15.10'

HYDRO-SEARCH RENO•DENVER CONSULTING HYDROLOGISTS-GEOLOGIST

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 15.5	GROUND ELEVATION (FT) 5837.22	PROJECT NUMBER 667.11	LOG OF BORING NUMBER
NORTH:	751869	AREA SOLAR POND	CASING DIAMETER (IN) 2 ID	GEOLOGIST DCB	13-86
EAST:	2086055	LOCATOR NUMBER N11	BOREHOLE DIAMETER (IN) 7 1/4	DATE DRILLED 08/20/86	

REMARKS: Hollow Stem Auger

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY

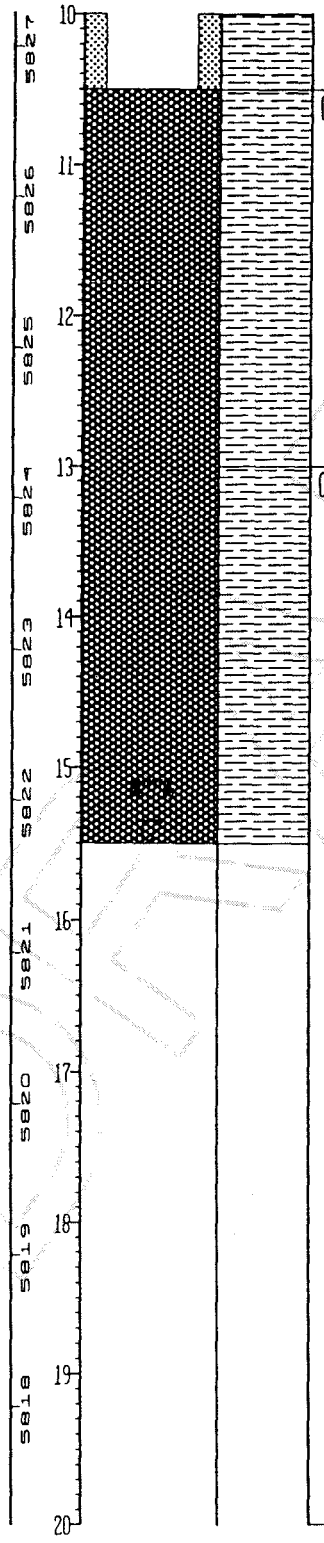


UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CH	Clay, light brownish gray (5 YR 6/1), moderately high plasticity, some sand and gravel
CH	Same as above. Two larger pebbles occur at approx. 7.8 ft.
CH	Clay, light gray (N 7), high plasticity, some silt, possibly highly weathered bedrock
CLAYSTONE	Top of Bedrock Light gray (N 7), high plasticity, some silt, possibly highly weathered bedrock

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 15.5	GROUND ELEVATION (FT):	5837.22	PROJECT NUMBER:	667.11	LOG OF BORING NUMBER:
NORTH:	751869	AREA: SOLAR POND	CASING DIAMETER (IN):	2 ID	GEOLOGIST:	DCB	13-86
EAST:	2086055	LOCATOR NUMBER: N11	BOREHOLE DIAMETER (IN):	7 1/4	DATE DRILLED:	08/20/86	

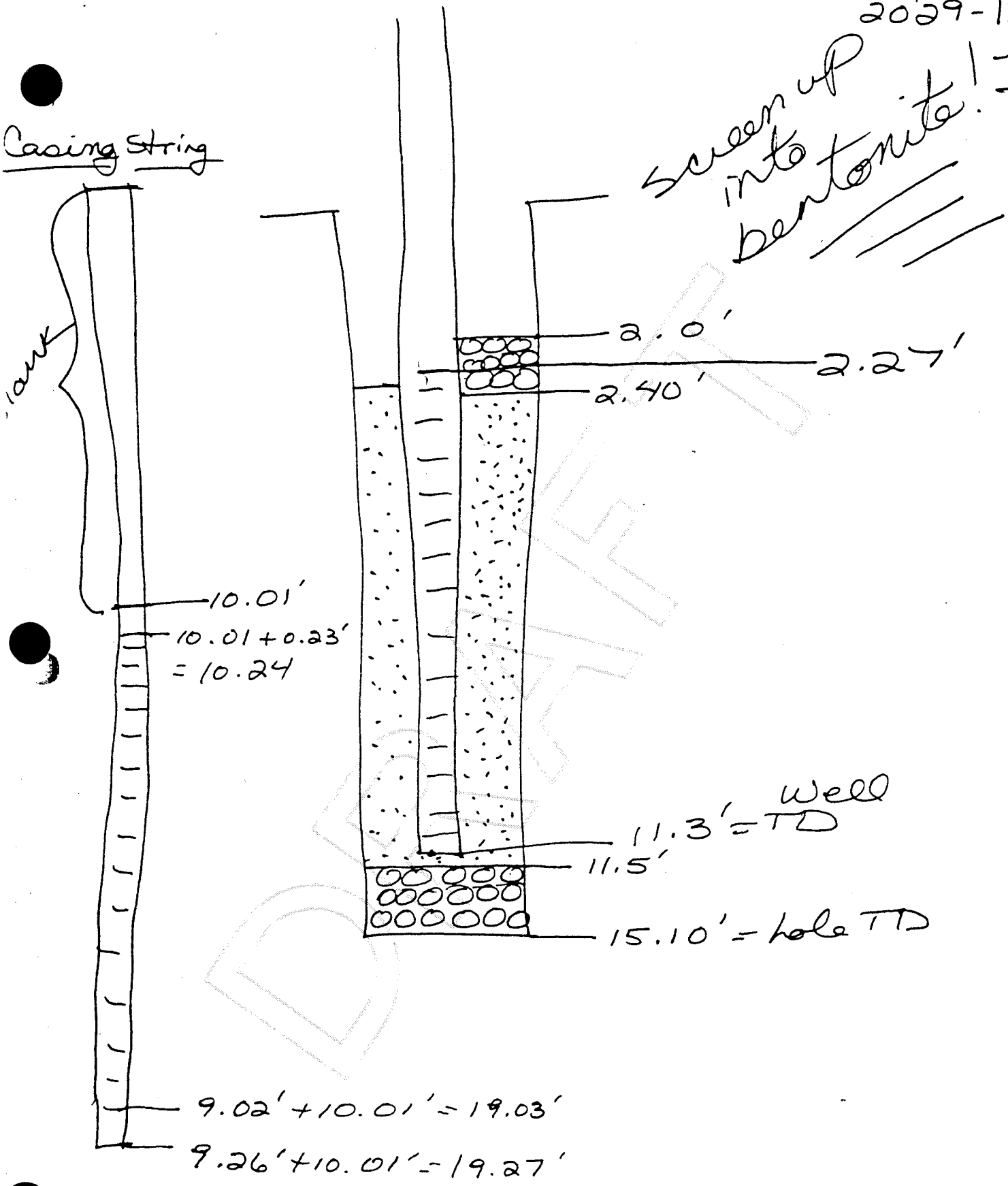
REMARKS: Hollow Stem Auger

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CLAYSTONE	Same as above
CLAYSTONE	Moderate yellowish brown (10 YR 5/4), moderate plasticity, some silt, some iron staining locally. Silt fraction increases at 13.0 ft.

4/17/87
2029-13-06



~~19.7 - 11.3 = 8.4'~~ 19.27' - 10.24' = 9.03' = SI length

TD = 11.3 - 9.03' = 2.27' to top of screen

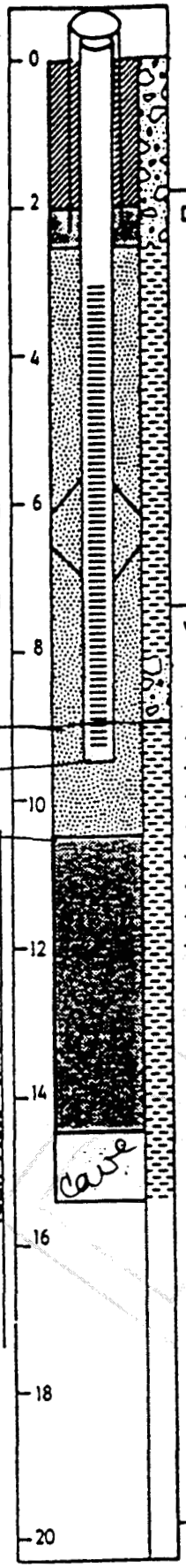
Fine Loc.

WELL 13-86

WELL CONSTRUCTION SUMMARY

LOCATION or COORDS: N. 751857 E. 2086051

ELEVATION: GROUND LEVEL 5838'
TOP OF CASING 5840.51'



LOCATION Golden, CO
PERSONNEL L. Pivonka
PROJECT 106F06222 Rocky Flats Plant

0' QVF Ka
TD 9.5' 10.5'
TOO much sand below screen

DRILLING SUMMARY:

TOTAL DEPTH Well: 9.50' Hole: 15.50'
BOREHOLE DIAMETER 7½"
DRILLER Boyles Brothers Drilling Co.
15865 W. 5th Avenue
Golden, CO (Jim Horn)
RIG Mobile B-57
BIT(S) Bull nose bit
DRILLING FLUID None
SURFACE CASING 5" x 5' steel w/ locking cap

WELL DESIGN:

BASIS: GEOLOGIC LOG X GEOPHYSICAL LOG ___
CASING STRING(S): C=CASING S=SCREEN

0.00'	3.09'	C1
3.09'	9.50'	S1

CASING: C1 2" I.D. Sch. 5 type 316 stainless steel, threaded and flush jointed.

SCREEN: S1 2" I.D. Sch. 5 type 316 stainless steel, threaded and flush jointed. 0.010" wire wrap screen 0.25' welded bottom cap.

CENTRALIZERS Type 304 stainless steel
5.79' - 6.96'

FILTER MATERIAL 16-40 silica sand
2.50' - 10.50'

CEMENT Portland Type I
0.00' - 2.00'

OTHER 3/8" bentonite pellets
2.00' - 2.50'
10.50' - 14.50'

CONSTRUCTION TIME LOG:

TASK	START DATE 1986	START TIME	FINISH DATE 1986	FINISH TIME
DRILLING: 7½" auger	8/20	1230	8/20	1340
GEOPHYS. LOGGING:	—	—	—	—
CASING: 2" stainless	8/20	1607	8/20	1609
FILTER PLACEMENT:	8/20	1609	8/20	1623
CEMENTING:	8/20	1630	8/20	1641
DEVELOPMENT:	9/3	1035	9/3	1035
OTHER: Bentonite	8/20	1623	8/20	1625
	8/20	1605	8/20	1607

WELL DEVELOPMENT

See Well Development Summary Sheets.

COMMENTS:

Water encountered at 5.6' during drillin

Top of stainless steel casing: 2.51'

Cave from TD to 14.50'

HYDRO-SEARCH RENO•DENVER

CONSULTING HYDROLOGISTS-GEOLOGIS

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 74.5	GROUND ELEVATION (FT) 5844.71	PROJECT NUMBER 667.11	LOG OF BORING NUMBER
NORTH 751868		AREA SOLAR POND	CASING DIAMETER (IN) 2 ID	GEOLOGIST LAA	14-86
EAST 2085841		LOCATOR NUMBER M11	BOREHOLE DIAMETER (IN) 7 1/4	DATE DRILLED 08/28/86	

REMARKS: Hollow Stem Auger/NC Core

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				43/47	5844	0			CH	Silty Clay, mod. yellowish brown (10 YR 5/4) and light brownish gray mottled (5 YR 6/1). Some VFG sand, some gravel near surface, avg. size 2 cm. Trace CaCO3 in stringers. Est. plasticity mod. to high.
					5843	1				
					5842	2				
					5841	3				
					5840	4				
				43/33	5839	5			CH	Same as above. Sand VFG to VCG. Also has some root materials. Some iron staining (spotty)
					5838	6				
					5837	7				
				34/25	5836	8			CH	Same as above. Trace gravel, to 5.5 cm
					5835	9				
						10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 74.5	GROUND ELEVATION (FT):	5844.71	PROJECT NUMBER:	667.11	LOG OF BORING NUMBER:
NORTH:	751868	AREA: SOLAR POND	CASING DIAMETER (IN):	2 ID	GEOLOGIST:	LAA	14-86
EAST:	2085841	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN):	7 1/4	DATE DRILLED:	08/28/86	

REMARKS: Hollow Stem Auger/NC Core

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%			10				
				0.5/0.5	5831	11			CL	SILTY CLAY, grayish orange (10 YR 7/4) to very light gray (N 8). Est. plast. low to mod
				2.2/2	5833	12			SILTY CLAYSTONE	Top of Bedrock Grayish orange (10 YR 7/4) to very light gray (N 8). Est. plast. low to mod
					5832	13				
					5831	14			SILTY CLAYSTONE	Same as above
				3.3/4	5830	15				
					5829	16				
					5828	17	09/08/86			
				1.3/1	5827	18			SILTY CLAYSTONE	Pale yellowish brown (10 YR 6/2). Est. plast. low to mod. Trace iron staining, trace carb. material
					5826	19	09/05/86		SILTY CLAYSTONE	Same as above
					5825	20				

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 74.5	GROUND ELEVATION (FT):	5844.71	PROJECT NUMBER	667.11	LOG OF BORING NUMBER
NORTH:	751868	AREA: SOLAR POND	CASING DIAMETER (IN):	2 ID	GEOLOGIST:	LAA	14-86
EAST:	2095841	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN):	7 1/4	DATE DRILLED	08/28/86	

REMARKS: Hollow Stem Auger/NC Core

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				1.9/5	5824	20				
					5823	21				
					5822	22				
				0/0.29		23	09/09/86 ▽		NO SAMPLE	
					5821	24			SILTY CLAYSTONE	Dark yellowish brown (10 YR 4/2) to brownish gray (5 YR 4/1): Est. plast. low to moderate
				0.9/2.2	5820	25				
					5819	26			SILTY CLAYSTONE	Light brownish gray to brownish gray. Highly weathered, mod. to highly friable. Bedding appears massive. Some grayish orange (10 YR 7/4) siltier areas
				3.3/2.5	5818	27				
					5817	28			SILTY CLAYSTONE	Same as above, trace iron staining
					5816	29				
				2.5/2.5	5815	30				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 74.5	GROUND ELEVATION (FT) 5844.71	PROJECT NUMBER 667.11	LOG OF BORING NUMBER
NORTH	751868	AREA SOLAR POND	CASING DIAMETER (IN) 2 ID	GEOLOGIST LAA	14-86
EAST	2085841	LOCATOR NUMBER M11	BOREHOLE DIAMETER (IN) 7 1/4	DATE DRILLED 08/28/86	

REMARKS: Hollow Stem Auger/NC Core

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50%	100% 0% 100%			30				
				0/1.05	5814	31			NO SAMPLE	
				0.9/0.95	5813	32			SILTY CLAYSTONE	Light olive gray (5 Y 6/1), slightly weathered, slightly friable. Bedding appears massive
				0.6/0.65	5812	33			SILTY CLAYSTONE	Same as above
				1.9/1.85	5811	34			SILTY CLAYSTONE	Same as above, silt fraction decreases in middle of interval, but increases again at bottom.
				1.95/2.15	5810	35			SILTY CLAYSTONE	Same as above
				0.6/0.5	5809	36			SILTY CLAYSTONE	Same as above, some carbonaceous material (probably wood fragment).
				0/1.2	5808	37			NO SAMPLE	
				0.8/0.8	5807	38			CLAYSTONE	Light olive gray (5 Y 6/1). Slightly weathered, slightly friable. Bedding appears massive. Trace iron staining around tiny pieces (VCG sized) of probable iron.
					5806	39			SILTY CLAYSTONE	Light olive gray (5 Y 6/1). Slightly weathered, slightly friable.
					5805	40				

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 74.5	GROUND ELEVATION (FT):	5844.71	PROJECT NUMBER	667.11	LOG OF BORING NUMBER
NORTH:	751868	AREA: SOLAR POND	CASING DIAMETER (IN):	2 ID	GEOLOGIST:	LAA	14-86
EAST:	2085841	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN):	7 1/4	DATE DRILLED	08/28/86	

REMARKS: Hollow Stem Auger/NC Core

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
						40				Bedding appears massive
				1.6/1.65	5804	41				
				1.2/1.18	5803	42			SILTY CLAYSTONE	Same as above. Top 4 in. of interval is olive black (5 Y 2/1). The rest is same as above. Trace carb. material. Slightly siltier.
	6263			0.5/0.52	5802	43			SILTY CLAYSTONE	Yellowish gray (5 Y 8/1). Slightly weathered, slightly friable. Massive bedding. Some VFG sand.
				3.5/3.5	5800	44			SILTY CLAYSTONE	Same as above. Begins to show thin-layered bedding (< 1 mm) toward bottom of interval. Some carb. material, probably wood fragments.
					5799	45				
					5798	46				
	6261			1.85/1.85	5797	47			SILTSTONE	Pinkish gray (5 YR 8/1). Slightly weathered, slightly friable. Thin layered bedding (< 1 mm to 1 in.), some VFG sand in layers. Thin layers of carb. material approx. 1 to 2 mm. One of these layers cuts through bedding at 50 degrees.
				0.65/0.65	5796	48			SILTSTONE	Same as above.
	LM15			1.3/1.25	5795	49			SANDSTONE	VFG w/abundant carb. material.
						50				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 74.5	GROUND ELEVATION (FT) 5844.71	PROJECT NUMBER 667.11	LOG OF BORING NUMBER
NORTH	751868	AREA SOLAR POND	CASING DIAMETER (IN) 2 ID	GEOLOGIST LAA	14-86
EAST	2085841	LOCATOR NUMBER M11	BOREHOLE DIAMETER (IN) 7 1/4	DATE DRILLED 08/28/86	

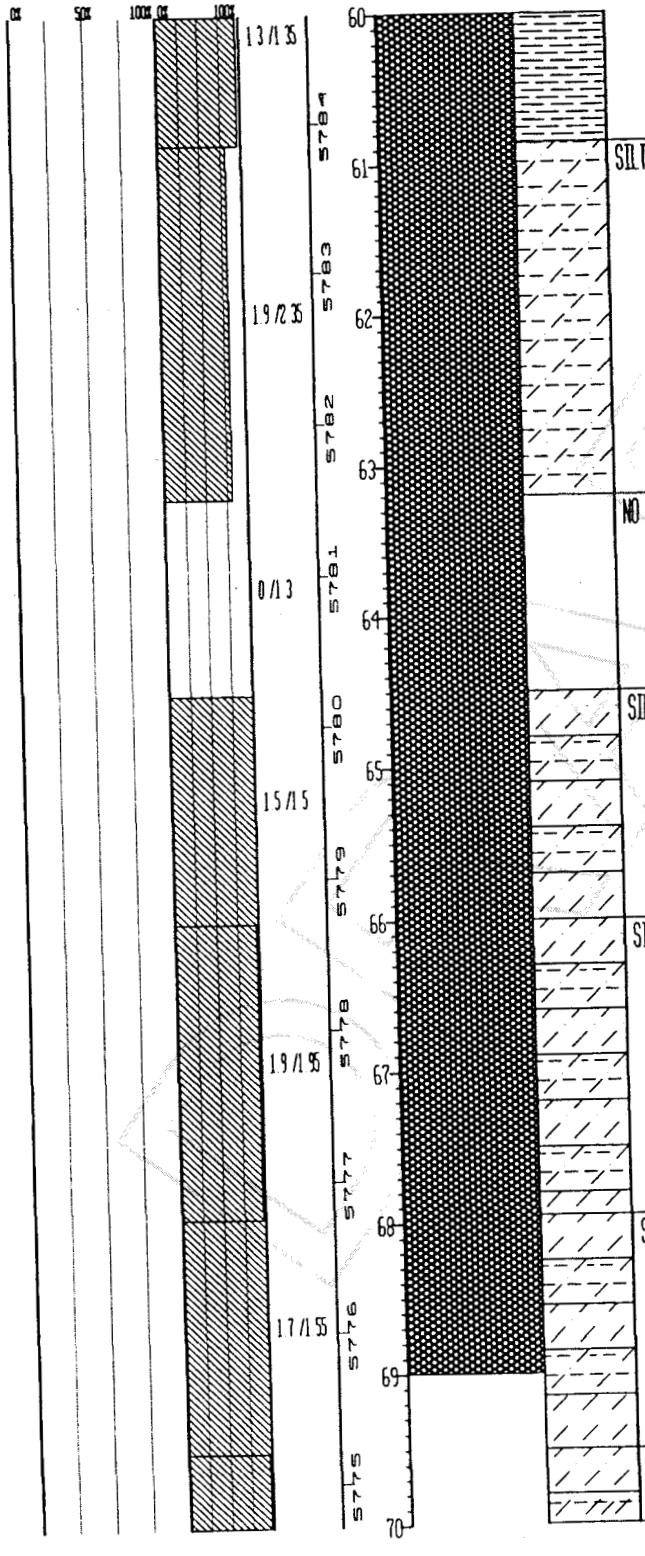
REMARKS: Hollow Stem Auger/NC Core

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	LM16			1.25/1.25	5794	50			SANDSTONE	Pinkish gray (5 YR 8/1). Mod. weathered, slightly to mod. friable. Thin layered bedding, some cross bedding, visible (horizontal to approx. 25 degrees). Some carb. material toward bottom of interval. Some VFG sand. Trace iron staining.
				1.5/1.5	5793	51			SANDSTONE	Same as above interbedded with very thin layers of Silty Claystone. One 4 in. section of med. grained Sandstone.
				0.9/0.79	5792	52			CLAYSTONE	Brownish gray to olive gray (5YR 4/1 to 5Y 4/1), mod. weathered, slightly friable, bedding not evident
				0.5/0.5	5791	53			CLAYSTONE	Same as above
				0/0.7	5790	54			NO SAMPLE	
				0.8/0.9	5789	55			CLAYSTONE	Brownish gray to olive gray (5 YR 4/1 to 5 Y 4/1), mod. weathered, slightly friable, bedding not evident. Some silt, trace VFG sand in very small bodies. Trace iron staining.
				2.1/1.9	5788	56			CLAYSTONE	Same as above, some silt
				0/1.7	5787	57			NO SAMPLE	
					5786	58				
					5785	59			CLAYSTONE	Same as above
						60				

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 74.5	GROUND ELEVATION (FT):	5844.71	PROJECT NUMBER	667.11	LOG OF BORING NUMBER:	
NORTH: 751868	AREA: SOLAR POND	CASING DIAMETER (IN):	2 ID	GEOLOGIST:	LAA		14-86
EAST: 2085841	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN):	7 1/4	DATE DRILLED:	08/28/86		

REMARKS: Hollow Stem Auger/NC Core.

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



SILTY CLAYSTONE	Brownish gray (5 YR 4/1). Mod weathered, mod friable. Core too broken to determine bedding. Trace iron staining
NO SAMPLE	
SILTSTONE	Interbedded Siltstone and Silty Claystone, pinkish gray (5 YR 8/1) to olive gray (5 Y 4/1). Thin layers 1 mm to 5 mm. Bedding horizontal to 30 degrees. Mod weathered, slightly friable. Some VFG sand in silt layers. Some iron staining
SILTSTONE	Same as above
SILTSTONE	Same as above
SILTSTONE	Same as above

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 74.5	GROUND ELEVATION (FT): 5844.71	PROJECT NUMBER: 667.11	LOG OF BORING NUMBER
NORTH:	751868	AREA: SOLAR POND	CASING DIAMETER (IN): 2 ID	GEOLOGIST: LAA	14-86
EAST:	2085841	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN): 7 1/4	DATE DRILLED: 08/28/86	

REMARKS: Hollow Stem Auger/NC Core

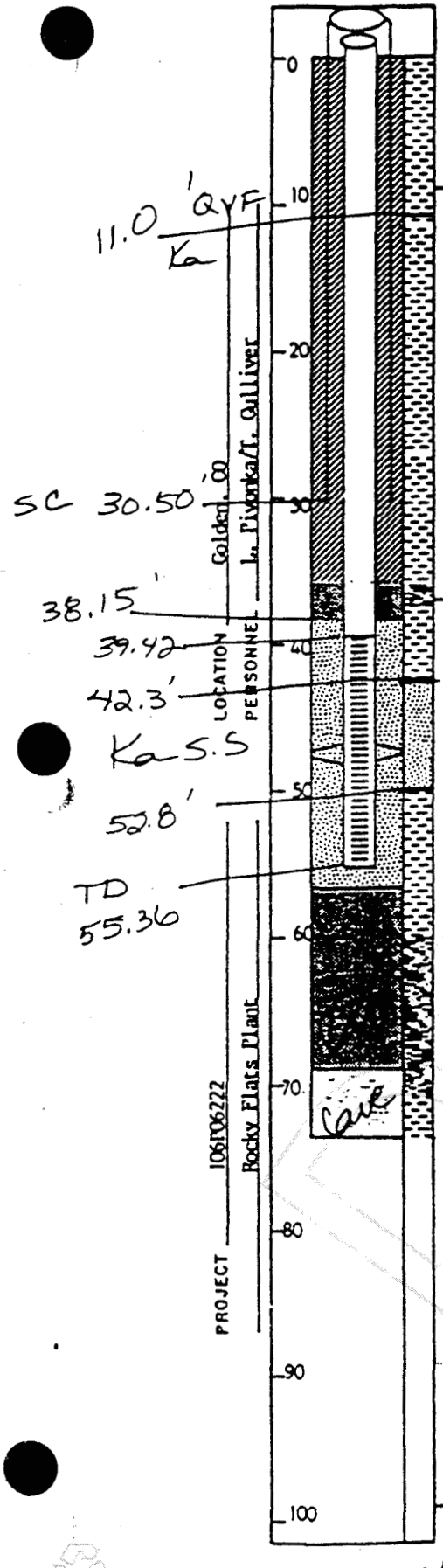
CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				1.85/1.9	5771	70, 71				
				1.8/1.9	5773, 5772	72, 73			SILTY CLAYSTONE	Light olive gray to olive gray (5 Y 6/1 to 4/1). Slightly weathered, mod. to slightly friable. Bedding not evident. Some carbonaceous material and leaf prints. Silt lense 1 in. X 2 in. near top, grayish orange to med. brown (10 YR 7/4 to 5 YR 2/4)
				0.7/0.64	5771	74			SILTY CLAYSTONE	Same as above. No silt lense
				0/0.55	5770, 5769, 5768, 5767, 5766, 5765	75, 76, 77, 78, 79, 80			NO SAMPLE	

WELL 14-86

WELL CONSTRUCTION SUMMARY

LOCATION or COORDS: N. 751855.6 E 2085838

ELEVATION: GROUND LEVEL 5846'
TOP OF CASING 5848.22'



DRILLING SUMMARY:

TOTAL DEPTH Well: 55.36' Hole: 74.00'

BOREHOLE DIAMETER 0.00' - 30.50': 7¼"
30.50' - 74.00': 4 3/4"

DRILLER Boyles Brothers Drilling Co.
15865 W. 5th Avenue, Golden, CO
(Jim Horn, Paul Wiebe)

RIG 0.00' - 30.50': Mobile B-57; 30.50' - 74.00': Failing 1500

BIT(S) 0.00' - 30.50': Blade bit; 30.00' - 74.00': Chrisprill 3 3/4", Tricone 4 3/4" reamer

DRILLING FLUID 0.00' - 30.50': None
30.50' - 74.00': air/water mist

SURFACE CASING 5" x 33.16 steel w/locking cap

WELL DESIGN:

BASIS: GEOLOGIC LOG X GEOPHYSICAL LOG ___

CASING STRING(S): C=CASING S=SCREEN

0.00'	30.50'	C1			
0.00'	39.42'	C2			
39.42'	55.36'	S1			

CASING: C1 5" I.D. steel surface casing.
C2 2" I.D. Sch. 5, type 316 stainless steel, threaded and flush jointed.

SCREEN: S1 2" I.D. Sch. 5 type 316 stainless steel, threaded and flush jointed, 0.010" wire wrap screen, 0.25' welded bottom cap.

CENTRALIZERS Type 304 stainless steel
46.79' - 48.02'

FILTER MATERIAL 32-42 silica sand: 38.15' - 55.36'; 16-20 silica sand: 55.36' - 56.85'

CEMENT Portland Type I
0.00' - 35.40'

OTHER 3/8" bentonite pellets
35.40' - 38.15'
56.85' - 69.00'

CONSTRUCTION TIME LOG:

TASK	START DATE 1986	START TIME	FINISH DATE 1986	FINISH TIME
DRILLING:				
7¼" auger	8/19	1300	8/19	1610
NC core	8/29	0838	8/29	1343
Reaming	9/3	0900	9/3	0917
GEOPHYS. LOGGING:	—	—	—	—
CASING:				
5" steel	8/19	1625	8/20	1008
2" stainless	9/3	1100	9/3	1105
FILTER PLACEMENT:	9/3	1105	9/3	1200
CEMENTING:	9/3	1200	9/3	1230
DEVELOPMENT:	9/5	1130	9/17	1100
OTHER:				
Bentonite	9/3	1200	9/3	1202
	9/3	0925	9/3	1020
Packer testing	9/2	1100	9/2	1700
Cementing 5" steel	8/20	1008	8/20	1030

WELL DEVELOPMENT

See Well Development Summary Sheet.

COMMENTS:

No water encountered during drilling.

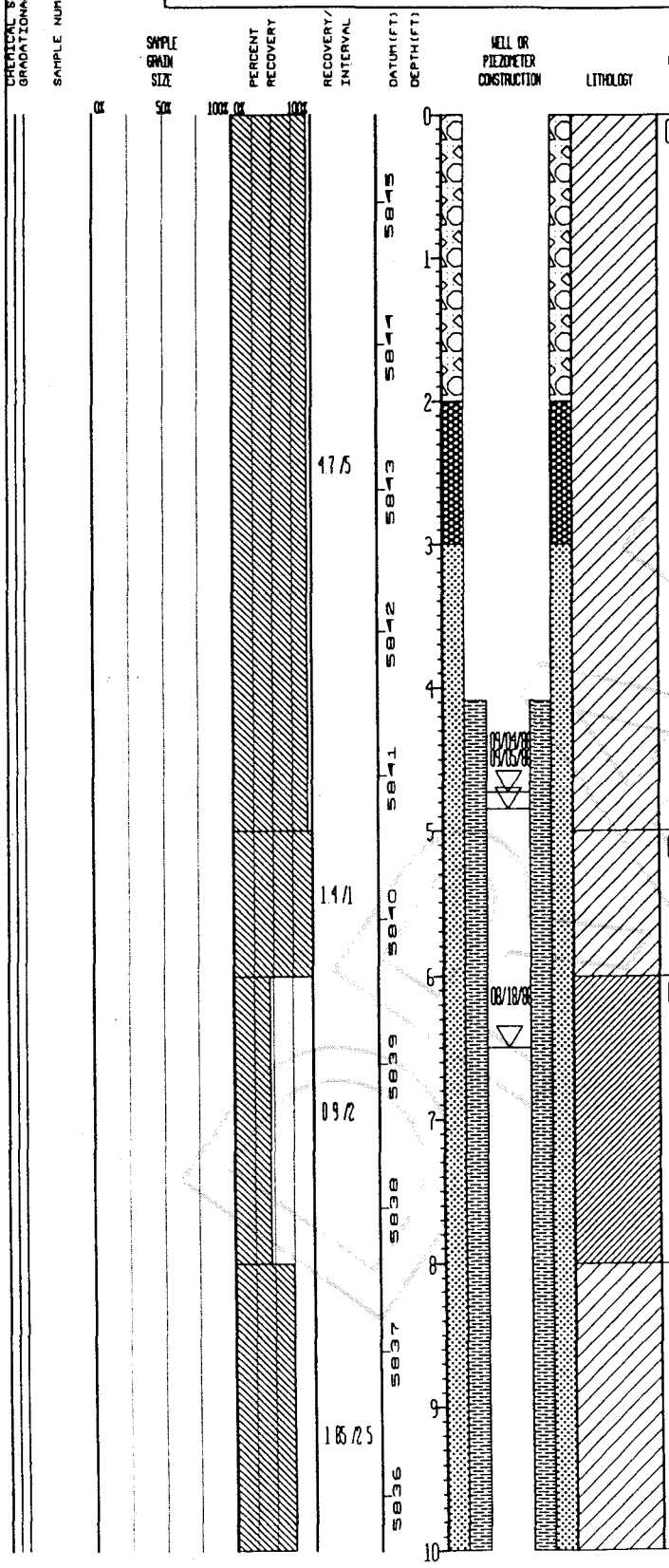
Top of stainless steel casing: 2.22'

Cave from TD to 69.00'.

HYDRO-SEARCH RENO•DENVER CONSULTING HYDROLOGISTS-GEOLOGIST

too much screen + sand - SI too large

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 18	GROUND ELEVATION (FT): 5845.61	PROJECT NUMBER: 667.11	LOG OF BORING NUMBER:
NORTH:	751865	AREA: SOLAR POND	CASING DIAMETER (IN): 2 ID	GEOLOGIST: LAA	15-86
EAST:	2085815	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN): 7 1/4	DATE DRILLED: 08/18/86	
REMARKS: Hollow Stem Auger					



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CL	SILTY CLAY, dusky yellowish brown (10 YR 2/2). Est. plast. moderate. Root material exists in top 1.8 ft. Some sand and gravel exist throughout interval. Sand VFG to coarse. Gravel from approx. 1 cm to 5.5 cm. Sub-angular to rounded. Matrix slightly calcareous in localized areas.
CL	GRAVELLY SILTY CLAY, dark yellowish brown (10 YR 4/2). Est. plast. moderate. Gravel angular to sub-rounded. Mod. well graded. 1 cm to 6 cm. Some sand, VFG to coarse. Some staining in matrix.
CH	Silty Clay, brownish gray (5 YR 4/2) grading to dark yellowish brown (10 YR 4/2). Est. plast. mod. to high. Becomes gravelly toward bottom. Angular to sub-angular. Grading not visible in matrix. Sand FG to granules. Trace carb. material.
CL	GRAVELLY SILTY CLAY, dark yellowish brown (10 YR 4/2). Est. plast. moderate. Gravel angular to sub-rounded. Mod. well graded. Max size 5 cm. Some sand VFG to VCG.

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 18	GROUND ELEVATION (FT): 5845.61	PROJECT NUMBER: 667.11	LOG OF BORING NUMBER
NORTH:	751865	AREA: SOLAR POND	CASING DIAMETER (IN): 2 ID	GEOLOGIST: LAA	15-86
EAST:	2085815	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN): 7 1/4	DATE DRILLED: 08/18/86	

REMARKS: Hollow Stem Auger

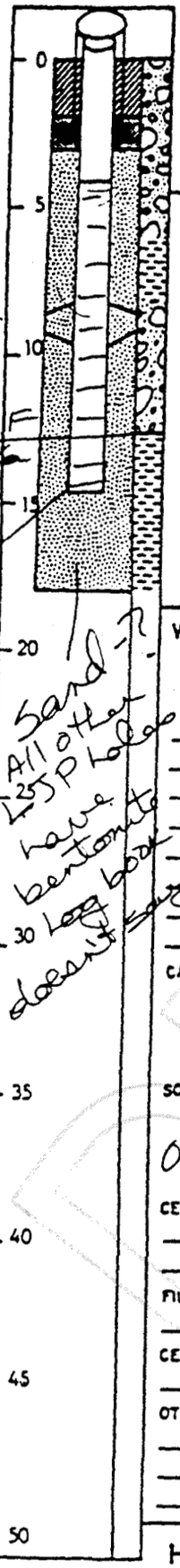
CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRADN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
						10				
				0.5/1	5835	11			CL	GRAVELLY SILTY CLAY, dark yellowish brown (10 YR 4/2). Est. plast. moderate. Gravel angular to sub-rounded. Mod. well graded. Max size 3 cm. Some sand VFG to VCG.
	LM3			0.5/1	5834	12			GC	Clayey Sandy Gravel. Cannot determine gravel color. Sub-angular to sub-rounded. Mod. well sorted to 4.5 cm. Matrix dark yellowish brown (10 YR 4/2) to light gray (N 7). Est. plast. low to mod. Sand VFG to coarse. Some silt.
				0.3/0.5	5833				SILTY CLAYSTONE	Top of Bedrock Light brownish gray (5 YR 6/1). Est. plast. mod. to high.
				0.6/0.8	5832	13			SILTY CLAYSTONE	Same as above.
				1.3/1.7	5831	14			SILTY CLAYSTONE	Grayish brown (5 YR 3/2). Est. plast. moderate. Trace carb. material. Trace VFG sand.
					5830	15				
				3/2.5	5829	16			SILTY CLAYSTONE	Pale yellowish brown (10 YR 6/2). Est. plast. mod. Some iron staining throughout matrix. Some black carb. material.
					5828	17				
					5827	18				
					5826	19				
						20				

WELL 15-86

WELL CONSTRUCTION SUMMARY

LOCATION or COORDS:

ELEVATION: GROUND LEVEL 5847'
TOP OF CASING 5849.69'



12.5' QVF

TD 14.44

LOCATION Golden, Co

PERSONNEL D. Pivonka

Sand - ? All other LSP holes have bentonite log book doesn't say

PROJECT 106T06222 Rocky Flats Plant

DRILLING SUMMARY:

TOTAL DEPTH Well: ~~14.69'~~ 14.44 Hole: 18.00'

BOREHOLE DIAMETER 7½"

DRILLER Boyles Brothers Drilling Co.
15865 W. 5th Avenue
Golden, CO (Jim Horn)

RIG Mobile B-57

BIT(S) Bull nose bit

DRILLING FLUID None

SURFACE CASING 5" x 5' steel w/ locking cap

WELL DESIGN:

BASIS: GEOLOGIC LOG X GEOPHYSICAL LOG ___

CASING STRING(S): C=CASING S=SCREEN

0.00'	4.09'	C1
4.09'	14.69'	S1

CASING: C1 2" I.D. Sch. 5 type 316 stainless steel threaded and flush jointed.

SCREEN: S1 2" I.D. Sch. 5 type 316 stainless steel, threaded and flush jointed, ~~0.010"~~ 0.020" wire wrap screen, 0.25' welded bottom cap.

CENTRALIZERS Type 304 stainless steel
8.34' - 9.52'

FILTER MATERIAL 12-20 silica sand
3.00' - 18.00'

CEMENT Portland Type I
0.00' - 2.00'

OTHER 3/8" bentonite pellets
2.00' - 3.00'

CONSTRUCTION TIME LOG:

TASK	START DATE 1986	START TIME	FINISH DATE 1986	FINISH TIME
DRILLING:				
7½" auger	8/18	1405	8/18	1705
GEOPHYS. LOGGING:	—	—	—	—
CASING:				
2" stainless	8/18	1705	8/18	1707
FILTER PLACEMENT:	8/18	1707	8/18	1720
CEMENTING:	8/18	1725	8/18	1730
DEVELOPMENT:	8/27	1205	9/9	1000
OTHER:				
Bentonite	8/18	1720	8/18	1722

WELL DEVELOPMENT

See Well Development Summary Sheet.

COMMENTS:

Water encountered at 6.5' during drilling.

Top of stainless steel casing: 2.69'

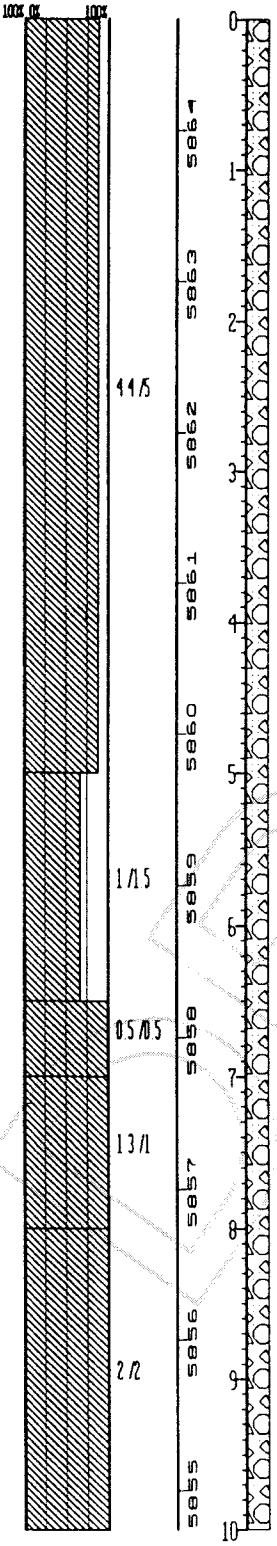
HYDRO-SEARCH RENO•DENVER CONSULTING HYDROLOGISTS-GEOLOGISTS

SI too deep

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 64	GROUND ELEVATION (FT) 5864.74	PROJECT NUMBER 667.11	LOG OF BORING NUMBER
NORTH:	751762	AREA SOLAR POND	CASING DIAMETER (IN) 2 10	GEOLOGIST DAT	16-86
EAST:	2085263	LOCATOR NUMBER M11	BOREHOLE DIAMETER (IN) 7.5	DATE DRILLED 08/25/86	

REMARKS: Hollow Stem Auger/NC Core.

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION

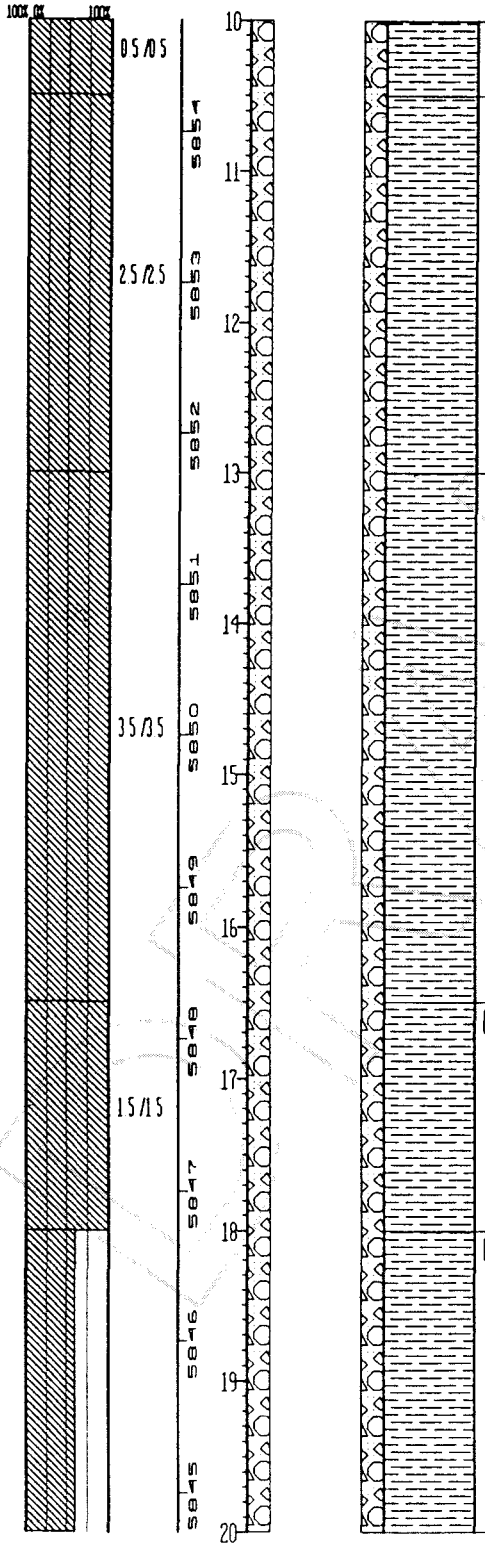


SC	Gravelly Clayey Sand, pale yellowish brown (10YR 6/2), angular to sub-angular, mod grading, max gravel size = 3 cm., some roots and grass at surface, slightly calc.
CL	GRAVELLY SANDY CLAY, (possibly highly weathered claystone - well consolidated), brownish gray (5YR 4/1), mod. plast., max. gravel size 5 cm., trace of iron staining as concretions (two approx. 1 cm. diameter) and mottles, trace of calcite in upper part of interval, increased sand fraction in bottom 2 in. of interval
SC	Gravelly Clayey Sand - grayish orange (10YR 7/4), sub-angular to sub-rounded, mod to well graded, FG - CG sand, max gravel size = 6 cm., some silt
CL	SANDY CLAY - light olive gray (5Y 6/1), est. mod. plast., iron staining as nodules and mottles, trace of gravel, sand is FG - MG.
SANDY CLAYSTONE	Top of Bedrock Olive gray (5Y 4/1)
SANDY CLAYSTONE	Same as above, light olive gray (5Y 6/1)

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 64	GROUND ELEVATION (FT)	5864.74	PROJECT NUMBER	667.11	LOG OF BORING NUMBER
NORTH:	751762	AREA SOLAR POND	CASING DIAMETER (IN)	2 ID	GEOLOGIST	DAT	16-86
EAST:	2085263	LOCATOR NUMBER M11	BOREHOLE DIAMETER (IN)	7.5	DATE DRILLED	08/25/86	

REMARKS: Hollow Stem Auger/NC Core

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



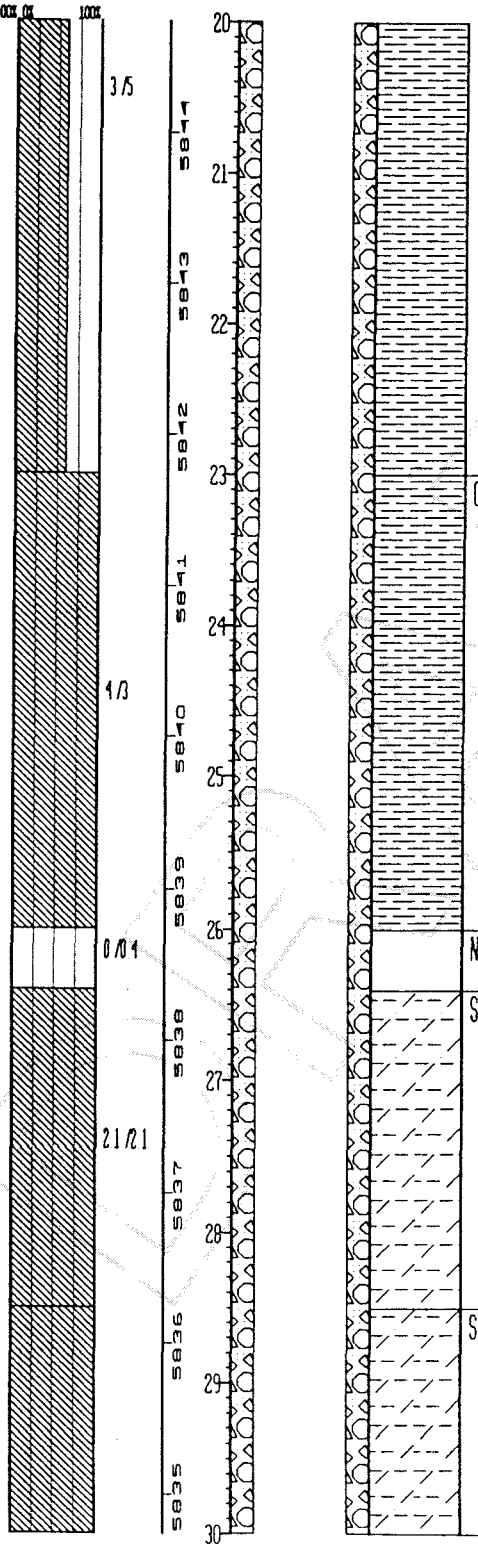
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CLAYSTONE	Light olive gray (5Y 6/1), mod. to high plast., trace of iron staining as mottles, floury texture.
CLAYSTONE	Same as above, trace of calcite.
CLAYSTONE	Top 1 ft. same as above. Bottom of interval: same as above, yellowish gray (5Y 8/1), more consolidated texture.
CLAYSTONE	Top 1 ft. same as above. Bottom of interval: same as above, light gray (N7), floury texture.
CLAYSTONE	Same as above.

DRAFT

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 64	GROUND ELEVATION (FT):	5864.74	PROJECT NUMBER:	667.11	LOG OF BORING NUMBER:
NORTH:	751762	AREA: SOLAR POND	CASING DIAMETER (IN):	2 ID	GEOLOGIST:	DAT	16-86
EAST:	2085263	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN):	7.5	DATE DRILLED:	08/25/86	

REMARKS: Hollow Stem Auger/NC Core

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY

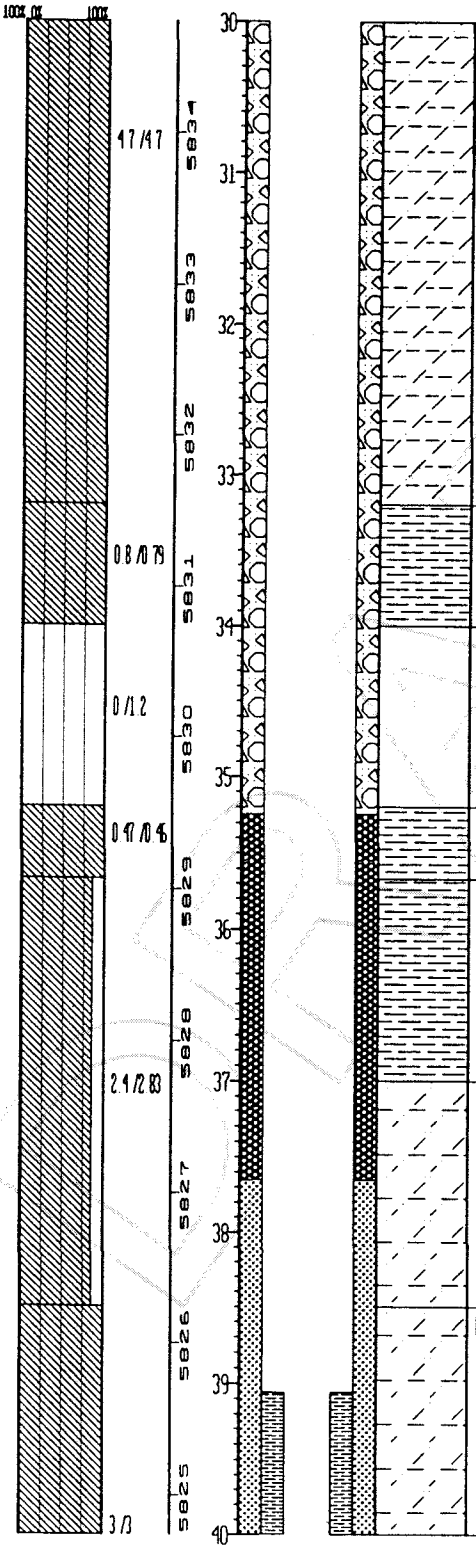


UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CLAYSTONE	Olive gray (5Y 4/1), mod-high plast., some iron staining as mottles, trace carb. material, floury texture.
NO SAMPLE	
SILTY CLAYSTONE	Olive gray (5Y 4/1), bedding is non apparent, well weathered, mod. friable, some iron staining as mottles, some carb. material esp. in top of interval, base of interval is highly fractured at undeterminable angles, trace of calc. material in fractures, some white non calc. mineralization.
SILTY CLAYSTONE	Same as above, floury texture at top of interval.

DRAFT

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 64	GROUND ELEVATION (FT):	5864.74	PROJECT NUMBER:	667.11	LOG OF BORING NUMBER:	16-86
NORTH: 751762	AREA: SOLAR POND	CASING DIAMETER (IN):	2 ID	GEOLOGIST:	DAT		
EAST: 2085263	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN):	7.5	DATE DRILLED:	08/25/86		
REMARKS: Hollow Stem Auger/NC Core							

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY

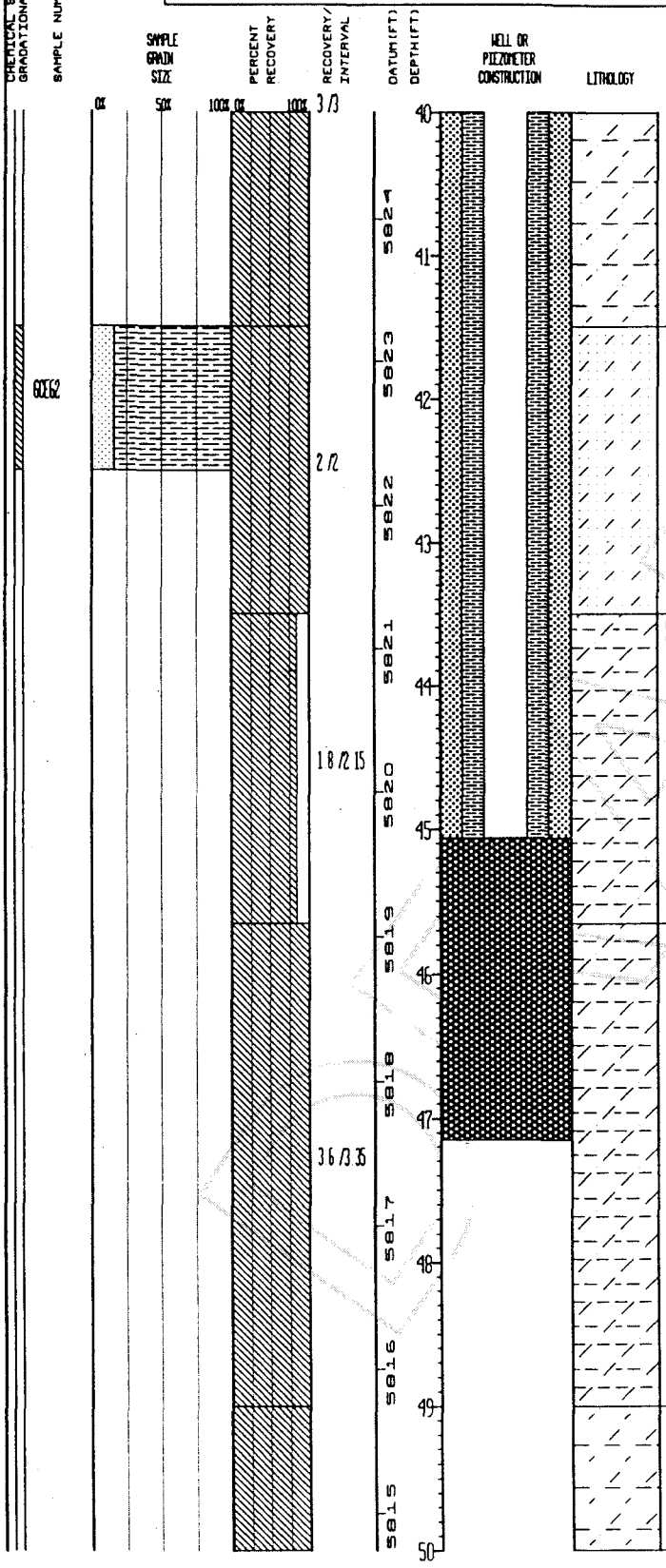


UNIFIED SOILS CLASSIFICATION OR ROCK TYPE / DESCRIPTION

CLAYSTONE	Olive gray (5Y 4/1), non-apparent bedding, highly weathered, mod. friable, trace of carb. material, core is broken up.
NO SAMPLE	
CLAYSTONE	Same as above, not broken core
CLAYSTONE	Same as above
CLAYEY SILTSTONE	Olive black (5Y 2/1), apparent horizontal laminar bedding, mod. weathered, mod. to poor friability, some carb. material
CLAYEY SILTSTONE	Same as above, some coal material, slab shows disturbed bedding, some possible burrows, thin interbeds of clay (horizontal, <1 mm.)

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 64	GROUND ELEVATION (FT):	5864.74	PROJECT NUMBER:	667.11	LOG OF BORING NUMBER:
NORTH: 751762	AREA: SOLAR POND	CASING DIAMETER (IN):	2.10	GEOLOGIST:	DAT	16-86
EAST: 2085263	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN):	7.5	DATE DRILLED:	08/25/86	

REMARKS: Hollow Stem Auger/NC Core.

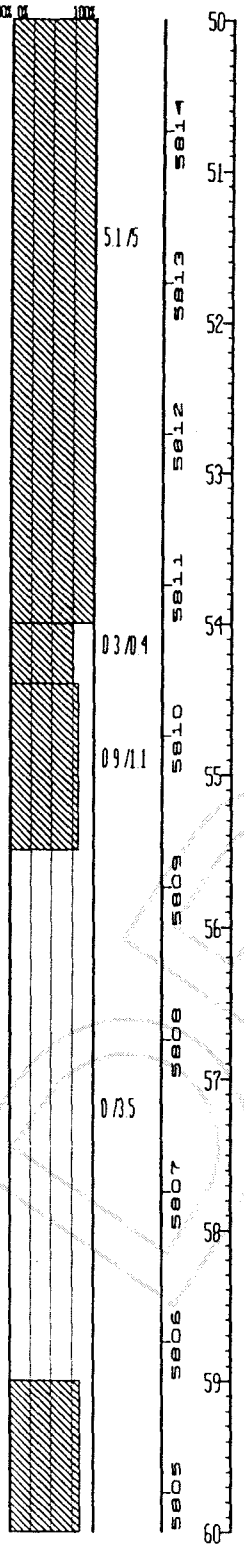


UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
SILTY SANDSTONE	VFG to FG, light olive gray (5Y 5/2), massive bedding (from slab), well weathered, mod. to poorly friable, mod. to well sorted, sand fraction has higher FG near 43.5 ft.
SILTY CLAYSTONE	Olive gray (5Y 4/1), non - apparent bedding, well weathered, mod. friable, trace of iron staining as mottles, trace carb. material, fracture at 60 degrees.
SILTY CLAYSTONE	Same as above. 70 degree fracture showing slickenslides.
CLAYEY SILTSTONE	Light olive gray (5Y 6/1), non - apparent bedding, highly weathered, mod. to poorly friable, some carb. material, trace of iron staining as mottles. At approx. 50 ft. increase of clay fraction. At approx. 52 ft. decreased clay fraction. Slab shows 60 degree fracture that has <1 mm

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 64	GROUND ELEVATION (FT)	5864.74	PROJECT NUMBER	667 11	LOG OF BORING NUMBER
NORTH	751762	AREA SOLAR POND	CASING DIAMETER (IN)	2 10	GEOLOGIST	DAT	16-86
EAST	2085263	LOCATOR NUMBER M11	BOREHOLE DIAMETER (IN)	7 5	DATE DRILLED	08/25/86	

REMARKS Hollow Stem Auger/NC Core

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



coal seam, bedding appears to show possible drag or fracture, is possibly a slump structure. Bedding on bottom of fracture is approx. horizontally laminated, above fracture is distorted with clay and silt clasts. Another fracture at 90 degrees with some organic material along fracture.

SILTY CLAYSTONE Olive gray (5Y 4/1), non - apparent bedding, highly weathered, mod. to poorly friable, some carb. material, trace of iron staining as mottles.

SILTY CLAYSTONE Same as above

NO SAMPLE

CLAYEY SILTSTONE Light olive gray (5Y 6/1), non - apparent bedding, highly weathered, mod - poorly friable, trace of carb. material

DRAFT

STATE PLANE COORDINATE	TOTAL DEPTH (FT): 64	GROUND ELEVATION (FT): 5864.74	PROJECT NUMBER: 667.11	LOG OF BORING NUMBER
NORTH: 751762	AREA: SOLAR POND	CASING DIAMETER (IN): 2.10	GEOLOGIST: DAT	16-86
EAST: 2085263	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN): 7.5	DATE DRILLED: 08/25/86	

REMARKS: Hollow Stem Auger/NC Core

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50%)	PERCENT RECOVERY (100% 0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				12/5	5804	60				
					5803	61				SILTY CLAYSTONE: Olive gray (5Y 4/1), apparent massive bedding, well weathered, mod friable, some carb material, floury texture at base of interval. NOTE: Well bore has 10-20 silica sand from 47.15' to 64'.
					5802	62				
					5801	63				
					5800	64				
					5799	65				
					5798	66				
					5797	67				
					5796	68				
					5795	69				
						70				

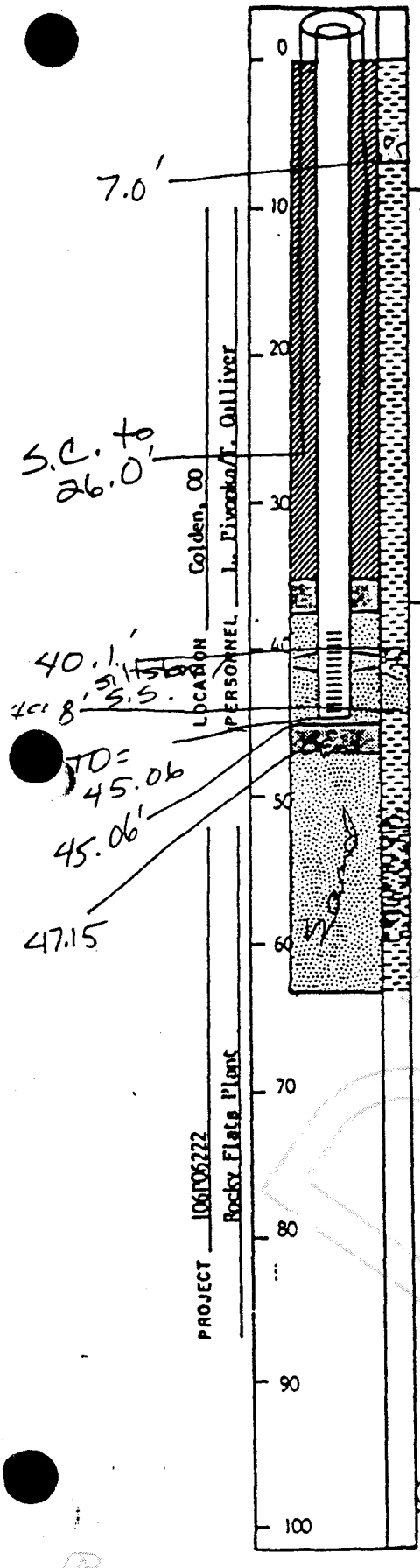
DRAFT

WELL 16-86

WELL CONSTRUCTION SUMMARY

LOCATION or COORDS: N. 751747.4 E. 2685260

ELEVATION: GROUND LEVEL 5868'
TOP OF CASING 5870.10'



DRILLING SUMMARY:

TOTAL DEPTH Well: 45.06' Hole: 64.00'

BOREHOLE DIAMETER 0.00' - 26.00': 7¼" 26.00'-45.00': 4 3/4" 45.00'-64.00': 3 7/8"

DRILLER Boyles Brothers Drilling Co. 15865 W. 5th Avenue, Golden, CO Jim Horne, Paul Wiebe

RIG 0.00'-26.00' Mobile B57, 26.00'-64.00' Failing 1500

BIT(S) 0.00'-26.00' Blade bit 26.00'-64.00' Christensen carbide, tricone 4 3/4 reamer

DRILLING FLUID 0.00'-26.00' None 26.00'-64.00' air/water mist

SURFACE CASING 5" x 28.55' steel w/ locking cap

WELL DESIGN:

BASIS: GEOLOGIC LOG X GEOPHYSICAL LOG ___

CASING STRING(S): C=CASING S=SCREEN

0.00'	26.00'	C1	
0.00'	39.06'	C2	
39.06'	45.06'	S1	

CASING: C1 5" I.D. steel surface casing
C2 2" I.D., Sch. 5, Type 316 stainless steel, threaded and flush jointed

SCREEN: S1 2" I.D., Sch. 5, Type 316 stainless steel, threaded and flush jointed, 0.010" wire wrap screen 0.25' welded bottom cap.

CENTRALIZERS Type 304 stainless steel 40.49' - 41.73'

FILTER MATERIAL 32-42 silica sand 37.65' - 45.06'

CEMENT Portland Type I 0.00' - 35.25'

OTHER 3/8" bentonite pellets 35.25' - 37.65' ~~45.06' - 47.15'~~ 10-20 silica sand: 47.15' - 64.00'

CONSTRUCTION TIME LOG:

TASK	START DATE 1986	START TIME	FINISH DATE 1986	FINISH TIME
DRILLING:				
7¼" auger	8/15	1330	8/15	1530
NC core	8/25	0920	8/25	1200
Reaming	8/27	1700	8/27	1725
GEOPHYS. LOGGING:	—	—	—	—
CASING:				
5" steel	8/18	0907	8/18	1110
2" stainless	8/28	1012	8/28	1014
FILTER PLACEMENT:	8/28	1018	8/28	1030
CEMENTING:	8/28	1130	8/28	1135
DEVELOPMENT:	9/2	1725	9/18	1240
OTHER:				
Bentonite	8/28	1040	8/28	1041
	8/28	0945	8/28	0948
Packer testing	8/27	0900	8/27	1645
Cementing 5" steel	8/18	0918	8/18	0938

WELL DEVELOPMENT

See Well Development Summary Sheet.

COMMENTS:

No water encountered during drilling.

Top of stainless steel casing: 2.10'

NC core 26.00' - 64.00'

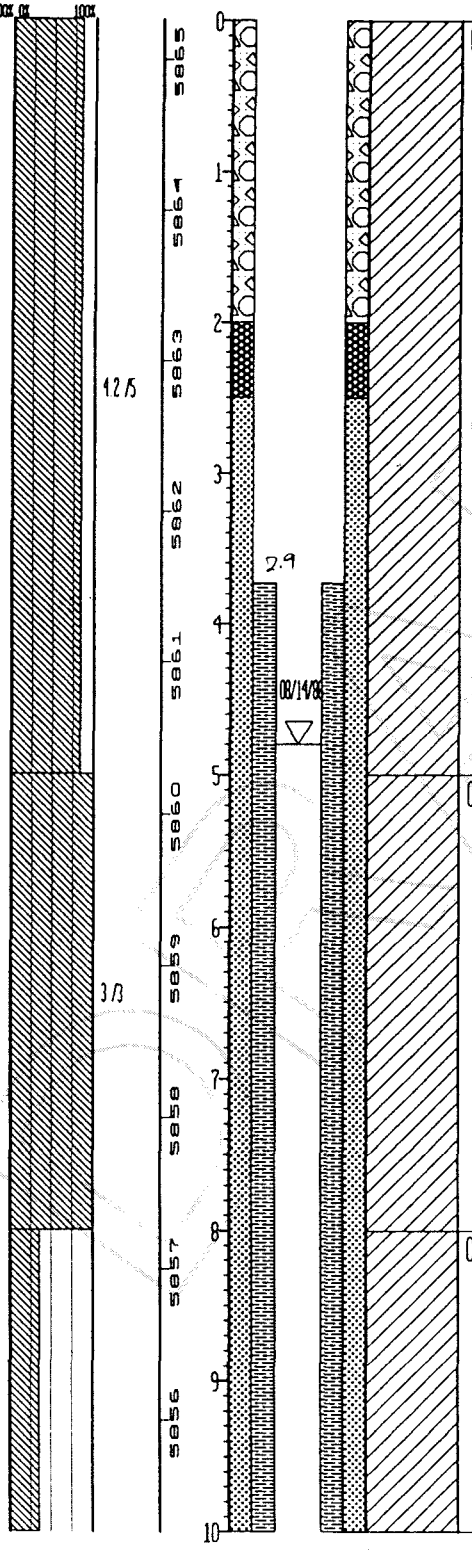
Reamed from 26.00' - 45.00'

HYDRO-SEARCH RENO-DENVER

CONSULTING HYDROLOGISTS-GEOLOGISTS

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 20	GROUND ELEVATION (FT):	5865.26	PROJECT NUMBER:	667.11	LOG OF BORING NUMBER:
NORTH:	751754	AREA: SOLAR POND	CASING DIAMETER (IN):	2 ID	GEOLOGIST:	DCB	17-86
EAST:	2085245	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED:	08/14/86	
REMARKS:	Hollow Stem Auger						

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50%)
PERCENT RECOVERY (100% 0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY

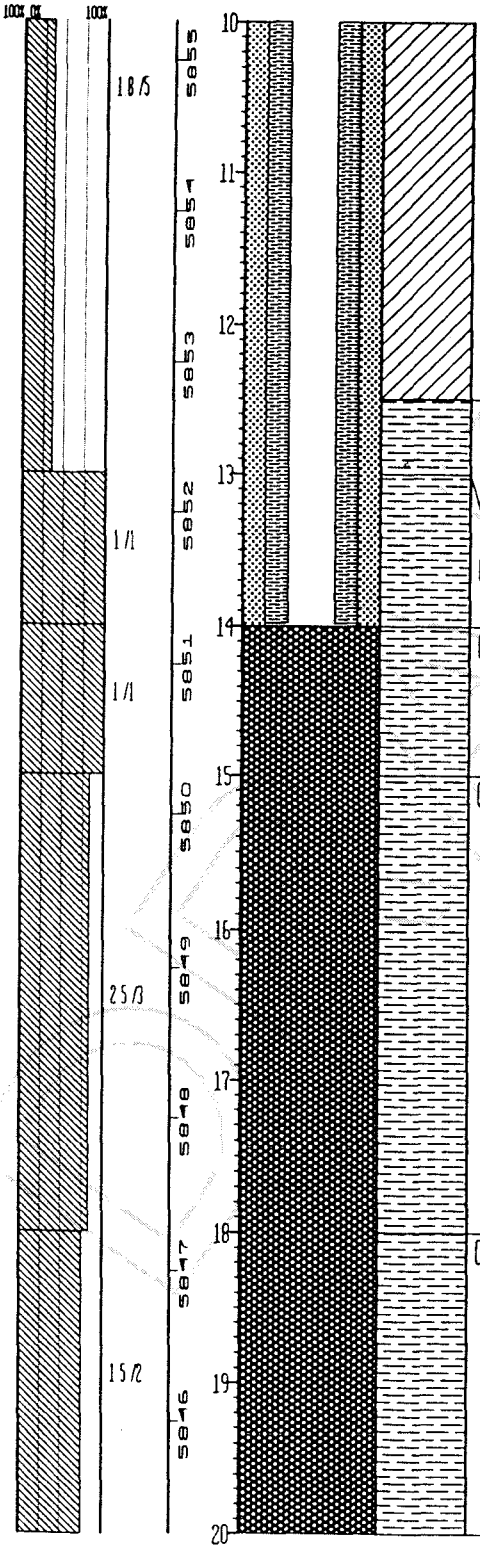


UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CL	CLAY - pale yellowish brown (10YR 6/2) to grayish brown (5YR 3/2), moderate plasticity (est.), some gravel and sand, some silt, trace of roots in upper 0.5 ft. Sand fraction increases from approx. 2 ft. to approx. 12.5 ft. CG and VCG
CL	Same as above, slightly calcareous in interval from approx. 5 ft. to 6 ft.
CL	Same as above

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 20	GROUND ELEVATION (FT) 5865 26	PROJECT NUMBER 667 11	LOG OF BORING NUMBER
NORTH	751754	AREA SOLAR POND	CASING DIAMETER (IN) 2 10	GEOLOGIST DCB	17-86
EAST	2085245	LOCATOR NUMBER M11	BOREHOLE DIAMETER (IN) 7 25	DATE DRILLED 08/14/86	
REMARKS Hollow Stem Auger					

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY



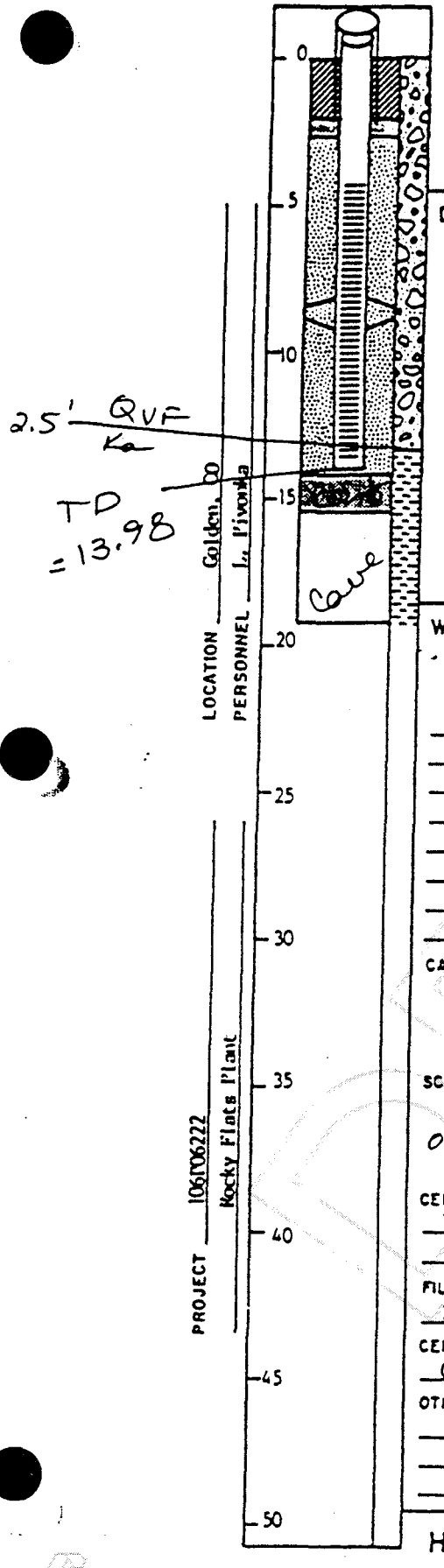
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CLAYSTONE	Top of Bedrock Color grades to mottled yellowish gray (5Y 7/2) to light gray (N7) at approx 12 5 ft possibly highly weathered claystone, dominantly light gray (N7) below 13 0 ft
CLAYSTONE	Same as above
CLAYSTONE	Same as above
CLAYSTONE	Light gray (N7), bedding not apparent, highly weathered, moderately friable, iron staining locally and on fractures, slight silt component
CLAYSTONE	Same as above

WELL 17-86

WELL CONSTRUCTION SUMMARY

LOCATION or COORDS: ~~76~~ N. 751739.8 E. 2085242.

ELEVATION: GROUND LEVEL 5869'
TOP OF CASING 5870.69'



PROJECT 106F06222 Rocky Flats Plant
PERSONNEL L. Ivonka
LOCATION Golden, CO

DRILLING SUMMARY:

TOTAL DEPTH Well: 13.98' Hole: 19.20'
BOREHOLE DIAMETER 7½"

DRILLER Boyles Brothers Drilling Co.
15865 W. 5th Avenue
Golden, CO (Jim Horn)
RIG Mobile B-57
BIT(S) Bull nose bit

DRILLING FLUID None

SURFACE CASING 5" x 5' steel w/ locking cap

WELL DESIGN:

BASIS: GEOLOGIC LOG X GEOPHYSICAL LOG ___

CASING STRING(S): C=CASING S=SCREEN

0.00'	3.73'	C1
3.73'	13.98'	S1

CASING: C1 2" I.D. Sch. 5 type 316 stainless steel threaded and flush jointed.

SCREEN: S1 2" I.D. Sch. 5 type 316 stainless steel, threaded and flush jointed, ~~0.010"~~ 0.020" wire wrapped screen, 0.25' welded bottom cap.

CENTRALIZERS Type 304 stainless steel
7.97' - 9.09'

FILTER MATERIAL ~~10-20~~ 12-20 silica sand
2.50' - 14.00'

CEMENT Portland Type I
0.00' - 2.00'

OTHER 3/8" bentonite pellets
2.00' - 2.50'
14.00' - 15.25'

CONSTRUCTION TIME LOG:

TASK	START DATE 1986	START TIME	FINISH DATE 1986	FINISH TIME
DRILLING:				
7½" auger	8/14	0931	8/18	1020
GEOPHYS. LOGGING:	—	—	—	—
CASING:				
2" stainless	8/15	1037	8/15	1040
FILTER PLACEMENT:	8/15	1040	8/15	1056
CEMENTING:	8/15	1100	8/15	1110
DEVELOPMENT:	9/2	1550	9/22	0920
OTHER:				
Bentonite	8/15	1058	8/15	1100
	8/15	1025	8/15	1040

WELL DEVELOPMENT

See Well Development Summary Sheet.

COMMENTS:

Water encountered at 4.8' during drilling.

Top of stainless steel casing: 1.69'

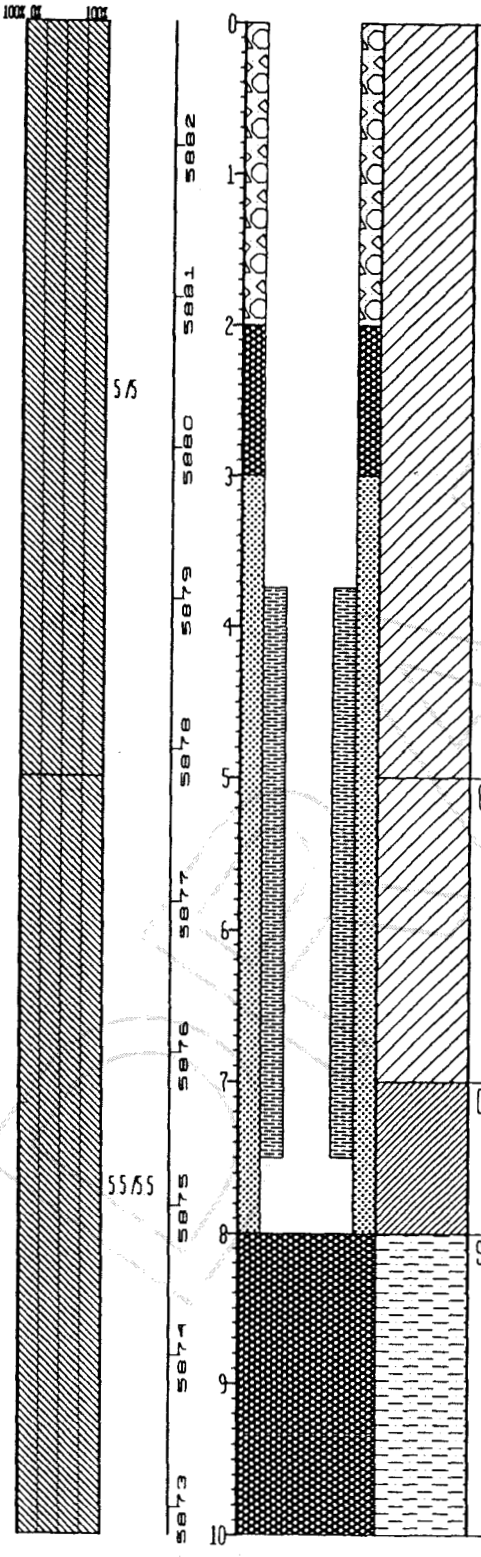
Cave from TD to 15.25'

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 10.5	GROUND ELEVATION (FT):	5882.82	PROJECT NUMBER:	667.11
NORTH: 751534	AREA: SOLAR POND	CASING DIAMETER (IN):	2.10	GEOLOGIST:	TSD
EAST: 2085834	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED:	08/22/86
REMARKS: Hollow Stem Auger					

LOG OF BORING NUMBER

18-86

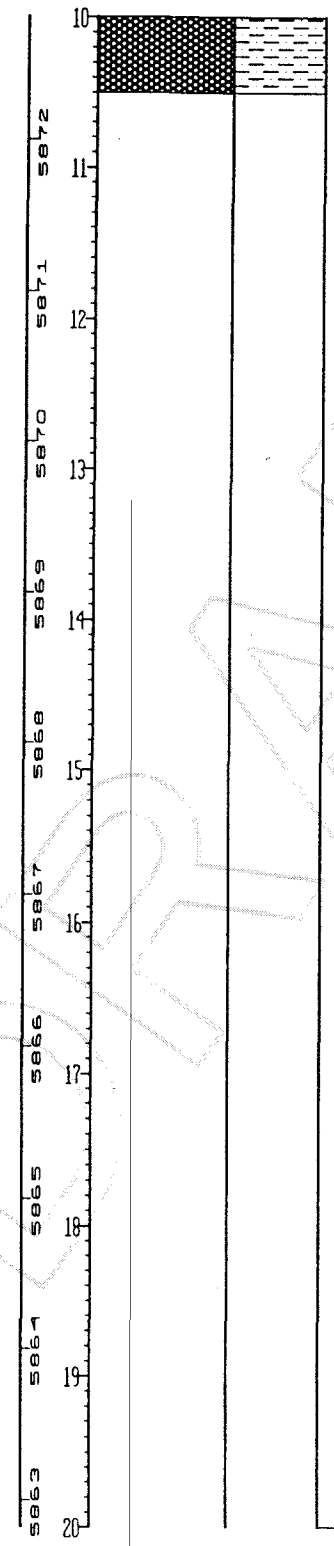
CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRADE SIZE
PERCENT RECOVERY
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CL	SILTY CLAY - moderate brown (5YR 3/4), some roots, trace of fine to coarse sand, grades to a silty clay, dark yellowish brown (10YR 4/2), trace of roots and sand, trace of calcareous material and fine gravel, estimated plasticity = medium. NOTE: Core too mixed up to tell actual footage of core recovery
CL	SILTY CLAY - pale yellowish brown (10YR 6/2), estimated medium to high plasticity, trace of limonite staining and calcite as mottles.
CH	Sandy Clay - fine, pale yellowish brown (10YR 6/2), estimated medium to high plasticity, abundant limonite staining (dark yellowish orange (10YR 6/6)), trace of organic material and roots. NOTE: Core too mixed up to tell actual footage of core recovery
SANDY CLAYSTONE	Top of Bedrock Fine, pale yellowish brown (10YR 6/2), estimated medium to high plasticity, abundant limonite staining (dark yellowish orange (10YR 6/6)), trace of organic material and roots. NOTE: Core too mixed up to tell actual footage of core recovery NOTE: No water encountered during drilling

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 10 5	GROUND ELEVATION (FT):	5882.82	PROJECT NUMBER:	667 11	LOG OF BORING NUMBER:
NORTH:	751534	AREA: SOLAR POND	CASING DIAMETER (IN):	2 10	GEOLOGIST:	TSD	18-86
EAST:	2085834	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN):	7 25	DATE DRILLED:	08/22/86	
REMARKS:	Hollow Stem Auger						

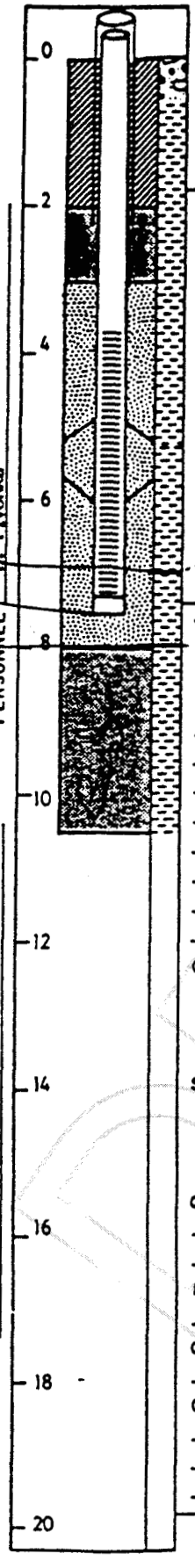
CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



DRAFT

WELL 18-86

WELL CONSTRUCTION SUMMARY



0' QVF Ka

D=7.5'

~~6.0' QVF Ka~~

LOCATION Golden, CO

PERSONNEL L. Pivonka

PROJECT 106P06222 Rocky Flats Plant

LOCATION or COORDS:

ELEVATION: GROUND LEVEL 5888'

TOP OF CASING 5890.65'

DRILLING SUMMARY:

TOTAL DEPTH Well: 7.50' Hole: 10.50'

BOREHOLE DIAMETER 7¼"

DRILLER Boyles Brothers Drilling Co.
15865 W. 5th Avenue
Golden, CO (Jim Horn)

RIG Mobile B-57

BIT(S) Bull nose bit

DRILLING FLUID None

SURFACE CASING 5" x 5' steel w/ locking cap

WELL DESIGN:

BASIS: GEOLOGIC LOG X GEOPHYSICAL LOG

CASING STRING(S): C=CASING S=SCREEN

0.00'	3.74'	C1
3.74'	7.50'	S1

CASING: C1 2" I.D. Sch. 5 type 316 stainless steel, threaded and flush jointed.

SCREEN: S1 2" I.D. Sch. 5 type 316 stainless steel, threaded and flush jointed. 0.010" wire wrap screen, 0.25' welded bottom cap.

CENTRALIZERS Type 304 stainless steel
4.84' - 6.01'

FILTER MATERIAL 32-42 silica sand
3.00' - 8.00'

CEMENT Portland Type I
0.00' - 2.00'

OTHER 3/8" Bentonite Pellets
2.00' - 3.00'
8.00' - 10.50'

CONSTRUCTION TIME LOG:

TASK	START DATE 1986	START TIME	FINISH DATE 1986	FINISH TIME
DRILLING: 7¼" auger	8/21	0937	8/21	1023
GEOPHYS. LOGGING:	—	—	—	—
CASING: 2" stainless	8/26	0836	8/26	0837
FILTER PLACEMENT:	8/26	0837	8/26	0840
CEMENTING:	8/26	0842	8/26	0846
DEVELOPMENT:	9/3	1015	9/3	1015
OTHER: Bentonite	8/26	0840	8/26	0842
	8/26	0834	8/26	0835

WELL DEVELOPMENT

See Well Development Summary Sheet.

COMMENTS:

No water encountered during drilling.

Top of stainless steel casing: 2.65'

HYDRO-SEARCH RENO•DENVER

CONSULTING HYDROLOGISTS-GEOLOGISTS

~~WELL TOO SHALLOW~~

no - contact shown as 8' - should be 7.0'

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 100	GROUND ELEVATION (FT):	5910.44	PROJECT NUMBER	667.11	LOG OF BORING NUMBER
NORTH:	750173	AREA: EAST TRENCHES	CASING DIAMETER (IN):	2	GEOLOGIST:	DAT	34-86
EAST:	2086192	LOCATOR NUMBER: N10	BOREHOLE DIAMETER (IN):	4 3/4	DATE DRILLED:	08/28/86	

REMARKS: Hollow Stem Auger/NC Core

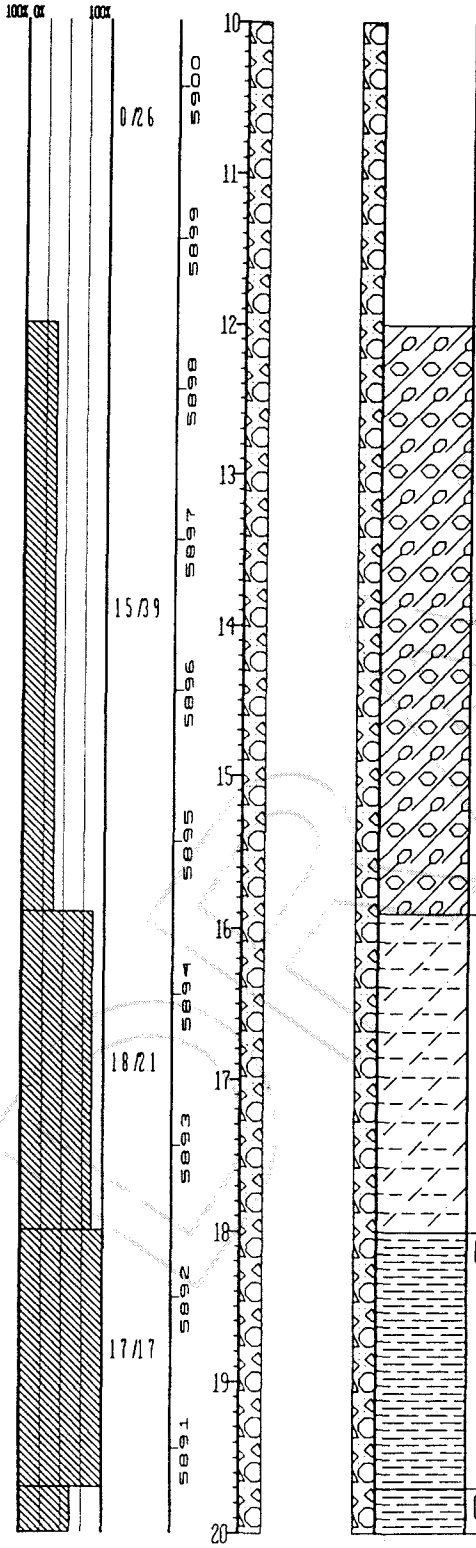
CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				13/13	5910	0			CL	CLAY, light gray (N7), mod plasticity, some roots, trace of gravel (5.5 cm), trace of sand
				0/07	5909	1			NO SAMPLE	
				03/03	5908	2			CL	Same as above, moderate yellowish brown (10 YR 5/4), some silt, trace of twigs, some iron staining as mottles, slightly calcareous
				15/17	5907	3			CL	Same as above, no roots or twigs, calcareous material esp. in bottom of interval
					5906	4			NO SAMPLE	
				0/3	5905	5				
					5904	6				
					5903	7			CL	Same as above
				17/24	5902	8				
					5901	9			NO SAMPLE	
						10				

PRELIMINARY

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 100	GROUND ELEVATION (FT):	5910.44	PROJECT NUMBER:	667.11	LOG OF BORING NUMBER
NORTH:	750173	AREA: EAST TRENCHES	CASING DIAMETER (IN):	2	GEOLOGIST:	DAT	34-86
EAST:	2086192	LOCATOR NUMBER: N10	BOREHOLE DIAMETER (IN):	4 3/4	DATE DRILLED:	08/28/86	

REMARKS: Hollow Stem Auger/NC Core

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
GC	Clayey Gravel, matrix color is pale yellowish brown (10 YR 6/2), angular-sub-angular, mod graded, max size = 5 cm., some sand, trace of iron staining
SILTY CLAYSTONE	Top of Bedrock Grayish orange (10 YR 7/4), laminar bedding @ 12 degrees, well weathered, mod friable, some gravel in top 3 in. of interval, some iron staining as mottles
CLAYSTONE	Light gray (N7), horizontally laminated, well weathered, mod friable, some iron staining, trace of silt
CLAYSTONE	Same as above. Some silt, fractures at 70 degrees, trace of Mg

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 100	GROUND ELEVATION (FT): 5910.44	PROJECT NUMBER: 667.11	LOG OF BORING NUMBER
NORTH:	750173	AREA: EAST TRENCHES	CASING DIAMETER (IN): 2	GEOLOGIST: DAT	34-86
EAST:	2086192	LOCATOR NUMBER: N10	BOREHOLE DIAMETER (IN): 4 3/4	DATE DRILLED: 08/28/86	

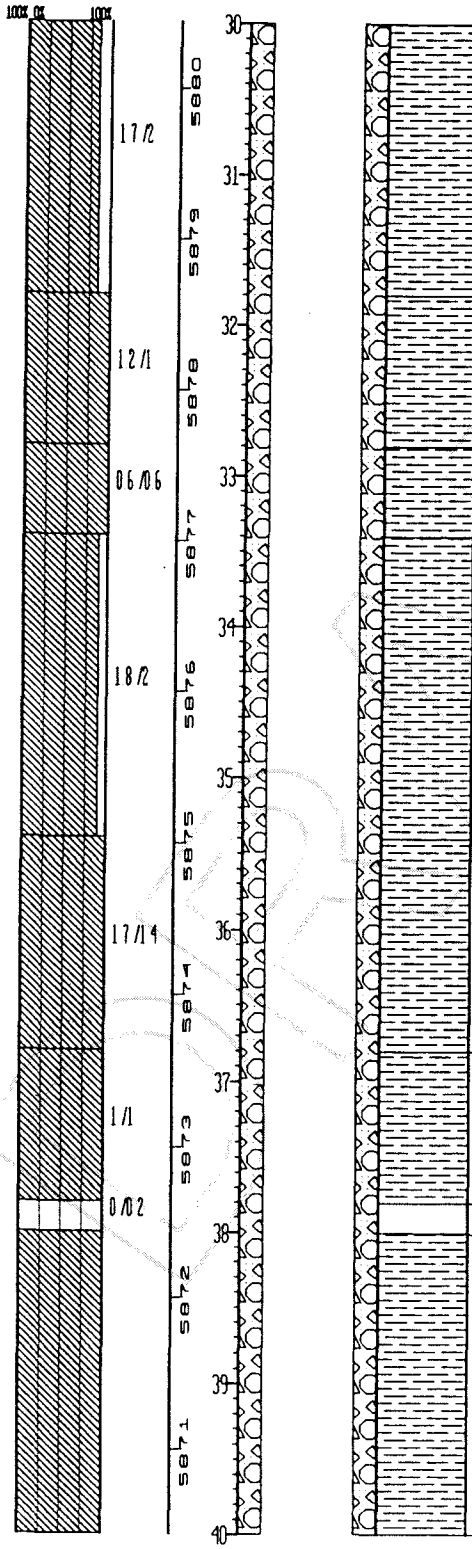
REMARKS: Hollow Stem Auger/NC Core

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				17/28	5890	20				staining
					5889	21				
					5888	22				
				2/2	5887	23			CLAYSTONE	Yellowish gray (5 Y 8/1), massive bedding, well weathered, mod friability, iron staining as mottles, trace of Mg staining, some fractures at approx. 70 and 10 degrees
					5886	24				
				2/2	5885	25			CLAYSTONE	Same as above.
					5884	26				
				13/13	5883	27			CLAYSTONE	Same as above.
					5882	28			CLAYSTONE	Same as above, light brownish gray (5 YR 4/1), some carb. material, esp. at bottom of interval, fracture @ 60 degrees.
				18/2	5881	29				
						30				

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 100	GROUND ELEVATION (FT)	5910 44	PROJECT NUMBER	667 11	LOG OF BORING NUMBER
NORTH	750173	AREA EAST TRENCHES	CASING DIAMETER (IN)	2	GEOLOGIST	DAT	34-86
EAST	2086192	LOCATOR NUMBER N10	BOREHOLE DIAMETER (IN)	4 3/4	DATE DRILLED	08/28/86	

REMARKS: Hollow Stem Auger/NC Core

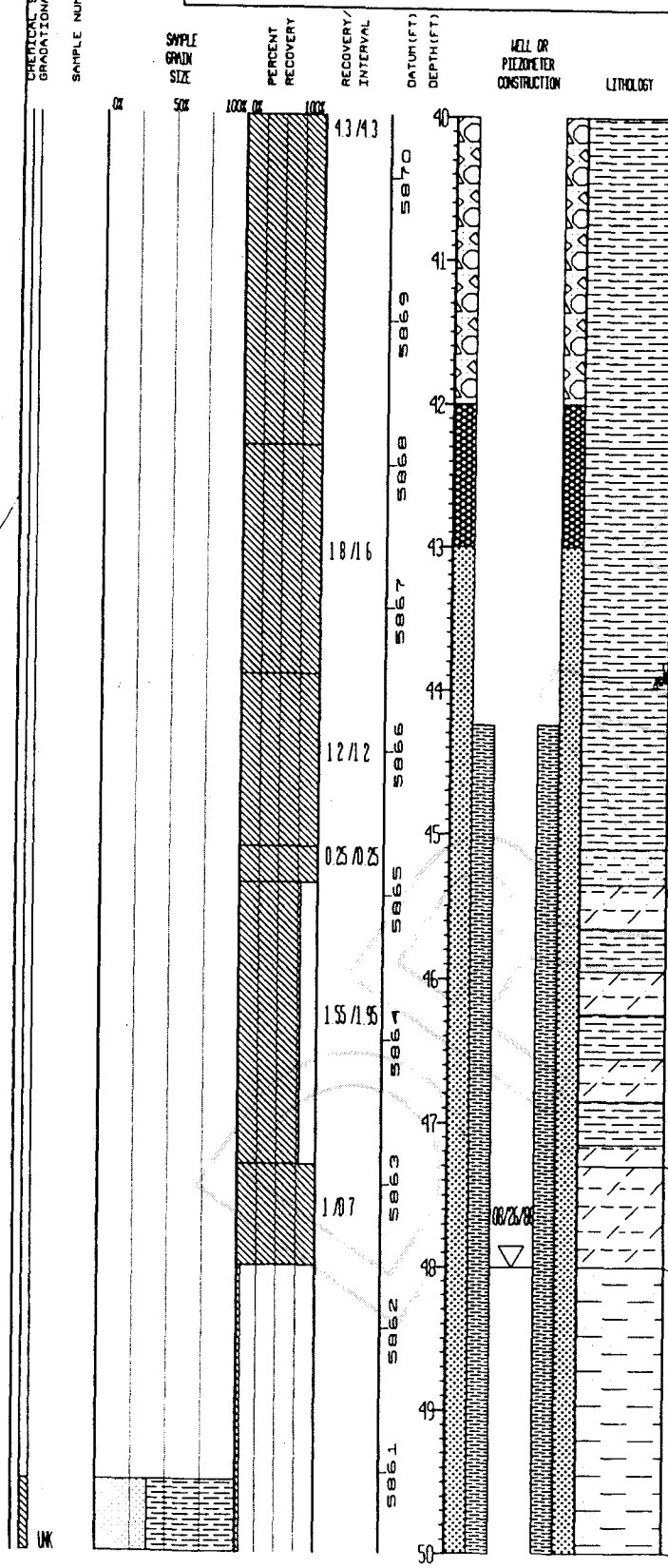
CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CLAYSTONE	Same as above fractures at 90 and 70 degrees
CLAYSTONE	Light gray (N7), massively bedded highly weathered, mod friable, some iron staining as mottles and along fracture planes, some silt, some carb material, fractures at 90 to 70 degrees, trace of calc material
CLAYSTONE	Same as above, Yellowish gray (5 Y 8/1), approx 20 degree fractures, no calc
CLAYSTONE	Same as above, Light gray (N7), trace of 70 to 90 degree fractures
CLAYSTONE	Same as above
CLAYSTONE	Same as above, fractures @ 20, 40, 85, and 60 degrees
NO SAMPLE	
CLAYSTONE	Same as above, Light olive gray (5 Y 6/1) at top of interval to olive black (5 Y 2/1) at bottom of interval, trace of iron staining

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 100	GROUND ELEVATION (FT)	5910.44	PROJECT NUMBER	667.11	LOG OF BORING NUMBER
NORTH:	750173	AREA: EAST TRENCHES	CASING DIAMETER (IN)	2	GEOLOGIST	DAT	34-86
EAST:	2086192	LOCATOR NUMBER: N10	BOREHOLE DIAMETER (IN)	4 3/4	DATE DRILLED	08/28/86	

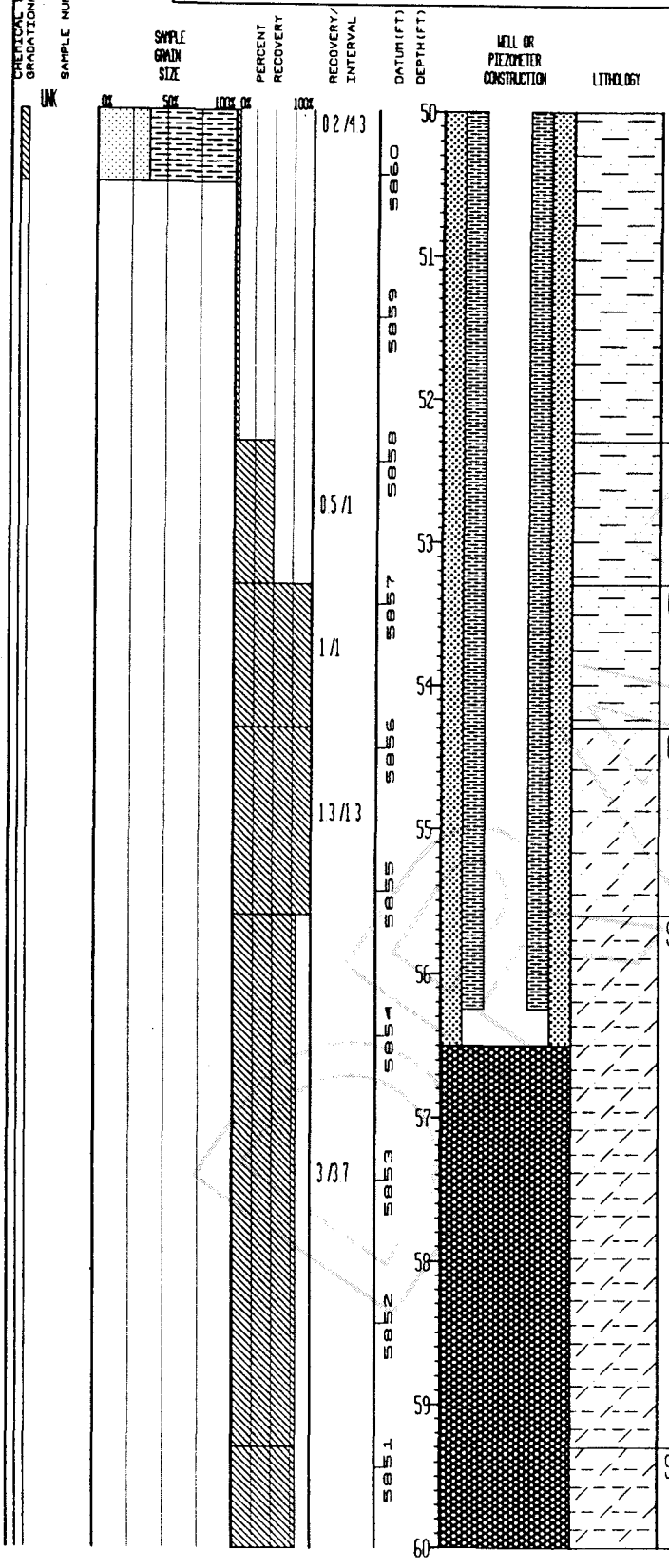
REMARKS: Hollow Stem Auger/NC Core



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CLAYSTONE	Olive gray (5 Y 4/1), bedding non-apparent, well weathered, mod friable, some carb material, trace of coal (1-2 mm), trace of iron staining, some silt
CLAYSTONE	Same as above. Light olive gray (5 Y 6/1), bottom of interval contains abundant FG sand
SANDY CLAYSTONE	Light olive gray (5 Y 6/1), horizontal bedding approx. 1/2-1 cm, highly weathered, mod friable, sand is VFG, trace of iron staining
SILTY CLAYSTONE	Olive gray (5 Y 4/1), 1-2 cm bedding, interbedded with Claystone, Olive Black (5 Y 2/1), 1-5 mm thick, well weathered, mod friable, some coal seams, 1/4-1 cm thick, parallel and cross-cutting bedding planes, iron staining associated with coal and as mottles
SILTY CLAYSTONE	Light olive gray (5 Y 4/1), non-apparent bedding, well weathered, moderately friable, some iron staining as mottles, trace of carb material
CLAYEY SANDSTONE	Light gray (N7), thinly bedded @ approx. 10 degrees, well weathered, mod-highly friable, VFG-FG, trace of iron staining

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 100	GROUND ELEVATION (FT):	5910.44	PROJECT NUMBER:	667.11	LOG OF BORING NUMBER:
NORTH:	750173	AREA: EAST TRENCHES	CASING DIAMETER (IN):	2	GEOLOGIST:	DAT	34-86
EAST:	2086192	LOCATOR NUMBER: N10	BOREHOLE DIAMETER (IN):	4 3/4	DATE DRILLED:	08/28/86	

REMARKS: Hollow Stem Auger/NC Core



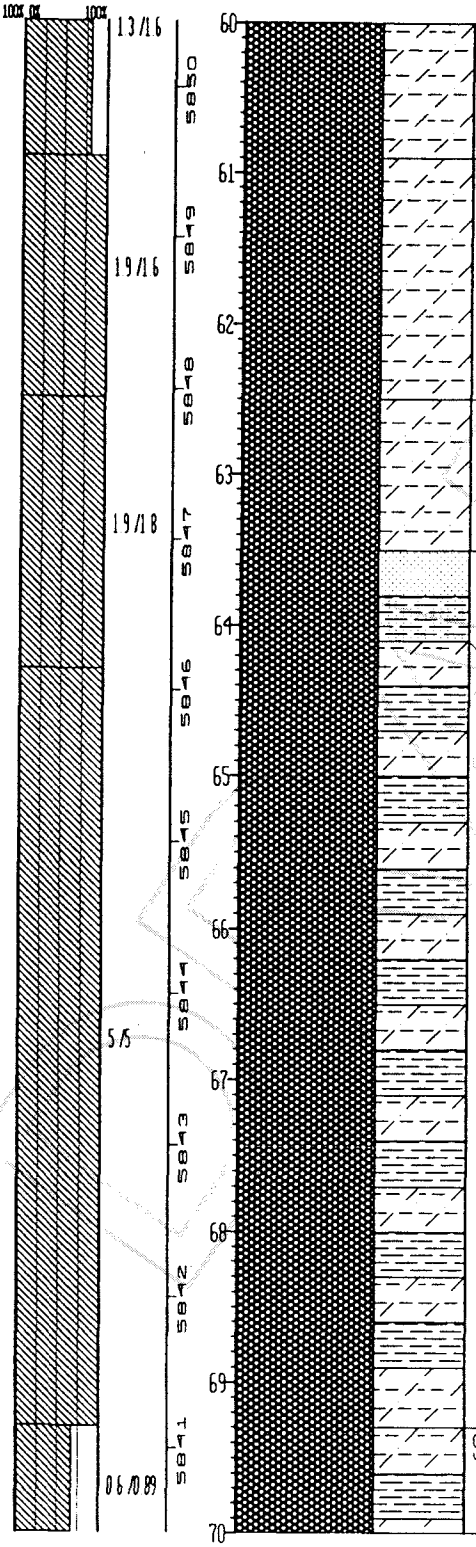
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CLAYEY SANDSTONE	Same as above
CLAYEY SANDSTONE	Same as above: possible hummocky cross stratification
CLAYEY SILTSTONE	Olive gray (5 Y 4/1), bedding non-apparent, highly weathered, mod friability, some VFG sand at bottom of interval, some iron staining as mottles, trace of carb material
SILTY CLAYSTONE	Olive gray (5 Y 4/1), non-apparent bedding, highly weathered, mod friability, iron staining as mottles, some VFG sand, at approx. 51 ft., VFG-fG sand body, approx. 3 in. thick, bedding @ 5-10° degrees.
SILTY CLAYSTONE	Same as above

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 100	GROUND ELEVATION (FT):	5910.44	PROJECT NUMBER:	667.11	LOG OF BORING NUMBER
NORTH:	750173	AREA: EAST TRENCHES	CASING DIAMETER (IN):	2	GEOLOGIST:	DAT	34-86
EAST:	2086192	LOCATOR NUMBER: N10	BOREHOLE DIAMETER (IN):	4 3/4	DATE DRILLED:	08/28/86	

REMARKS: Hollow Stem Auger/NC Core

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



SILTY CLAYSTONE: Olive gray (5 Y 4/1), non-apparent bedding, highly weathered, mod. friable, trace of iron staining as mottles, trace of carb. material

SILTY CLAYSTONE: Same as above

SANDSTONE: Approx. 6 in. of VFG Sandstone, light olive gray (5 Y 6/1), beds are 1-2 cm, interbedded with Claystone, olive gray (5 Y 4/1), approx. 3 mm thick

SILTY CLAYSTONE: Same as above, increased silt fraction.

SILTY CLAYSTONE: Same as above

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 100	GROUND ELEVATION (FT): 5910.44	PROJECT NUMBER: 667.11	LOG OF BORING NUMBER
NORTH:	750173	AREA: EAST TRENCHES	CASING DIAMETER (IN): 2	GEOLOGIST: DAT	34-86
EAST:	2086192	LOCATOR NUMBER: N10	BOREHOLE DIAMETER (IN): 4 3/4	DATE DRILLED: 08/28/86	

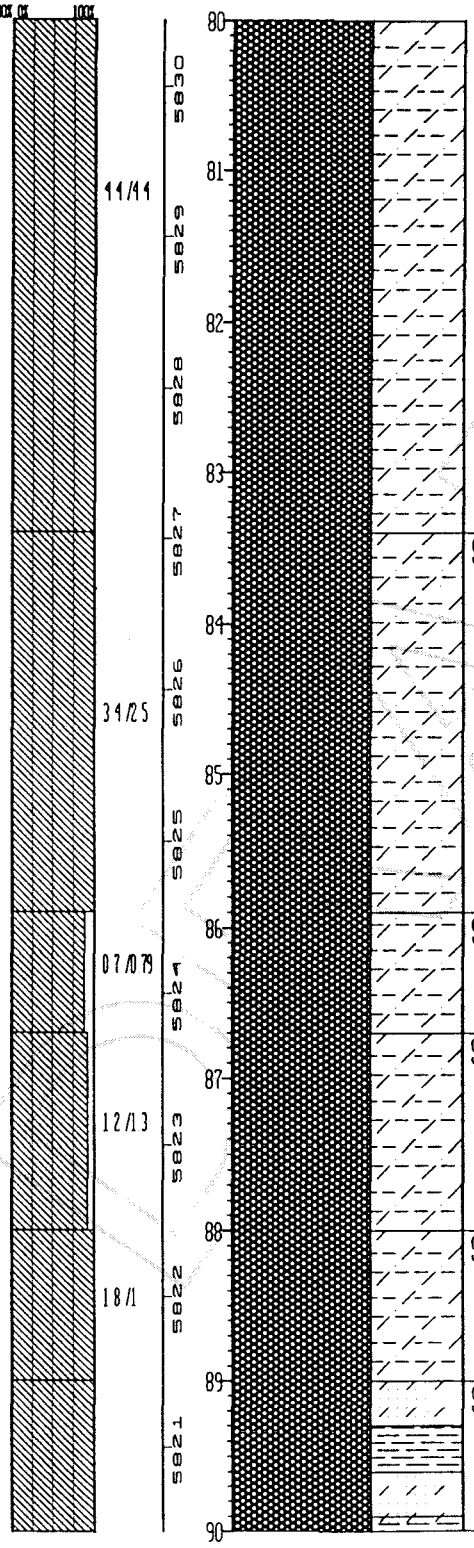
REMARKS: Hollow Stem Auger/NC Core

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				06/08	5840	70				SILTY CLAYSTONE: Light olive gray (5 Y 6/1), massive bedding, highly weathered, mod. friability, trace of iron staining
					5839	71				SILTY CLAYSTONE: Same as above, Olive black (5 Y 2/1), trace of carb. material
				31/33	5838	72				
					5837	73				
					5836	74				SILTY CLAYSTONE: Same as above, Olive gray (5 Y 4/1), trace of iron nodules
				07/1	5835	75				
					5834	76				SILTY CLAYSTONE: Same as above, Top 1 ft of interval, brownish gray (5 YR 4/1), no iron staining or nodules. Bottom 2 ft. of interval, Same as above- yellowish gray (5 Y 8/1), increased silt fraction, some fine grained sand, especially in lenses
				38/32	5833	77				
					5832	78				
				07/05		79				SILTY CLAYSTONE: Same as above, Olive gray (5 Y 4/1), decreased silt fraction, floury texture
					5831	80				SILTY CLAYSTONE: Same as above, bottom 2 ft of interval has consolidated texture

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 100	GROUND ELEVATION (FT)	5910.44	PROJECT NUMBER	667 11	LOG OF BORING NUMBER
NORTH:	750173	AREA EAST TRENCHES	CASING DIAMETER (IN)	2	GEOLOGIST	DAT	34-86
EAST:	2086192	LOCATOR NUMBER N10	BOREHOLE DIAMETER (IN)	4 3/4	DATE DRILLED	08/28/86	

REMARKS: Hollow Stem Auger/NC Core

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% – 50%)
PERCENT RECOVERY (100% 0% – 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



SILTY CLAYSTONE	Olive black (5 Y 2/1), non-apparent bedding, well weathered, mod friability, some carb material, some iron staining as mottles, some micro-fractured
SILTY CLAYSTONE	Same as above; floury texture, no iron staining, micro-fractures non-apparent
SILTY CLAYSTONE	Same as above; Olive gray (5 Y 4/1), increased silt fraction, consolidated texture, some VFG sand
SILTY CLAYSTONE	Same as above; Yellowish gray (5 Y 8/1)
SILTY SANDSTONE	VFG-FG, very light gray (N8), bedding from slab shows extensive vertical burrowing (2 1/2 in - 1/2 in long), bioturbated, thinly laminated, some cross-stratification, general bedding angle of 20 degrees, some horizontal clay interbeds (1/2 - 1 cm thick), well-mod weathered, mod-poor friability, sub-angular to sub-rounded, mod

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 100	GROUND ELEVATION (FT) 5910 41	PROJECT NUMBER 667 11	LOG OF BORING NUMBER
NORTH:	750173	AREA EAST TRENCHES	CASING DIAMETER (IN) 2	GEOLOGIST DAT	34-86
EAST:	2086192	LOCATOR NUMBER N10	BOREHOLE DIAMETER (IN) 4 3/4	DATE DRILLED 08/28/86	

REMARKS: Hollow Stem Auger/NC Core

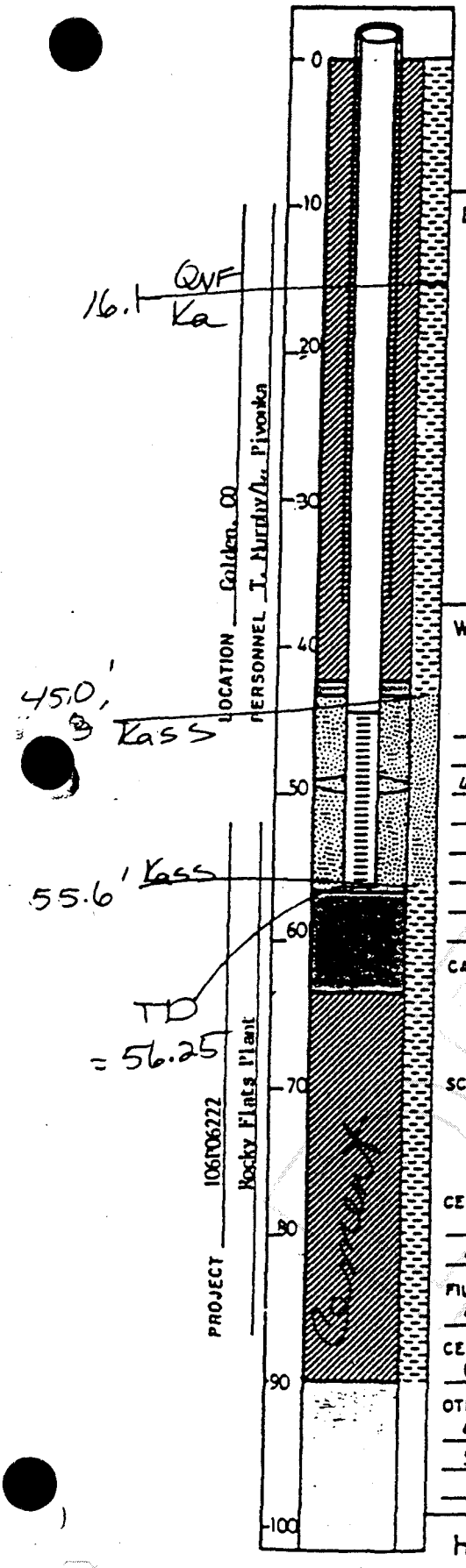
CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	UNK			3/3	5820	90				to well sorted, trace of carb material, some clay
					5819	91				
					5818	92			SILTY SANDSTONE	VFG-FG, very light gray (N8), bedding is non-apparent (coating on core), well-mod weathered, mod-poorly friable, sub-angular to sub-rounded, mod-well sorted, some carb material, some clay.
					5817	93				
				1/1	5816	94				
					5815	95				
				03/03	5814	96			SILTY CLAYSTONE	Dark greenish gray (5 GY 4/1), non-apparent bedding, highly weathered, mod friable, some carb material, trace iron staining as mottles and nodules
					5813	97			SILTY CLAYSTONE	Same as above
				37/37	5812	98				
					5811	99				
						100				

WELL 34-86

WELL CONSTRUCTION SUMMARY

LOCATION or COORDS: N. 754161.6 E. 2086193

ELEVATION: GROUND LEVEL 5910'
TOP OF CASING 5912.50'



DRILLING SUMMARY:

TOTAL DEPTH Well: 56.25' Hole: 100.00'
BOREHOLE DIAMETER 0.00' - 37.80': 7¼"
37.80' - 100.00': 4 3/4"
DRILLER Bovles Brothers Drilling Co.
15865 W. 5th Avenue, Golden
(David Jarvie, Jim Horn)
RIG Mobile B-57
BIT(S) 0.00' - 37.80': Blade bit
37.80' - 100.00': Bull nose rock bit
DRILLING FLUID None
SURFACE CASING 5" x 40.8' steel w/ locking cap

WELL DESIGN:

BASIS: GEOLOGIC LOG X GEOPHYSICAL LOG ___

CASING STRING(S): C=CASING S=SCREEN

0.00'	37.80'	C1			
0.00'	44.24'	C2			
44.24'	56.25'	S1			

CASING: C1 5" I.D. steel
C2 2" I.D., Sch. 5 type 316 stainless steel, threaded and flush jointed.

SCREEN: S1 2" I.D., Sch. 5 type 316 stainless steel, threaded and flush jointed, 0.010" wire wrap screen, 0.25' welded bottom cap.

CENTRALIZERS Type 304 stainless steel
22.47' - 23.70'
49.01' - 50.26'

FILTER MATERIAL 32-42 silica sand
43.00' - 56.50'

CEMENT Portland Type I
0.00' - 42.00' ; 90.00' - 64.50'

OTHER 3/8" bentonite pellets
42.00' - 43.00'
56.50' - 64.50'

CONSTRUCTION TIME LOG:

TASK	START DATE 1986	START TIME	FINISH DATE 1986	FINISH TIME
DRILLING:				
7¼" auger	8/20	1251	8/20	1545
4 3/4" core	8/26	1503	9/2	1202
GEOPHYS. LOGGING:	—	—	—	—
CASING:				
5" steel	8/21	0800	8/21	1335
2" stainless	9/3	0845	9/3	0900
FILTER PLACEMENT:	9/3	0900	9/3	1145
CEMENTING:	9/2	1604	9/2	1716
DEVELOPMENT:	9/5	1000	9/12	1015
OTHER:				
Cementing 5" casing	8/21	1359	8/21	1456
Lower cement	9/3	1150	9/3	1210
Bentonite	9/3	0823	9/3	0845
	9/3	1145	9/3	1150
Packer test	8/29	1056	8/29	1725

WELL DEVELOPMENT

See Well Development Summary Sheet

COMMENTS:

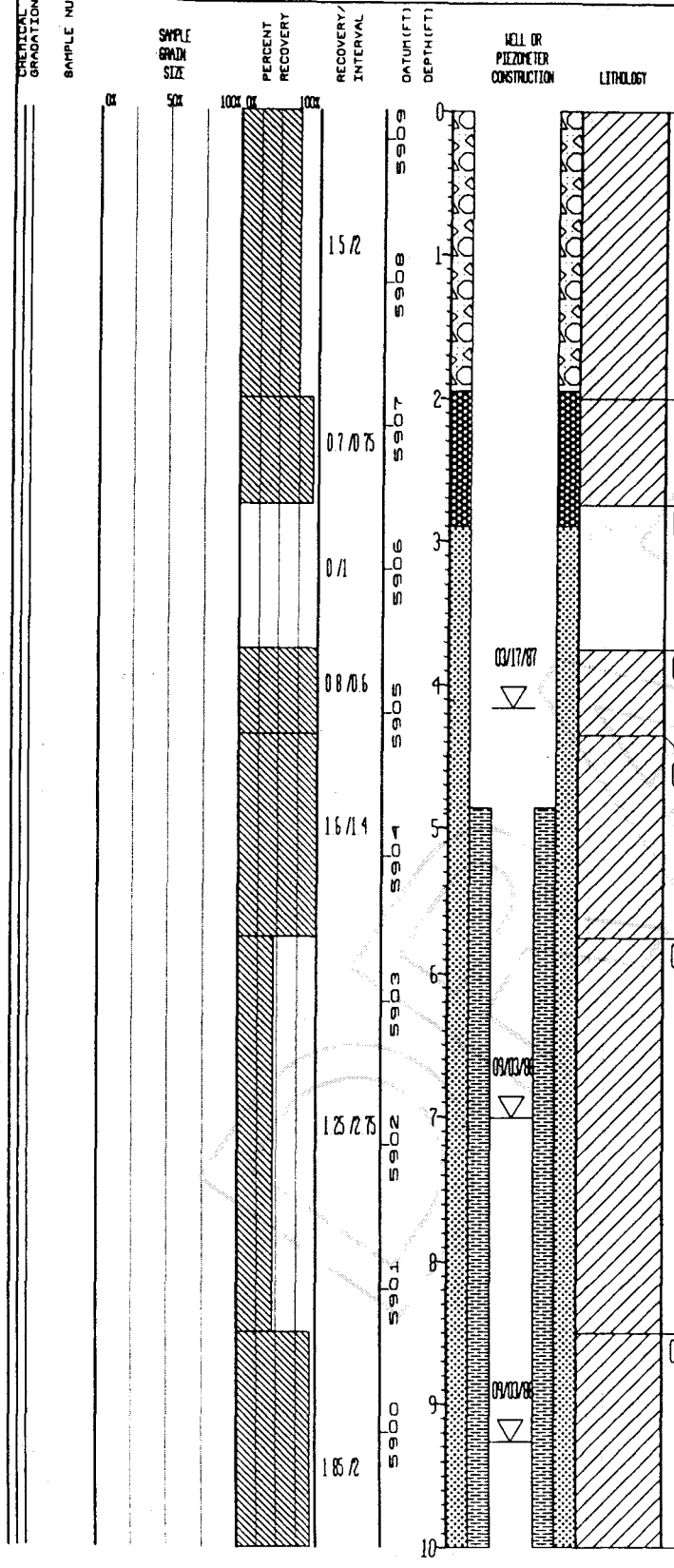
Water encountered at 48.0' during drilling.

Top of stainless steel casing: 2.50'

Cave from T.D. to 90.0'

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 18	GROUND ELEVATION (FT):	5909.2	PROJECT NUMBER:	667.11	LOG OF BORING NUMBER:
NORTH:	750179	AREA: EAST TRENCHES	CASING DIAMETER (IN):	2.10	GEOLOGIST:	LMA	35-86
EAST:	2086218	LOCATOR NUMBER: N10	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED:	08/19/86	

REMARKS: Hollow Stem Auger.



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CL	SILTY GRAVELLY CLAY. Very lt. gray (N8) grading to mod. yellowish brown (10 YR 5/4). Est. plast. mod. to low. Gravel angular to sub-rounded, mod. well graded. Granules to 2.5 cm. Some sand; VFG. Root material throughout interval.
CL	Same as above.
NO SAMPLE	
CL	SILTY GRAVELLY CLAY. Pale yellowish brown (10 YR 6/2). Est. plasticity low to mod. Gravel angular to sub-rounded, mod to well graded. Some sand, VFG to coarse.
CL	Same as above. More VFG sand in matrix.
CL	SILTY GRAVELLY CLAY. Dk. yellowish brown (10 YR 4/2) to grayish brown (5 YR 3/2). Gravel mod. to well graded. Max size 3.0 cm. Sub-angular to sub-rounded. Some sand VFG to granules, trace root material. Very slightly calcareous matrix.
CL	SANDY SILTY CLAY, Brownish gray (5 YR 4/1). Est. plast. low to mod, Sand VFG to granules, mostly VFG. Some gravel, max size measurable 2 cm. Matrix slightly calcareous.

5909.20
6.65
5902.55

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 18	GROUND ELEVATION (FT): 5909.2	PROJECT NUMBER: 667.11	LOG OF BORING NUMBER:	
NORTH: 750179	AREA: EAST TRENCHES	CASING DIAMETER (IN): 2 ID	GEOLOGIST: LAA	35-86	
EAST: 2086218	LOCATOR NUMBER: N10	BOREHOLE DIAMETER (IN): 7.25	DATE DRILLED: 08/19/86		
REMARKS: Hollow Stem Auger					

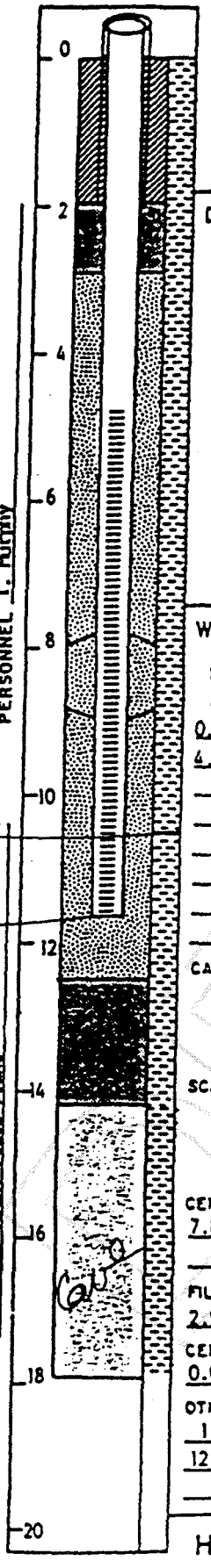
CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	LAA1			1.9/2	5899	10			CLAYEY SILTSTONE	Top of Bedrock. Very Lt. gray (N8) to dark yellowish orange (10 YR 6/6). Bedding not evident. Highly weathered, mod. to slightly friable, CaCO3 mineralization in some small discontinuous fractures. Trace root material
					5898	11				
					5897	12				
				1.6/1.5	5896	13			CLAYEY SILTSTONE	Same as above. Grading to Claystone, dk. yellowish orange (10 YR 6/6). Highly weathered. Slightly to mod. friable. CaCO3 in fractures. Some in matrix, bedding not evident. Some iron staining. Trace silt
				1.85/2	5895	14			CLAYSTONE	Very pale orange (10 YR 8/2) to dk. yellowish orange (10 YR 6/6). Highly weathered, slightly friable. CaCO3 in fractures and some in matrix. Iron oxide nodule (2.5 cm) present. Some iron staining. Trace carb. material
					5894	15				
					5893	16			CLAYSTONE	Lt. olive gray (5 Y 6/1). Mod. weathered, bedding not evident. Slightly friable. Some iron staining in fractures. Trace CaCO3, trace carb. material
				2/2	5892	17				
					5891	18				
					5890	19				
						20				

WELL 35-86

WELL CONSTRUCTION SUMMARY

LOCATION or COORDS: N 754167.1 E 2086219

ELEVATION: GROUND LEVEL 5910'
TOP OF CASING 5912.25'



LOCATION Golden, CO
PERSONNEL T. Murphy
PROJECT 106006222 Rocky Flats Plant

DRILLING SUMMARY:

TOTAL DEPTH Well: 11.60' Hole: 18.00'
BOREHOLE DIAMETER 7¼"

DRILLER Boyles Brothers Drilling Co.
15865 W. 5th Avenue
Golden, CO (Dave Jarvie)
RIG Mobile B-57
BIT(S) TS

DRILLING FLUID None

SURFACE CASING 5" x 5' steel w/ locking cap

WELL DESIGN:

BASIS: GEOLOGIC LOG X GEOPHYSICAL LOG ___

CASING STRING(S): C=CASING S=SCREEN

0.00'	4.86'	C1			
4.86'	11.60'	S1			

CASING: C1 2" I.D. Sch. 5 type 316 stainless steel, threaded and flush jointed.
C2
C3
C4

SCREEN: S1 2" I.D. Sch. 5 type 316 stainless steel, threaded and flush jointed, 0.010" wire wrap screen
S2
S3
S4 0.25' welded bottom cap.

CENTRALIZERS Type 304 stainless steel
7.80' - 8.85'

FILTER MATERIAL 16-40 silica sand
2.90' - 12.60'

CEMENT Portland Type I
0.00' - 1.95'

OTHER 3/8" bentonite pellets
1.95' - 2.90'
12.60' - 14.20'

CONSTRUCTION TIME LOG:

TASK	START DATE 1986	START TIME	FINISH DATE 1986	FINISH TIME
DRILLING:				
7¼" auger	8/19	1258	8/19	1558
GEOPHYS. LOGGING:	—	—	—	—
CASING:				
2" stainless	8/20	1012	8/20	1015
FILTER PLACEMENT:	8/20	1015	8/10	1020
CEMENTING:	8/20	1025	8/20	1040
DEVELOPMENT:	9/3	1000	9/11	1155
OTHER:				
Bentonite	8/20	1020	8/20	1025
	8/20	1008	8/20	1012

WELL DEVELOPMENT

See Well Development Summary Sheet.

COMMENTS:

Water encountered at 8.0' during drilling

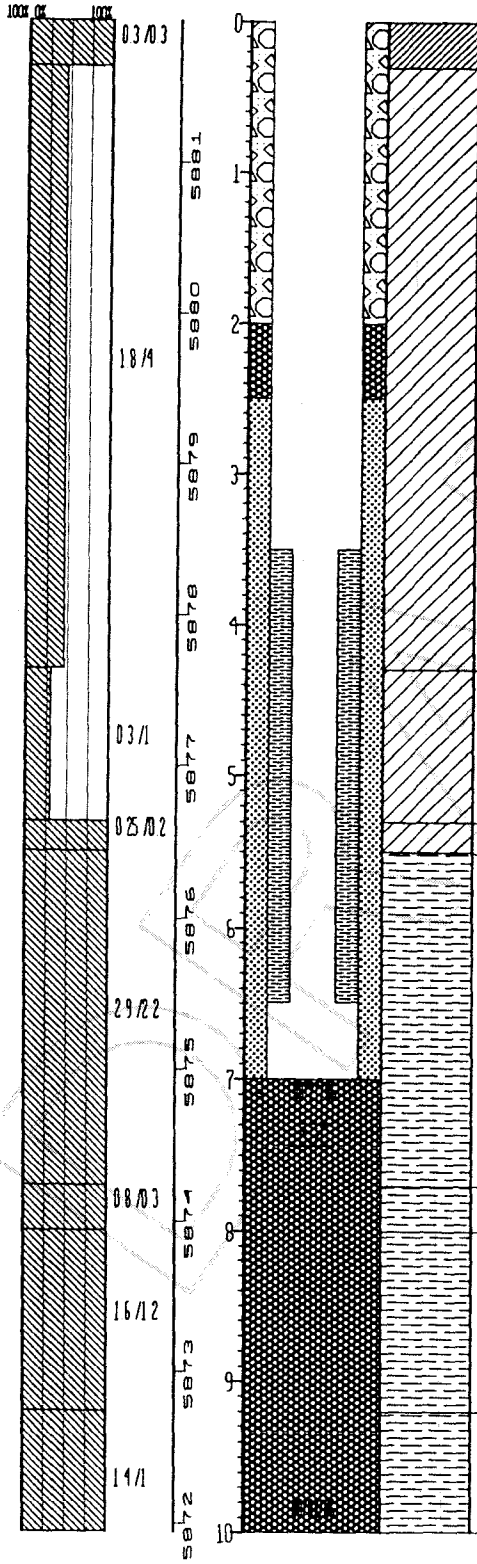
Top of stainless steel casing: 2.25'

Cave from TD to 14.20'

HYDRO-SEARCH RENO•DENVER CONSULTING HYDROLOGISTS-GEOLOGIST

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 10.2	GROUND ELEVATION (FT):	5881.94	PROJECT NUMBER	667.11	LOG OF BORING NUMBER
NORTH:	750397	AREA: EAST TRENCHES	CASING DIAMETER (IN):	2 ID	GEOLOGIST	DAT	36-86
EAST:	2086819	LOCATOR NUMBER: N10	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED	08/25/86	
REMARKS: Hollow Stem Auger							

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CH	Sandy Clay, Pale yellowish brown (10 YR 6/2), mod-high plast., some roots, trace of gravel, slightly calc
CL	SANDY CLAY, multicolored- grayish brown (5 YR 3/2), moderate yellowish brown (10 YR 5/4), light gray (N8), mod plast., some calc. material, trace of gravel increasing to some gravel at bottom of interval, bottom 2 in. with abundant iron staining and concretions, some iron staining in top part of interval
CL	Same as above, floury texture
CL	Same as above
CLAYSTONE	Top of Bedrock Light olive gray (5 Y 8/1), est mod plast., some calc. material, some iron staining as mottles, trace of sand
CLAYSTONE	Same as above, slightly calcitic
CLAYSTONE	Same as above, yellowish gray (5 Y 8/1), some silt, some VFG sand, floury texture, increased iron staining
CLAYSTONE	Same as above

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 10.2	GROUND ELEVATION (FT):	5881.94	PROJECT NUMBER	667.11	LOG OF BORING NUMBER
NORTH:	750397	AREA: EAST TRENCHES	CASING DIAMETER (IN):	2 ID	GEOLOGIST:	DAT	36-86
EAST:	2086819	LOCATOR NUMBER: N10	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED:	08/25/86	
REMARKS:	Hollow Stem Auger						

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRADN SIZE	PERCENT RECOVERY	RECOVERY/ INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50%	100% 0%	100%	5871	10				
					5870	11				
					5869	12				
					5868	13				
					5867	14				
					5866	15				
					5865	16				
					5864	17				
					5863	18				
					5862	19				
						20				

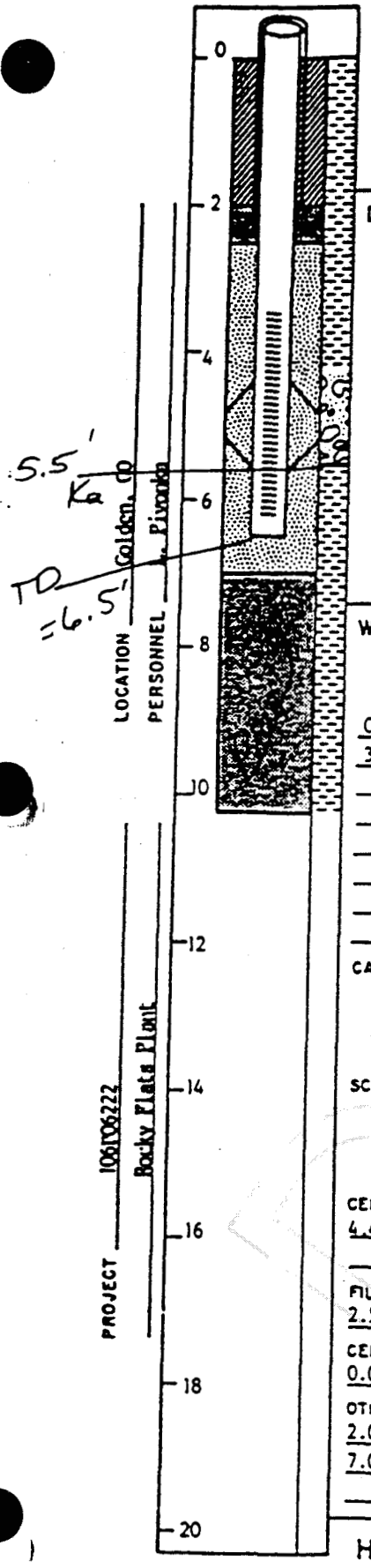
DRAFT

WELL 36-86

WELL CONSTRUCTION SUMMARY

LOCATION or COORDS: _____

ELEVATION: GROUND LEVEL 5884'
TOP OF CASING 5886.00'



DRILLING SUMMARY:

TOTAL DEPTH Well: 6.50' Hole: 10.20'
BOREHOLE DIAMETER 7¼"

DRILLER Boyles Brothers Drilling Co.
15865 W. 5th Avenue
Golden, CO (Jim Horn)
RIG Mobile B-57
BIT(S) T-5

DRILLING FLUID None

SURFACE CASING 5" x 5' steel w/ locking cap

WELL DESIGN:

BASIS: GEOLOGIC LOG X GEOPHYSICAL LOG ___

CASING STRING(S): C=CASING S=SCREEN

0.00'	3.50'	C1			
3.50'	6.49'	S1			

CASING: C1 2" I.D. Sch. 5 type 316 stainless steel, threaded and flush jointed.

SCREEN: S1 2" I.D. Sch. 5 type 316 stainless steel, threaded and flush jointed. 0.010" wire wrap screen 0.25' welded bottom cap.

CENTRALIZERS Type 304 stainless steel
4.42' - 5.59'

FILTER MATERIAL 32-42 silica sand
2.50' - 7.00'

CEMENT Portland Type I
0.00' - 2.00'

OTHER 3/8" bentonite pellets
2.00' - 2.50'
7.00' - 10.20'

CONSTRUCTION TIME LOG:

TASK	START DATE 1986	START TIME	FINISH DATE 1986	FINISH TIME
DRILLING:				
7¼" auger	8/25	1014	8/25	1520
GEOPHYS. LOGGING:	—	—	—	—
CASING:				
2" stainless	8/25	1523	8/25	1525
FILTER PLACEMENT:	8/25	1525	8/25	1530
CEMENTING:	8/25	1533	8/25	1546
DEVELOPMENT:	8/27	1120	9/3	1055
OTHER:				
Bentonite	8/25	1530	8/25	1533
	8/25	1520	8/25	1523

WELL DEVELOPMENT

See Well Development Summary Sheet.

COMMENTS:

No water encountered during drilling.

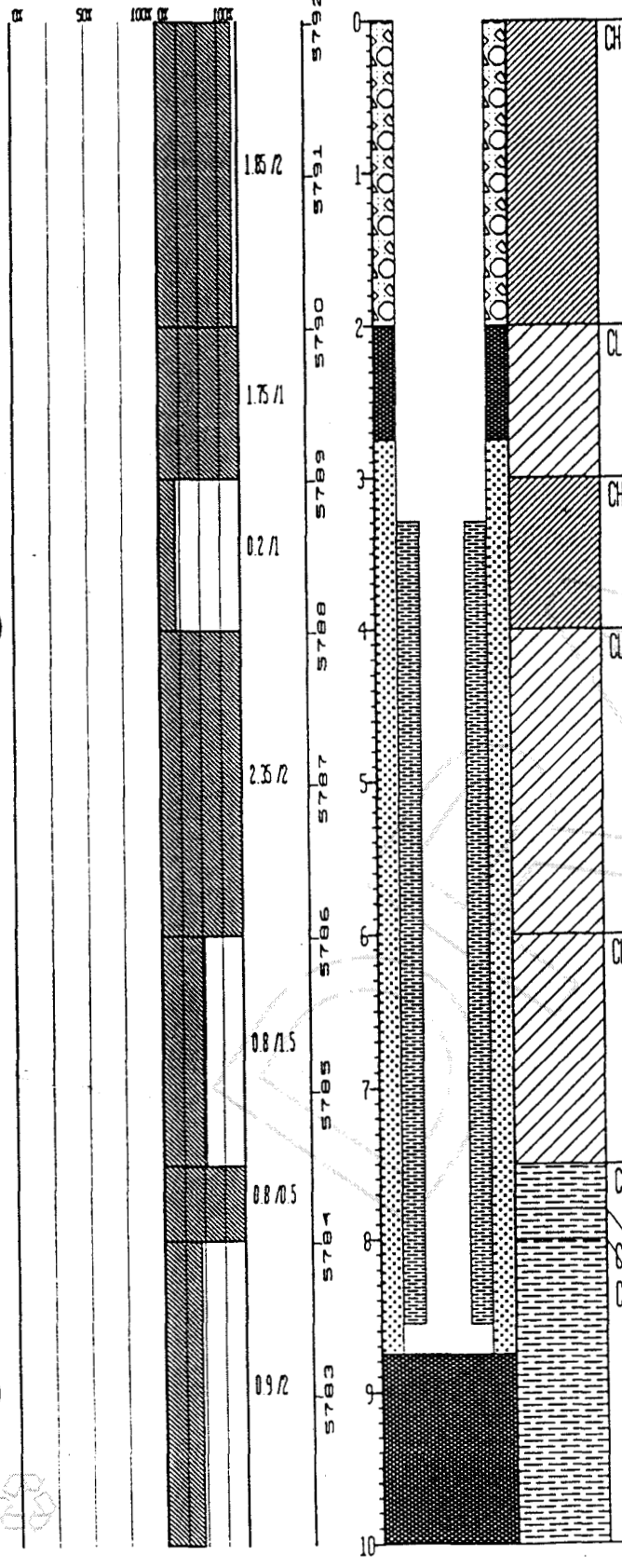
Top of stainless steel casing: 2.00'

HYDRO-SEARCH RENO•DENVER CONSULTING HYDROLOGISTS-GEOLOGISTS

TOO much sand below well

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 13	GROUND ELEVATION (FT):	5792.02	PROJECT NUMBER:	667.11	LOG OF BORING NUMBER
NORTH:	751563	AREA: BUFFER EAST	CASING DIAMETER (IN):	2 ID	GEOLOGIST:	LAA	37-86
EAST:	2088862	LOCATOR NUMBER: P11	BOREHOLE DIAMETER (IN):	7.5	DATE DRILLED:	09/22/86	

REMARKS: Hollow Stem Auger



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CH:	Silty Clay, pale yellowish brown (10 YR 6/2), Est. plast. mod. to high, some roots and grass, trace gravel, granule size.
CL:	Same as above, with color change to dusky yellowish brown (10 YR 2/2). Trace roots.
CH (w/ L)	Silty Clay, olive gray (5 Y 4/1). Est. plast., mod.-high, some sand VFG to FG.
CL (SC)	SANDY CLAY, olive gray (5 Y 4/1) and dark yellowish orange (10 YR 6/6). Mottling. Est. plast. mod., sand VFG to CG, Trace gravel to 3.5cm, trace CaCO3.
CL:	Same as above, lg. piece of gravel 6.5cm.
CLAYSTONE:	Top of Bedrock. Same as above, some CaCO3.
CLAYSTONE:	Same as above, some CaCO3.
CLAYSTONE:	Same as above, no gravel.

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 13	GROUND ELEVATION (FT):	5792.02	PROJECT NUMBER	667.11	LOG OF BORING NUMBER
NORTH:	751563	AREA: BUFFER EAST	CASING DIAMETER (IN):	2 ID	GEOLOGIST:	LAA	37-86
EAST:	2088862	LOCATOR NUMBER: P11	BOREHOLE DIAMETER (IN):	7.5	DATE DRILLED:	09/22/86	

REMARKS: Hollow Stem Auger.

GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50%	100% 0%	100%						
				0.65/2	5782	10			CLAYSTONE:	Yellowish gray (5 Y 8/1), Est. plast. mod., trace CaCO3.
					5781	11				
					5780	12			CLAYSTONE:	Same as above with color change to light olive gray (5 Y 6/1). Trace carb. material.
				0.4/1						Note: No water encountered during drilling.
					5779	13				
					5778	14				
					5777	15				
					5776	16				
					5775	17				
					5774	18				
					5773	19				
						20				

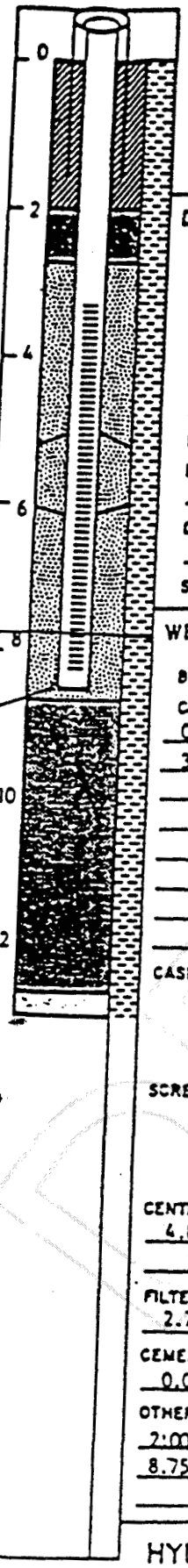
DRAFT

WELL 37-86

WELL CONSTRUCTION SUMMARY

LOCATION or COORDS: N. 751561.3 E. 2088854

ELEVATION: GROUND LEVEL 5800'
TOP OF CASING 5802.08'



PROJECT 106006222 Rocky Flats Plant
LOCATION Golden, CO
PERSONNEL C. Walker

DRILLING SUMMARY:

TOTAL DEPTH Well: 8.55' Hole: 13.00'
BOREHOLE DIAMETER 7¼"

DRILLER Boyles Brothers Drilling Co.
15865 W. 5th Avenue
Golden, CO (Tony Robinson)
RIG Acker
BIT(S) Blade bit

DRILLING FLUID None

SURFACE CASING 5" x 4' steel w/ locking c2b

WELL DESIGN:

BASIS: GEOLOGIC LOG X GEOPHYSICAL LOG ___

CASING STRING(S): C=CASING S=SCREEN

0.00'	3.29'	C1	
3.29'	8.55'	S1	

CASING: C1 2" I.D. Sch. 5 type 316 stainless steel, threaded and flush jointed.

SCREEN: S1 2" I.D. Sch. 5 type 316 stainless steel, threaded and flush jointed, 0.010" wire wrap screen, 0.25' welded bottom cap.

CENTRALIZERS Type 304 stainless steel
4.86' - 6.05'

FILTER MATERIAL 32-42 silica sand
2.75' - 8.75'

CEMENT Portland Type I
0.00' - 2.00'

OTHER 3/8" bentonite pellets
2.00' - 2.75'
8.75' - 12.70'

CONSTRUCTION TIME LOG:

TASK	START DATE 1986	START TIME	FINISH DATE 1986	FINISH TIME
DRILLING:				
7¼" auger	9/22	1200	9/22	1305
GEOPHYS. LOGGING:	—	—	—	—
CASING:				
2" stainless	9/22	1528	9/22	1530
FILTER PLACEMENT:	9/22	1530	9/22	1545
CEMENTING:	9/22	1547	9/22	1550
DEVELOPMENT:	9/29	1130	9/29	1130
OTHER:				
Bentonite	9/22	1545	9/22	1547
	9/22	1523	9/22	1528

WELL DEVELOPMENT

See Well Development Summary Sheet.

COMMENTS:

No water encountered during drilling.

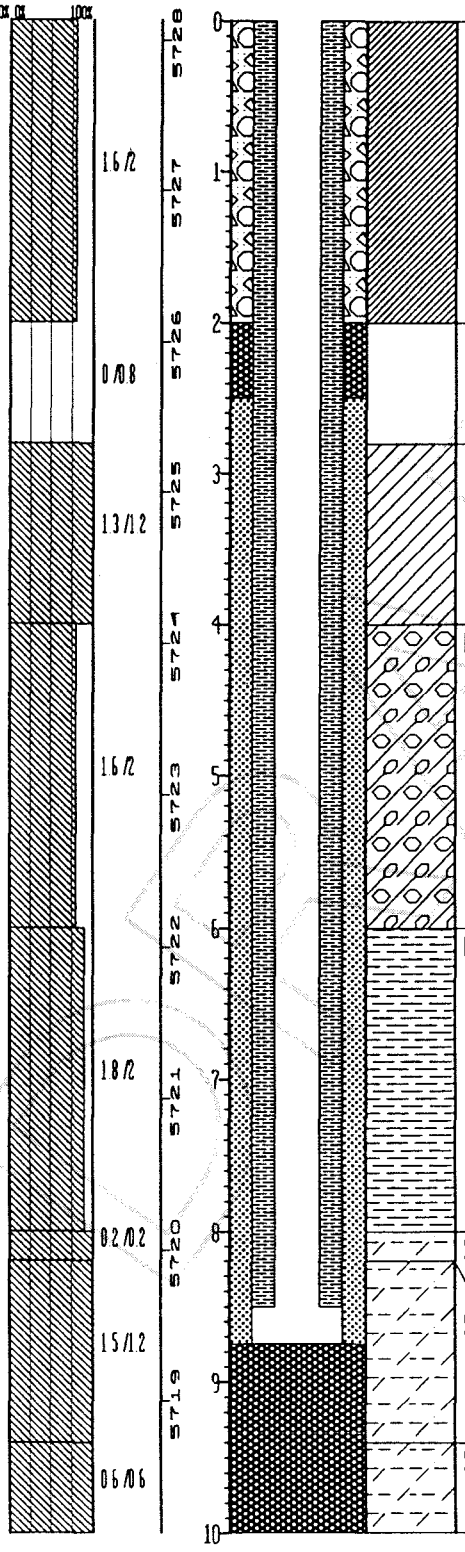
Top of stainless steel casing: 2.08'

Cave from TD to 12.70'

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 14	GROUND ELEVATION (FT):	5728 13	PROJECT NUMBER:	667 11	LOG OF BORING NUMBER:
NORTH:	752826	AREA: BUFFER EAST	CASING DIAMETER (IN):	2 ID	GEOLOGIST:	LAA	38-86
EAST:	2090281	LOCATOR NUMBER: R12	BOREHOLE DIAMETER (IN):	7 25	DATE DRILLED:	09/08/86	

REMARKS: Hollow Stem Auger. Cave from TD to 13.0'.

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CH	Silty Clay. Dark yellowish brown (10YR 4/2), surface grass and roots present. Moderately high plasticity. Trace sand.
NO SAMPLE	
CL	Same as above. Less roots and grass, some sub-rounded gravel, up to 2cm.
GC	Large cobbles and gravel in sandy clay matrix. Gravel grayish red (10R 4/2) to medium gray (N5). Angular to sub-angular. Moderately graded. Sandy clay matrix, moderately yellowish brown (10YR 5/4). Moderate plasticity.
CLAYSTONE	Top of Bedrock Dusky yellowish brown (10YR 2/2). High plasticity, some silt, trace sand. One large cobble at top (7 cm). Some iron staining. Some thin carbonaceous layers.
SILTY CLAYSTONE	Dark yellowish brown (10YR 4/2). Highly weathered. Slightly friable. Massive (?) bedding. Some carbonaceous material.
SILTY CLAYSTONE	Same as above.
SILTY CLAYSTONE	Same as above.

screen top is 2.91' MS 1/19/94 (from well construction summary)

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 14	GROUND ELEVATION (FT)	5728 13	PROJECT NUMBER	667 11	LOG OF BORING NUMBER
NORTH	752826	AREA BUFFER EAST	CASING DIAMETER (IN)	2 ID	GEOLOGIST	LAA	38-86
EAST	2090281	LOCATOR NUMBER R12	BOREHOLE DIAMETER (IN)	7 25	DATE DRILLED	09/08/86	

REMARKS Hollow Stem Auger Cave From TD to 13 0'

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				0 7/1 3	5718	10			CLAYEY SILTSTONE	Dark yellowish brown (10YR 4/2) Highly weathered Slightly friable Massive bedding (?), some carbonaceous material Some iron stains
				0 9/0 7	5717	11			CLAYEY SILTSTONE	Same as above
				0 65/0 65	5716	12			CLAYEY SILTSTONE	Same as above, moderately friable
				0 5/0 35					CLAYEY SILTSTONE	Same as above
				0 9/1	5715	13			CLAYEY SILTSTONE	Same as above, slightly friable NOTE No water encountered while drilling
					5714	14				
					5713	15				
					5712	16				
					5711	17				
					5710	18				
					5709	19				
						20				

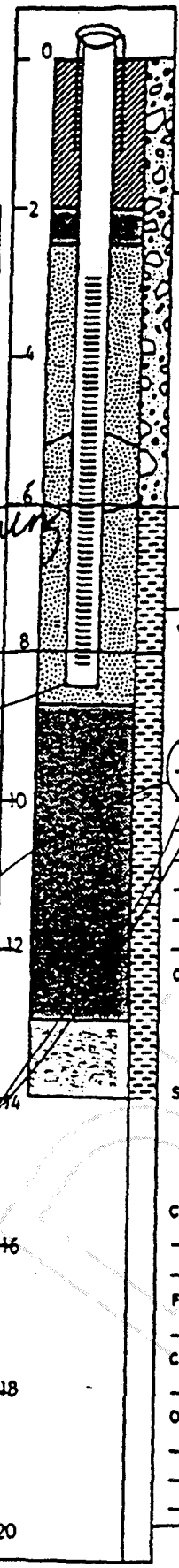
DRAFT

WELL 38-86

WELL CONSTRUCTION SUMMARY

LOCATION or COORDS: _____

ELEVATION: GROUND LEVEL 5733'
TOP OF CASING 5735.50'



LOCATION Golden, CO
PERSONNEL J. Kerman
PROJECT 106P06222 Rocky Flats Plant

Which one were they screening

8.0 Ka

TD =8.5'

check

should be 2.91 4/17/87 ASP

DRILLING SUMMARY:

TOTAL DEPTH Well: 8.50' Hole: 14.00'

BOREHOLE DIAMETER 7¼"

DRILLER Boyles Brothers Drilling Co.
15865 W. 5th Avenue
Golden, CO (Tony Robinson)

RIG Acker

BIT(S) T5

DRILLING FLUID None

SURFACE CASING 5" x 4' steel w/ locking cap

WELL DESIGN:

BASIS: GEOLOGIC LOG X GEOPHYSICAL LOG ___

CASING STRING(S): C=CASING S=SCREEN

0.00'	2.91'	C1	
0.00	8.50'	S1	

CASING: C1 2" I.D. Sch. 5 type 316 stainless steel, threaded and flush jointed.

SCREEN: S1 2" I.D. Sch. 5 type 316 stainless steel, threaded and flush jointed, 0.010" wire wrap screen, 0.25' welded bottom cap.

CENTRALIZERS Type 304 stainless steel
4.95' - 6.15'

FILTER MATERIAL 32-42 silica sand
2.50' - 8.75'

CEMENT Portland Type I
0.00' - 2.00'

OTHER 3/8" bentonite pellets
2.00' - 2.50'
8.75' - 13.00'

CONSTRUCTION TIME LOG:

TASK	START DATE	START TIME	FINISH DATE	FINISH TIME
DRILLING:	1986		1986	
7¼" auger	9/8	1035	9/8	1200
GEOPHYS. LOGGING:	—	—	—	—
CASING:				
2" stainless	9/8	1400	9/8	1415
FILTER PLACEMENT:	9/8	1415	9/8	1420
CEMENTING:	9/8	1425	9/8	1435
DEVELOPMENT:	9/16	1314	9/22	1300
OTHER:				
Bentonite	9/8	1420	9/8	1425
	9/8	1350	9/8	1400

WELL DEVELOPMENT

See Well Development Summary Sheet.

COMMENTS:

No water encountered during drilling.

Top of stainless steel casing: 2.50'

Cave from TD to 13.00'

HYDRO-SEARCH RENO•DENVER CONSULTING HYDROLOGISTS-GEOLOGISTS

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 13	GROUND ELEVATION (FT): 5882.69	PROJECT NUMBER: 667.11	LOG OF BORING NUMBER
NORTH:	753142	AREA: LANDFILL	CASING DIAMETER (IN): 2.10	GEOLOGIST: LAM	40-87
EAST:	2094823	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN): 7.5	DATE DRILLED: 06/08/87	

REMARKS: Hollow Stem Auger.

SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
			0.5/0.6	5882	0			CL	SILTY CLAY - light brownish gray (5YR 6/1). Abundant roots and grass. Some iron staining throughout matrix.
			0/3.4	5881, 5880	1, 2, 3	04/11/88		NO SAMPLE	
			2.1/2.2	5879, 5878	4, 5	11/03/87		GM	GRAVEL - medium gray (N5) angular to subangular well graded. Some clay and silt. Trace iron staining.
								ML	Clayey Gravelly Silt - light gray to light olive gray (N7 to 5Y 6/1). Gravel to 3 cm. subrounded. Abundant iron staining throughout matrix. Could be highly weathered gravelly siltstone incomplete induration.
			1.3/1.3	5877, 5876	6			CLAYEY SILTSTONE	Top of Bedrock. Very pale orange to grayish orange (10YR 8/2 to 10YR 7/4). Massive bedding(?) Highly weathered. Some calcareous mineralization, some iron staining. Friable in places. Trace carbonaceous material.
					7			CLAYEY SILTSTONE	Very pale orange to grayish orange (10YR 8/2 to 10YR 7/4). Massive bedding(?) Highly weathered. Some calcareous mineralization, some iron staining. Friable in places. Trace carbonaceous material.
			0/0.5	5875				NO SAMPLE	
			2.5/2.5	5874, 5873	8, 9, 10			CLAYEY SILTSTONE	Same as above, more carbonaceous material at bottom occurring in very thin hairlike layers.

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 13	GROUND ELEVATION (FT): 5882.69	PROJECT NUMBER: 667.11	LOG OF BORING NUMBER:
NORTH: 753142	AREA: LANDFILL	CASING DIAMETER (IN): 2 ID	GEOLOGIST: LAA	40-87
EAST: 2084823	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN): 7.5	DATE DRILLED: 06/08/87	

REMARKS: Hollow Stem Auger.

SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					10				
			2/1.3	5872	11				CLAYEY SILTSTONE: Same as above with color change to pale yellowish brown. Extremely weathered, extremely friable.
			1.2/1.2	5871	12				CLAYEY SILTSTONE: Same as above. NOTE: No water encountered during drilling.
				5870	13				
				5869	14				
				5868	15				
				5867	16				
				5866	17				
				5865	18				
				5864	19				
				5863	20				

DRAFT

WELL COMPLETION INFORMATION

Location Rocky Flats Plant; Landfill Area

Well No. 40-87

Coordinates N 40158.03 E 21727.76

Elevation: Ground Surface 5882.69'

Total Depth: Well 6.70'

Top of Casing 5884.69'

Borehole 13.00'

Formation of Completion Valley Fill Alluvium

Casing Material Sch 5, Type 316, TFJ Stainless Steel

Casing Diameter 2" ID

Screen Material 0.010" wire wrap, Type 316, TFJ Stainless Steel

Surface Casing Diameter 5" ID

Date Installed June 9, 1987

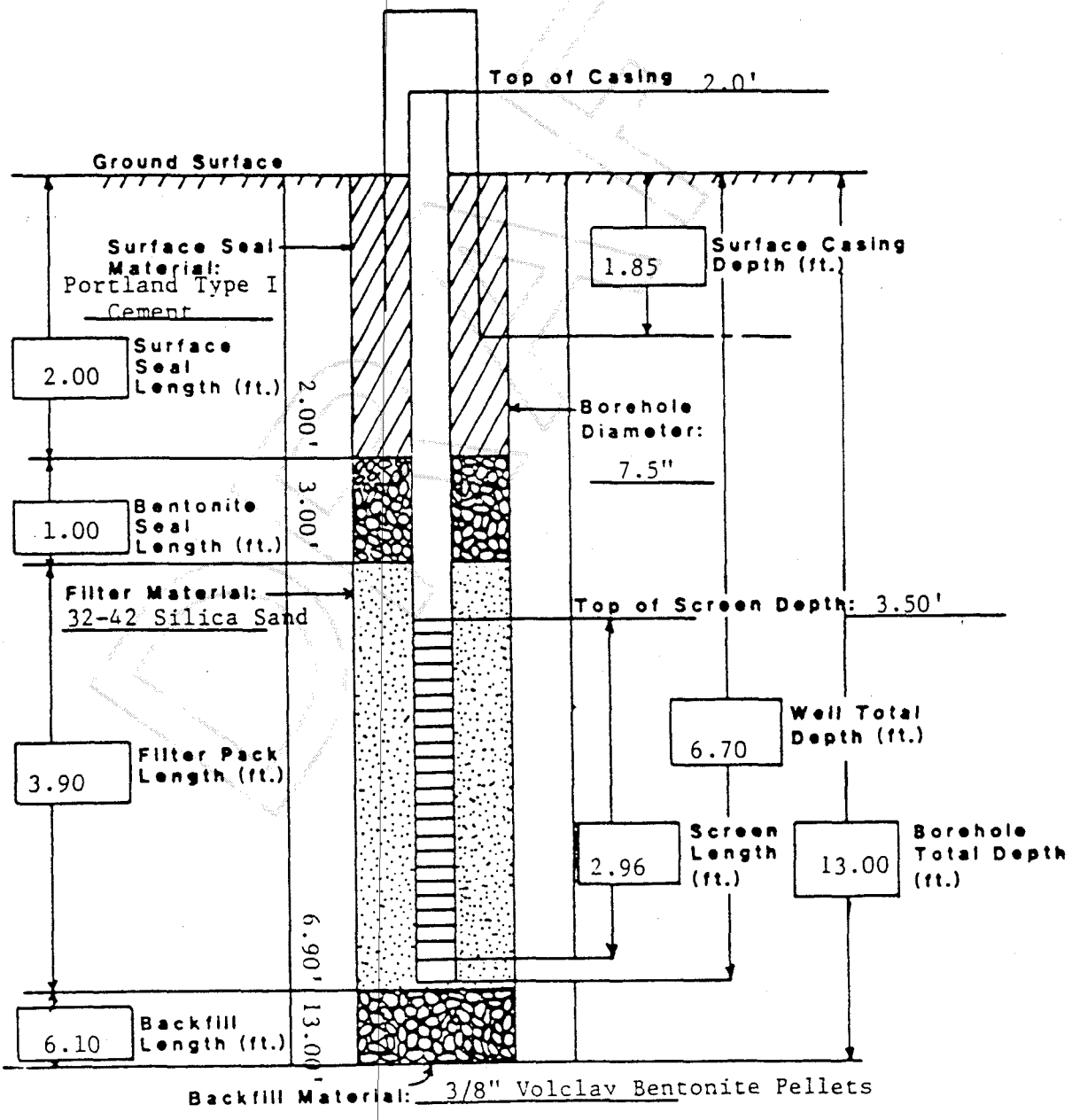
Approved By

Installed By J. Bergman
Geologist

Site Manager

CEARP Manager

Comments Centralizer at 3.96-5.15'



WELL COMPLETION INFORMATION

Location Rocky Flats Plant; Landfill Area

Well No. 41-87BR

Coordinates N 40133.61 E 21725.75

Elevation: Ground Surface 5882.78'

Total Depth: Well 94.03'

Top of Casing 5884.55'

Borehole 110.00'

Formation of Completion Arapahoe Formation

Casing Material Sch 5, Type 316, TFJ Stainless Steel

Casing Diameter 2" ID

Screen Material 0.010" wire wrap, Type 316, TFJ Stainless Steel

Surface Casing Diameter 5" ID

Date Installed August 3, 1987

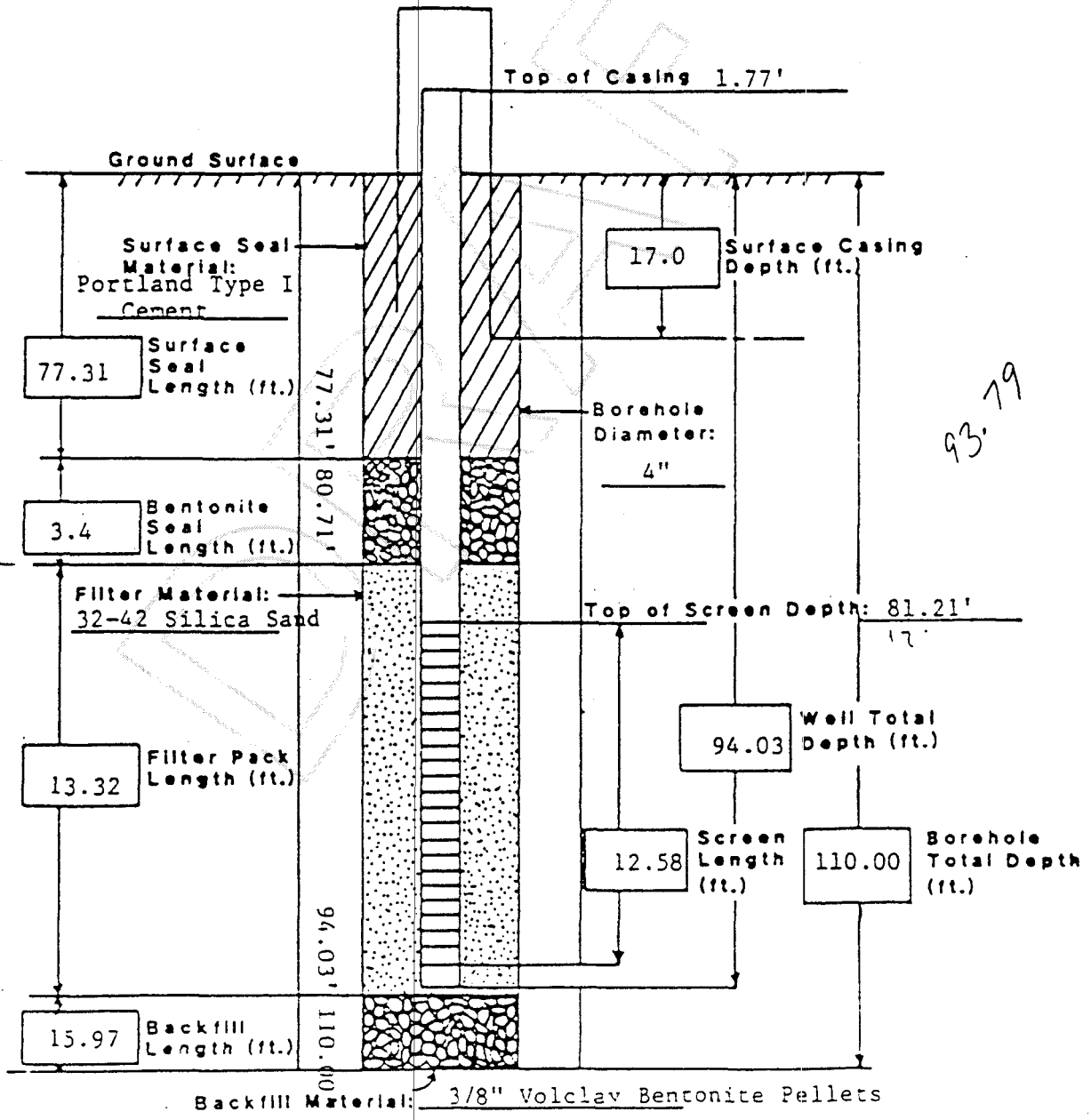
Approved By

Installed By K.D. Holliway
Geologist

Site Manager

CEARP Manager

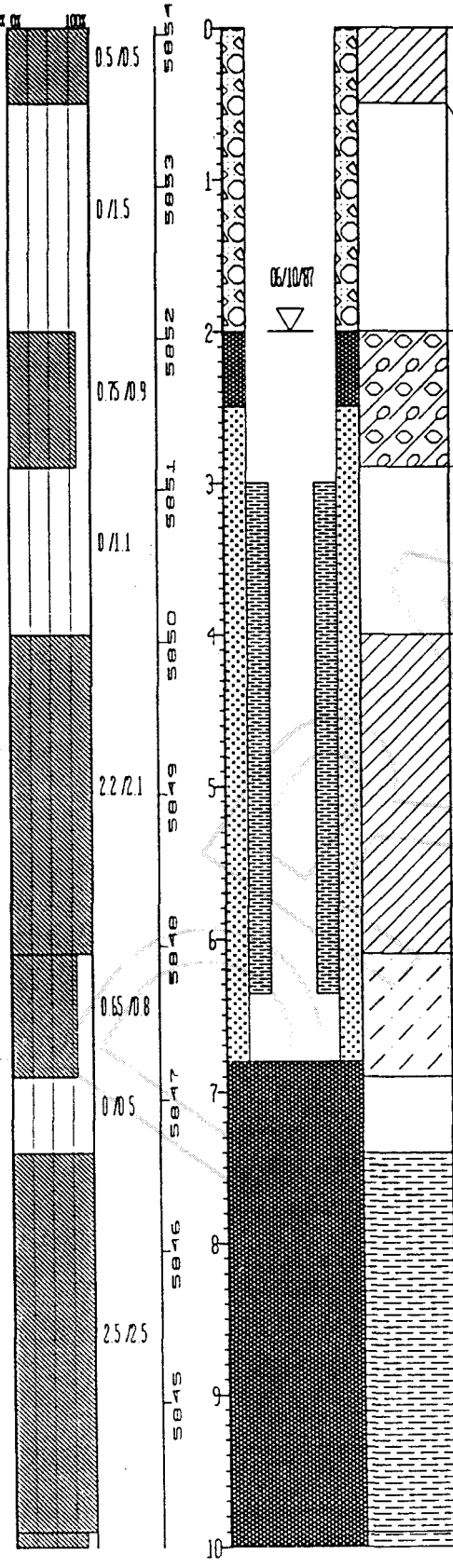
Comments Surface casing set to 17.0' by J.B. Bergman on June 9, 1987.



93' 19

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 12.4	GROUND ELEVATION (FT):	5854.05	PROJECT NUMBER:	667.11	LOG OF BORING NUMBER:	
NORTH:	753342	AREA: LANDFILL	CASING DIAMETER (IN):	2 ID	GEOLOGIST:	DCB	42-87	
EAST:	2085526	LOCATOR NUMBER: M13	BOREHOLE DIAMETER (IN):	7.5	DATE DRILLED:	06/10/87		
REMARKS:	Hollow Stem Auger							

GRADATIONAL SAMPLE NUMBER | DEPTH | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION



Unified Soils Classification or Rock Type	Description
CL:	CLAY - dark yellowish brown (10YR 4/2), moderate plasticity, some silt and organic detritus. At 0.3 ft. interval grades to gravel, medium gray (N5), sub-angular, poorly graded.
NO SAMPLE:	
GC:	Clayey Gravel - light gray (N7), angular to sub-angular, poorly graded, some sand and silt.
NO SAMPLE:	
CL:	GRAVELLY SILTY CLAY - mottled, light olive gray (5Y 6/1), dark yellowish orange (10YR 6/6), moderate plasticity, some fine sand.
SILTSTONE:	Top of Bedrock Grayish orange (10YR 7/4), bedding not discernable (massive?), highly weathered, moderately friable, localized inclusions of white carbonate mineralization 2 mm. and less in size.
NO SAMPLE:	
CLAYSTONE:	Light gray (N7), mottled grayish orange (10YR 7/4), bedding not discernable (massive?), highly weathered, moderately friable, localized inclusions of white carbonate mineralization 2 mm. and less in size.

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 12.4	GROUND ELEVATION (FT):	5854.05	PROJECT NUMBER:	667.11	LOG OF BORING NUMBER:
NORTH:	753342	AREA: LANDFILL	CASING DIAMETER (IN):	2 ID	GEOLOGIST:	DCB	42-87
EAST:	2085526	LOCATOR NUMBER: M13	BOREHOLE DIAMETER (IN):	7.5	DATE DRILLED:	06/10/87	

REMARKS: Hollow Stem Auger.

GRADATIONAL BA DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/ INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
			100%	1.85/2.1	5844	10			CLAYSTONE:	As above with a gradational change to siltstone with depth.
				0.1/0.1	5843	11			SILTSTONE:	Iron oxide staining occurs on fractures. Fractures are curvilinear.
					5842	12				
					5841	13				
					5840	14				
					5839	15				
					5838	16				
					5837	17				
					5836	18				
					5835	19				
						20				

DRAFT

WELL COMPLETION INFORMATION

Location Rocky Flats Plant; Landfill Area

Well No. 42-87

Coordinates N 40355.10 E 22430.99

Elevation: Ground Surface 5854.05'

Total Depth: Well 6.60'

Top of Casing 5855.93'

Borehole 12.40'

Formation of Completion Valley Fill Alluvium

Casing Material Sch 5, Type 316, TFJ Stainless Steel

Casing Diameter 2" ID

Screen Material 0.010" wire wrap, Type 316, TFJ Stainless Steel

Surface Casing Diameter 5" ID

Date Installed June 10, 1987

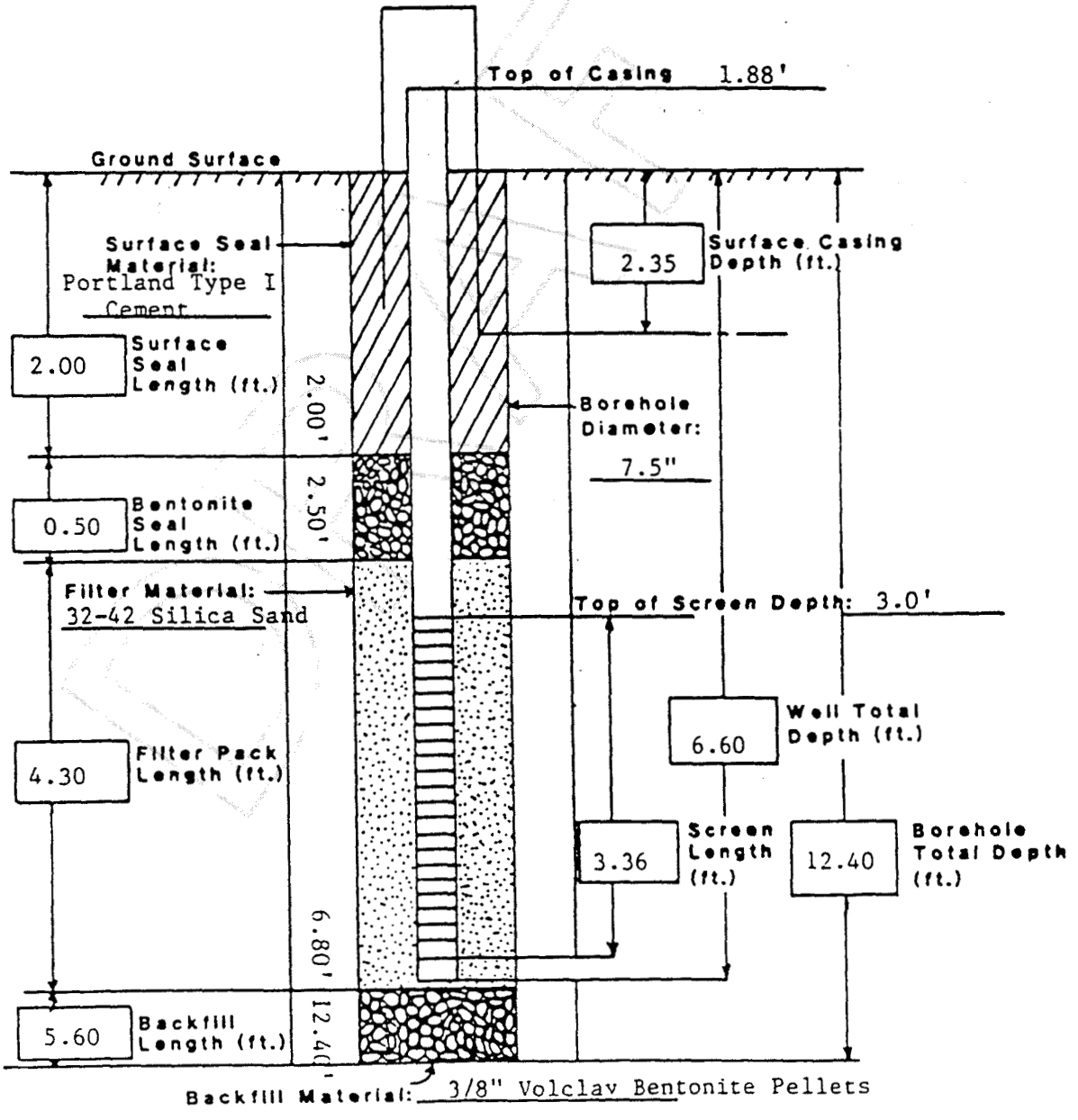
Approved By

Site Manager

Installed By J. Bergman
Geologist

CEARP Manager

Comments



STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 23.6	GROUND ELEVATION (FT):	5882.42	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH: 753145	AREA: LANDFILL	CASING DIAMETER (IN):	4.5 O.D.	GEOLOGIST: RTT	B206989
EAST: 2084835	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED: 04/19/89	

REMARKS: Hollow Stem Auger. Weston Log.

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION

RECOVERY/INTERVAL	DATUM (FT)	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
1.50 /1.60	5882	CL	Clay - grayish brown (5 YR 3/2). Topsoil. Some gravel (1.75 cm. to 2.50 cm.), sub-rounded and sub-angular. Low plasticity, weakly cemented, poorly consol., abundt. roots, moist.
	5881	CL	Clay - Pale brown (5 YR 5/2) to pale yellowish brown (10 YR 6/2). Some gravel, numerous roots. Med. plasticity, weakly cemented, poorly consol., moist.
2.00 /2.00	5880	CL	Clay - mod. brown (5 YR 3/4). Some gravel to gravelly at bottom of sample. Gravel (1.25 cm. to 2.50 cm.), sub-angular to sub-rounded. Med. plasticity, mod. cemented, med. stiff, moist to very moist at 3.4' to 3.6'.
2.00 /2.00	5878	CL	Clay - pale yellowish brown (10 YR 6/2) to pale brown (5 YR 5/2). Some granitic and quartzite gravel. Gravelly lense at 4.1' to 4.3', (0.75 cm. to 1.50 cm.), sub-rounded to sub-angular. Few scattered roots, slightly oxide-stained med. plasticity, mod. cemented, mod. consol., moist.
	5877	CL	Sandy Clay - same as above. F.g. sand.
2.00 /2.00	5876	SANDY CLAYSTONE	Pale yellowish brown (10 YR 6/2) and light brown (5 YR 5/6). F.g. sand (3.0 phi to 2.5 phi), weakly cemented, low plasticity, lignite pockets, massive, homogeneous, med. hard, oxide stained, weathered, slightly moist.
2.00 /2.00	5874	SANDY CLAYSTONE	Same as above

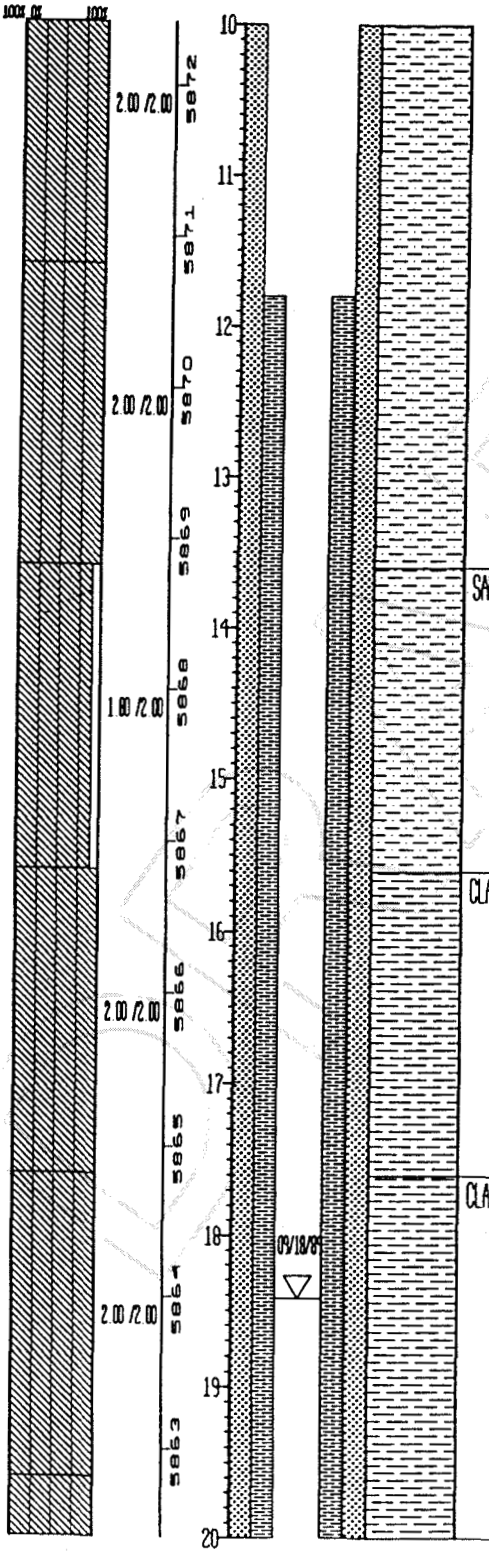
0 1 2 3 4 5 6 7 8 9 10

DRAFT

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 23.6	GROUND ELEVATION (FT): 5882.42	PROJECT NUMBER:		LOG OF BORING NUMBER:
NORTH: 753145	AREA: LANDFILL	CASING DIAMETER (IN): 4.5 O.D.	GEOLOGIST:	RTT	B206989
EAST: 2084835	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN): 7.25	DATE DRILLED:	04/19/89	

REMARKS: Hollow Stem Auger. Weston Log

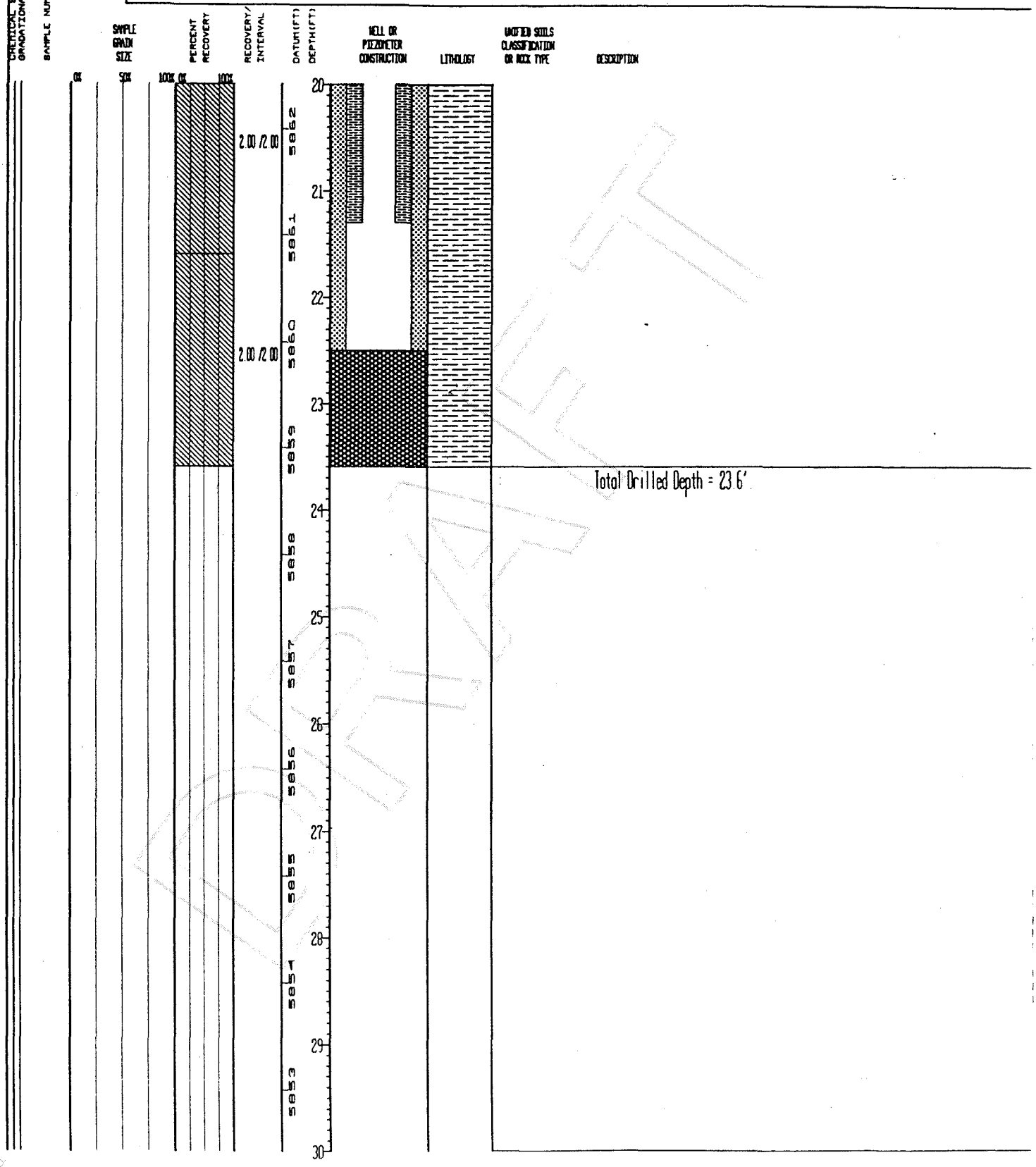
CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRADI SIZE (0% 50%)
PERCENT RECOVERY (100% 0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



SANDY CLAYSTONE:	Pale yellowish brown (10 YR 6/2) to grayish orange pink (5 YR 7/2) and pale brown (5 YR 5/2). F.g. sand (3.5 phi to 2.5 phi), well sorted. Low plasticity, weakly cemented, massive, homogeneous, poorly consol., med. hard, weathered, slightly moist.
CLAYSTONE:	Med. light gray (N 6/0). Massive, homogeneous, mod. cemented, med. hard to hard, med. plasticity, occasional thin oxide streaks or strings, blocky, slightly weathered, slightly moist.
CLAYSTONE:	Same as above

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 23.6	GROUND ELEVATION (FT):	5882.42	PROJECT NUMBER:		LOG OF BORING NUMBER:
NORTH:	753145	AREA: LANDFILL	CASING DIAMETER (IN):	4.5 O.D.	GEOLOGIST:	RTT	B206989
EAST:	2084835	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED:	04/19/89	

REMARKS: Hollow Stem Auger. Weston Log.



WELL COMPLETION INFORMATION

QA By/Date Jarell Burrow 14-24-89

Location Rocky Flats Plant; Land Fill Area

Well No. B206989

Coordinates N 40160.69 E 21739.67 (RFP)

Elevation: Ground Surface 5882.42'

Top of Casing 5884.32'

Total Depth: Well 22.5'

Borehole 23.6'

Formation of Completion Weathered Claystone

Casing Material Schedule 40 PVC

Casing Diameter 4 1/2" O.D.

Screen Material Schedule 40 10-slotted PVC

Surface Casing Diameter 8 5/8" O.D.

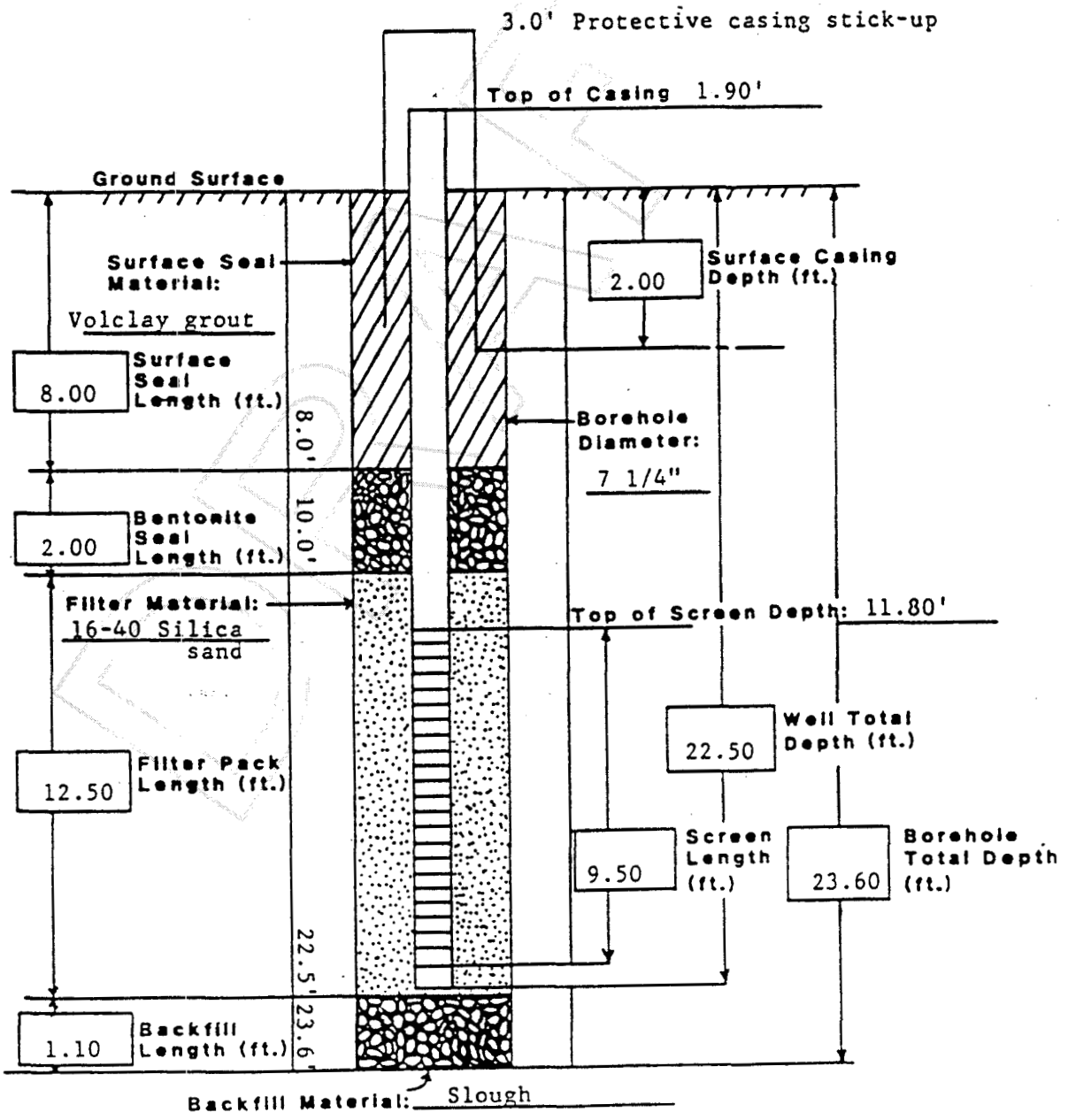
Date Installed 04/20/1989

Approved By Jarell Burrow
Site Manager

Installed By R.T. Treat
Geologist

CEARP Manager

Comments Set stainless steel centralizer from 21.10' to 22.30' below ground surface



STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 60	GROUND ELEVATION (FT):	5883.07	PROJECT NUMBER:		LOG OF BORING NUMBER:
NORTH:	753103	AREA: LANDFILL	CASING DIAMETER (IN):	4.5 O.D.	GEOLOGIST:	LAH	B207089
EAST:	2094837	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED:	04/24/89	

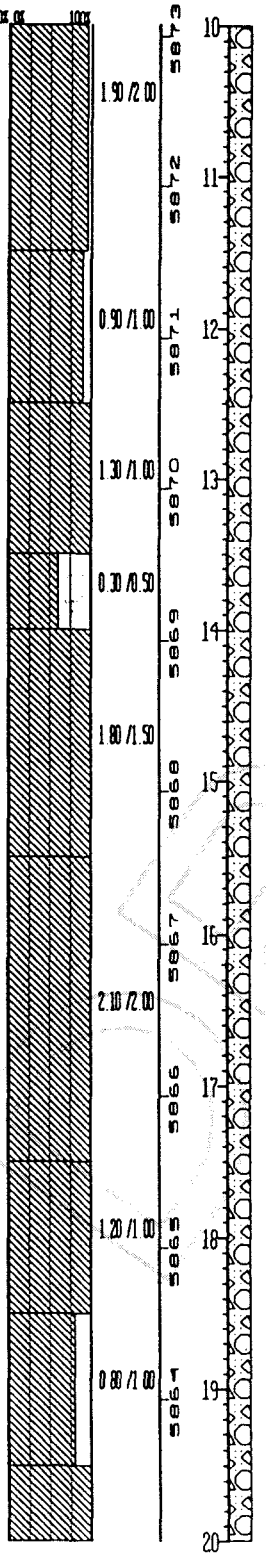
REMARKS: Hollow Stem Auger. ASI Log.

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				1.80/1.50	5883	0			CL	Silty Sandy Clay - grayish brown to dusky brown (5 YR 3/2 to 5 YR 2/2). V.f.g. sand, mod. to high plasticity. Root material (abundt.) in top 3 in., trace in rest of interval. Becomes gravelly at approx. 6 in. depth. Gravel poorly graded angular to rounded (angularity probably due to breakage in drilling). Root material throughout interval. Gravel to 2 cm. (Sandy Clay with abundt. Silt). 35% sand, 35% clay, 30% silt.
				1.80/1.80	5882	1			ML	Clayey Sandy Silt - Dark yellowish orange to pale yellowish brown (10 YR 6/0 to 10 YR 6/2). Mottled. V.f.g. sand. Mildly calcareous, some caliche stringers. Trace carbonaceous material at bottom (3 in.) of interval. Irreg. laminated bedding approx. 3in. thick, horiz. (Clayey Silt with trace Sand). 5% sand, 45% clay, 50% silt.
				0.40/0.20	5881	2			ML	Same as above. More carbonaceous material. Trace f.g. sand. Trace root material.
				1.40/1.30	5880	3			ML	Same as above. Becomes more friable, and more sandy. Some f.g. sand, trace med. grained sand. (Clayey Silt with some Sand). 10% sand, 40% clay, 50% silt.
				0.90/0.70	5879	4			ML	Same as above. V.f.g. sand. thin, laminated, horiz. bedding. Trace caliche stringers. (Sandy Silt with abundt. Clay). 35% sand, 30% clay, 35% silt.
				0.80/0.70	5878	5			SILTY SANDSTONE	Top of Bedrock at 6.0'. Bedding not evident (not consol. as in above interval). (Silty Sandstone with abundt. Clay). 35% sand, 30% clay, 35% silt.
				1.50/1.30	5877	6			SILTY CLAYSTONE	Pale yellowish brown to dark yellowish orange (10 YR 6/2 to 10 YR 6/6). V.f.g. sand, well sorted. Mod. porous. Laminated bedding, horiz. Mod. friable, mildly calcareous. Some thin layers of clayey sandstone. Some sand. (Silty Claystone with some Sand). 20% sand, 50% clay 30% silt. Note: Rock type stated as Sandy Silty Claystone.
				1.80/1.70	5876	7			CLAYEY SANDSTONE	Weathered. Dark yellowish brown (10 YR 4/2). V.f.g. to f.g. sand, mod. to well sorted. Porous, mod. friable to friable. Thin, laminated bedding, horiz. Some silt. Color change to very pale orange (10 YR 8/2) toward bottom of interval. (Clayey Sandstone with some Silt). 50% sand, 40% clay, 10% silt.
				0.40/0.30	5875	8			CLAYEY SANDSTONE	Same as above; grades to weathered Silty Claystone. Weathered, pale yellowish brown (10 YR 6/2) with some dark yellowish orange layers (10 YR 6/6). Mod. friable. Mod. porous; thin, laminated bedding approx. 1/4 in. 50% clay, 40% silt.
	LAB87089A				5874	9				
						10				

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 60	GROUND ELEVATION (FT):	5883.07	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH: 753103	AREA: LANDFILL	CASING DIAMETER (IN):	4.5 O.D.	GEOLOGIST: LAH	B207089
EAST: 2084837	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED: 04/24/89	

REMARKS: Hollow Stem Auger. ASI Log.

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



SILTY CLAYSTONE:	Pale yellowish brown (10 YR 6/2), weathered. Some v.f.g. sand with trace f.g. sand. Mod. to well sorted. Mod. porous. Trace iron staining. Trace carbonaceous material. Grades to Claystone. Some silt at bottom of interval (last 3 in.). Sieve Results: Claystone - >50% clay.
CLAYSTONE:	Brownish gray to olive gray (5 YR 4/1 to 5 Y 4/1), weathered. Mod. porous, more friable. Bedding not evident. Trace silt. >80% clay.
CLAYSTONE:	Same as above. Higher silt content, less friable. Trace v.f.g. sand. >80% clay.
CLAYSTONE:	Same as above. Trace iron staining. >80% clay.
CLAYSTONE:	Same as above. >80% clay
CLAYSTONE:	Light brownish gray to light olive gray (5 YR 6/1 to 5 Y 6/1), weathered. Trace silt. Mod. porous to porous, mod. friable to friable. Trace to some iron staining. Faint horiz. bedding barely visible. Trace carbonaceous material on one bedding layer. Top of interval is crumbled, bottom is more consol. Bottom is less iron stained. >80% clay.
CLAYSTONE:	Same as above. Color changes at mid interval from brownish gray (5 YR 4/1) at top to pale yellowish brown (10 YR 6/2) at bottom. All else, same as above. Top of interval desegregated and iron stained. Bottom less desegregated but more friable. >80% clay.
CLAYSTONE:	Same as above. Not desegregated. >80% clay.
CLAYSTONE:	Pale yellowish brown (10 YR 6/2). Mod. porous, mod. friable. Bedding not evident. In top half of interval horiz.; laminated in bottom half. Top half iron stained and broken up. Bottom half is consol. and less iron stained. Bottom half color is light olive gray (5 Y 6/1). >80% clay.

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 60	GROUND ELEVATION (FT): 5883.07	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH:	753103	AREA: LANDFILL	CASING DIAMETER (IN): 4.5 O.D.	GEOLOGIST: LAH	B207089
EAST:	2084837	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN): 7.25	DATE DRILLED: 04/24/89	

REMARKS: Hollow Stem Auger. ASI Log.

CHEMICAL SAMPLE DEPTH | GRADATIONAL SAMPLE DEPTH | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION

RECOVERY/INTERVAL	DATUM (FT)
2.00 /2.00	5863
	5862
2.00 /2.00	5861
	5860
2.20 /2.00	5859
	5858
2.20 /2.00	5857
	5856
2.20 /2.00	5855
	5854

DEPTH (FT): 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30

CLAYSTONE: Light olive gray (5 Y 4/1). Mod. porous, mod. friable, weathered. Horiz. layered bedding approx. 1/4 in. Some iron staining. Trace carbonaceous material. Trace to some silt. >80% clay.

SILTY CLAYSTONE: Pale yellowish brown (10 YR 6/2) to light olive gray (5 Y 6/1). Weathered, mottled with dark yellowish orange staining. Trace v.f.g. sand. Thin, nearly horiz., laminated bedding approx. 1/8-1.4 in. thick. Trace black carbonaceous material. Friable, porous. Abundt. staining at very bottom of interval. (Silty Claystone with trace Sand).
4% sand, 48% clay, 48% silt

CLAYSTONE: Same as above, except less silt. Some iron oxide. Possibly fracture fill
>75% clay.

SILTY CLAYSTONE: Light olive gray (5 Y 6/1). Trace v.f.g. sand, mod. porous to porous. Friable to mod friable. Thin, laminated bedding (approx. 1/8 in.) visable on some pieces. Trace iron staining.
60% clay, 40% silt.

SILTY CLAYSTONE: Same as above. Slightly darker in center of interval-(olive gray (5 Y 4/1))

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 60	GROUND ELEVATION (FT):	5883.07	PROJECT NUMBER:		LOG OF BORING NUMBER:
NORTH:	753103	AREA: LANDFILL	CASING DIAMETER (IN):	4.5 O.D.	GEOLOGIST:	LAH	B207089
EAST:	2084837	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED:	04/24/89	

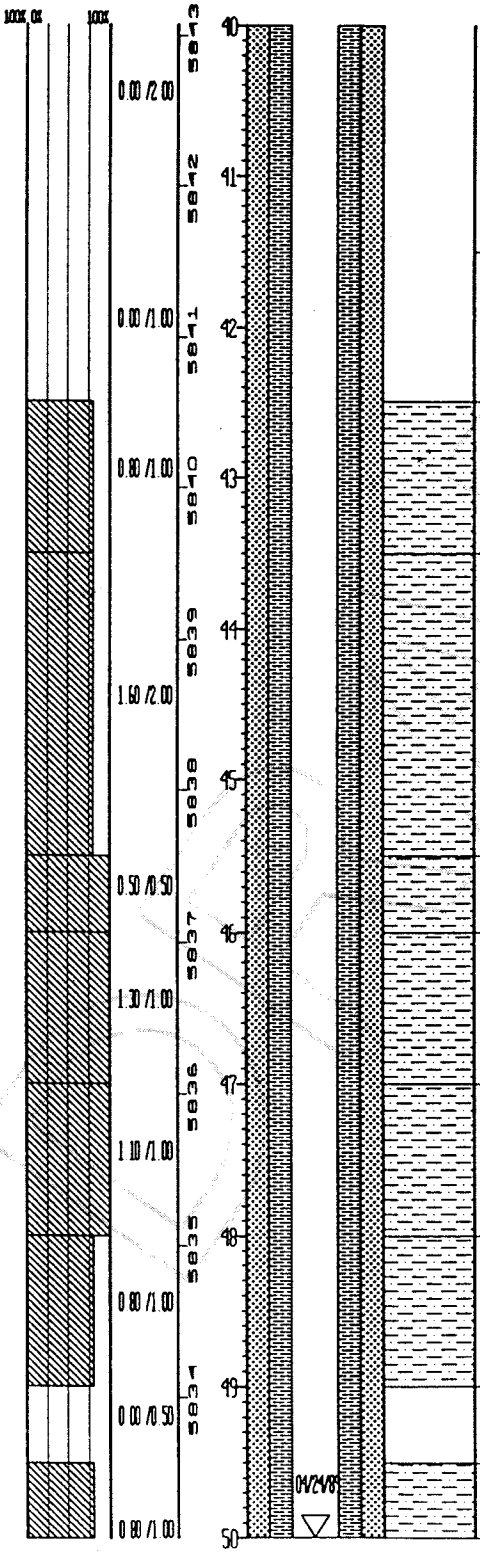
REMARKS: Hollow Stem Auger ASI Log

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				2.20 /2.00	5853	30				
					5852	31				
				1.00 /2.00	5851	32			SILTY CLAYSTONE	Light olive gray to olive gray (5 Y 6/1 to 5 Y 4/1). Some sand v.f.g. to med. grained. Mod. sorted, mod. porous, mod. friable. Bedding not evident. Core in small pieces. Note: Rock type stated as Sandy Silty Claystone. 50% clay, 30% silt, 20% sand.
					5850	33				
				0.80 /2.00	5849	34			SILTY CLAYSTONE	Same as above. (Silty Claystone with some Sand). 20% sand, 50% clay, 30% silt. Note: Rock type stated as Sandy Silty Claystone.
					5848	35				
				2.40 /2.00	5847	36			SANDY CLAYSTONE	Olive gray (5 Y 4/1). V.f.g. sand, well sorted. Mod. porous. Bedding appears laminated, almost horiz. Slightly friable. Trace carbonaceous material. (Sandy Claystone with some Silt). 40% sand, 50% clay, 10% silt.
					5846	37				
	B207089			1.20 /1.00	5845	38			SANDY CLAYSTONE	Same as above. V.f.g. to f.g. sand. Some m.g. sand. (Sandy Claystone with some Silt). 30% sand, 60% clay 10% silt.
				0.00 /1.00	5844	39			NO SAMPLE	NO SAMPLE.
						40			NO SAMPLE	NO SAMPLE.

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 60	GROUND ELEVATION (FT):	5883.07	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH: 753103	AREA: LANDFILL	CASING DIAMETER (IN):	4.5 O.D.	GEOLOGIST: LAH	B207089
EAST: 2084837	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED: 04/24/89	

REMARKS: Hollow Stem Auger. ASI Log.

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRADI SIZE (0% – 50%)
PERCENT RECOVERY (100% 0% – 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



NO SAMPLE:	NO SAMPLE.
SANDY CLAYSTONE:	Olive gray (5 Y 4/1). V f.g. to f.g. sand. Mod. to slightly friable. Bedding appears to be laminated, horiz. Some carbonaceous material in irreg. bedding planes. Trace iron staining. 30% sand, 55% clay.
SANDY CLAYSTONE:	Same as above. 30% sand, 55% clay.
SANDY CLAYSTONE:	Same as above. Laminated bedding more visable. 30% sand, 55% clay.
SANDY CLAYSTONE:	Same as above. Bedding not evident. 30% sand, 55% clay.
SANDY CLAYSTONE:	Same as above, increase in carbonaceous material content. Bedding appears horiz. from fractures. 30% sand, 55% clay.
SANDY CLAYSTONE:	Same as above. (Sandy Claystone with some Silt). 20% sand, 60% clay, 20% silt.
NO SAMPLE:	NO SAMPLE.
SANDY CLAYSTONE:	Same as above. (Sandy Claystone with trace Silt) 35% sand, 60% clay, 5% silt.

STATE PLANE COORDINATE:
NORTH: 753103
EAST: 2084837

TOTAL DEPTH (FT): 60
AREA: LANDFILL
LOCATOR NUMBER: L13

GROUND ELEVATION (FT): 5883.07
CASING DIAMETER (IN): 4.5 O.D.
BOREHOLE DIAMETER (IN): 7.25

PROJECT NUMBER:
GEOLOGIST: LAH
DATE DRILLED: 04/24/89

LOG OF BORING NUMBER: B207089

REMARKS: Hollow Stem Auger. ASI Log

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				0.80 /1.00	5833	50			NO SAMPLE	NO SAMPLE.
				0.00 /1.00	5832	51			SANDY CLAYSTONE	Olive gray to olive black (5 Y 4/1 to 5 Y 2/1). V f g sand, well sorted. Mod. porous, slightly friable. Bedding appears to be thin, laminated, but difficult to tell because of desegregation of core. Some carbonaceous material. (Sandy Claystone with some Silt) 25% sand, 60% clay, 15% silt.
				1.40 /1.00	5831	52			SANDY CLAYSTONE	Same as above. Trace of iron staining. (Sandy Claystone with some Silt). 25% sand, 60% clay, 15% silt.
				1.30 /1.00	5830	53			SANDY CLAYSTONE	Same as above. (Sandy Claystone with some Silt). 25% sand, 60% clay, 15% silt.
				1.30 /1.00	5829	54			SANDY CLAYSTONE	Olive gray (5 Y 4/1). V f g sand, well sorted. Mod. porous, mod. friable. Some carbonaceous material, trace iron staining. Thin, irreg. laminated bedding. 30% sand, 65% clay.
				1.20 /1.00	5828	55			SANDY CLAYSTONE	Same as above. 35% sand, 60% clay.
				1.30 /1.00	5827	56			SANDY CLAYSTONE	Same as above, very friable. Totally crumbled most of interval. Bedding not evident. 35% sand, 65% clay.
				1.30 /1.00	5826	57			SILTY CLAYSTONE	All else same as above. Trace carbonaceous material. Bedding not evident. 65% clay, 30% silt.
				1.10 /1.00	5825	58			SILTY CLAYSTONE	Same as above, not as friable. Thin, platey bedding visable. Thin laminations of v f g sand visible. 65% clay, 30% silt.
				0.70 /0.90	5824	59			CLAYSTONE	All else same as above, some slickensides visible. >80% clay. Total Drilled Depth = 60.0'
				1.40 /1.00		60				

WELL COMPLETION INFORMATION

QA By/Date Jarell Burman 11-26-89

Location Rocky Flats Plant: Land Fill Area
Well No. B207089

Coordinates N 40110.58 E 21741.54 (RFP)
Elevation: Ground Surface 5883.07'
Top of Casing 5884.95'

Total Depth: Well 54.0'
Borehole 60.0'

Formation of Completion Unweathered Sandstone

Casing Material Schedule 40 PVC
Casing Diameter 4 1/2" O.D.

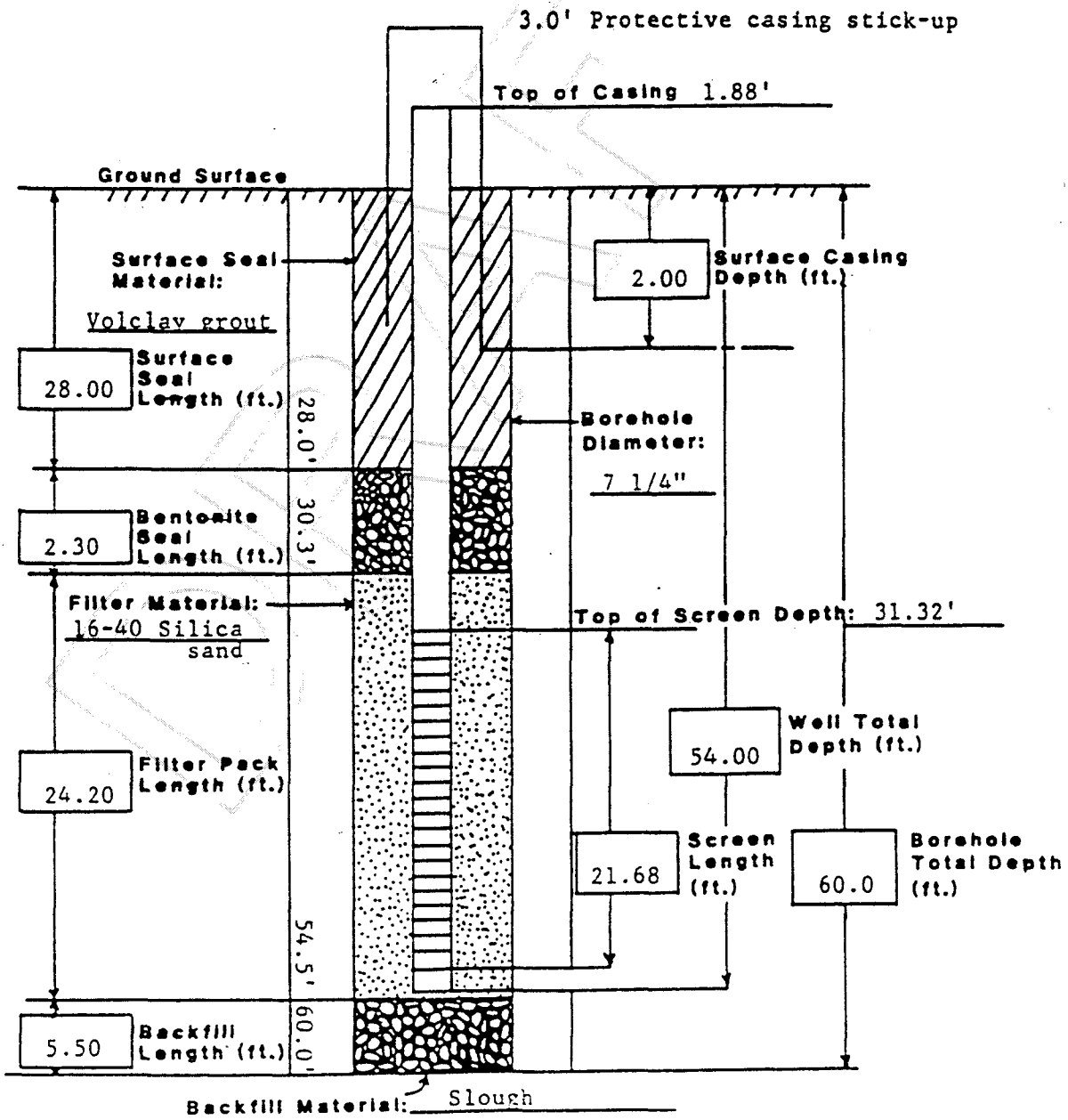
Screen Material Schedule 40 10-slotted PVC
Surface Casing Diameter 8 5/8" O.D.

Date Installed 04/25/1989
Approved By Jarell Burman
Site Manager

Installed By R.T. Treat
Geologist

CEARP Manager

Comments Set stainless steel centralizer from 52.6' to 53.8' below ground surface



STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 259.0	GROUND ELEVATION (FT):	5884.80	PROJECT NUMBER:		LOG OF BORING NUMBER:
NORTH:	753092	AREA: LANDFILL	CASING DIAMETER (IN):	2 3/8 O.D.	GEOLOGIST:	DCB	B207189
EAST:	2084837	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN):	4.0	DATE DRILLED:	06/13/89	

REMARKS: Hollow Stem Auger: 0.0' to 28.0'; Rotary Core: 28.0' to 259.0'. Surface casing set at 28.0' below ground surf ace on 04/25/89 by E.M. Hill. ASI Log.

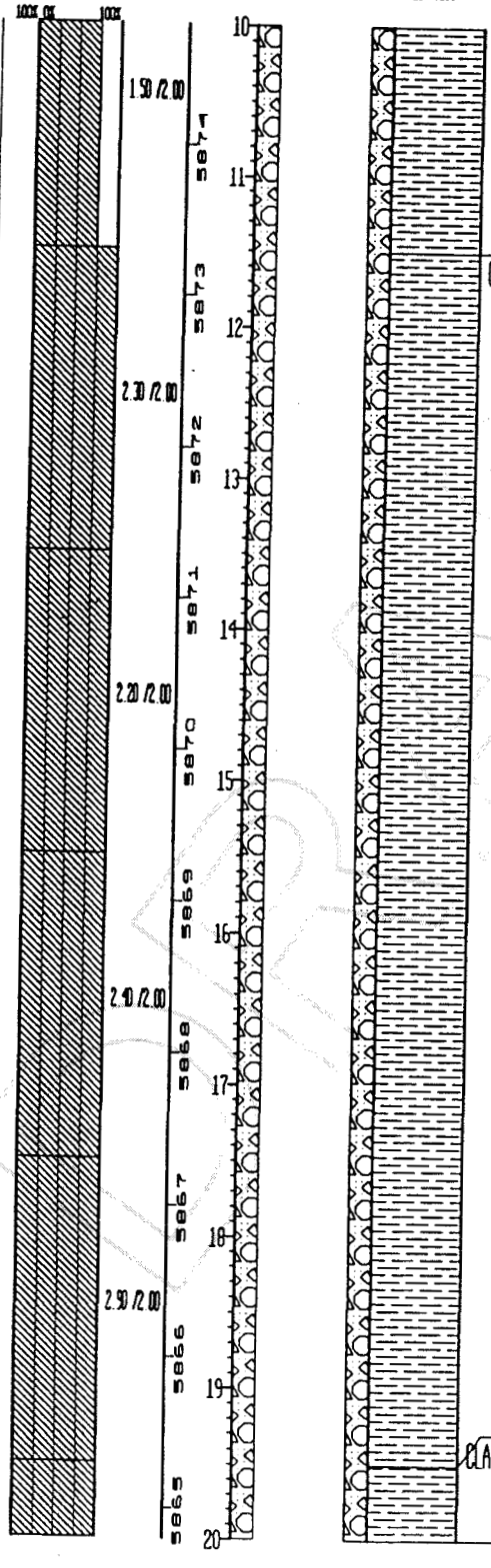
CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50%	100% 0% 100%	1.20/1.50	5884	0–1			CL:	Silty Clay - dark yellowish brown (10 YR 4/2), mod. plasticity. Some gravel, trace of roots. >50% clay.
				2.30/2.00	5883	1–2				
					5882	2–3			GP:	Gravel - light gray (N7), angular to sub-angular, poorly graded, max. size 3.5 cm. Trace to some clay. Trace of silt, locally calcareous. >50% clay.
				0.00/1.00	5881	3–4			NO SAMPLE:	NO SAMPLE.
				1.10/1.00	5880	4–5			GC:	Clayey Gravel - light gray (N7), matrix is dark yellowish brown (10 YR 4/2). Sub-angular to sub-rounded, well graded. Max. size approx. 6.5 cm. Some sand and silt, locally calcareous.
				2.10/2.00	5879	5–6			CLAYSTONE:	Top of Bedrock. Claystone - mottled dark yellowish orange (10 YR 6/6) and light gray (N7). Bedding is thin (<2 mm.) where apparent and exhibits deformation. Highly weathered, mod. friable. Trace to some carbonaceous material and small bodies of caliche (<3 mm. diam). Trace silt and v.f.g. sand. Color grades to med. light gray (N6) below approx. 7.5' and silt fraction increases.
					5878	6–7				
					5877	7–8				
				2.40/2.00	5876	8–9			CLAYSTONE:	Olive gray (5 Y 4/1), thin bedded (<2 mm.) where apparent. Well weathered, mod. friable. Some silt to silty. Some carbonaceous material and Mg and Fe oxides, locally calcareous. >50% clay.
					5875	9–10				

DRAFT

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 259.0	GROUND ELEVATION (FT): 5884.80	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH:	753092	AREA: LANDFILL	CASING DIAMETER (IN): 2 3/8 O.D.	GEOLOGIST: DCB	B207189
EAST:	2084837	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN): 4.0	DATE DRILLED: 06/13/89	

REMARKS: Hollow Stem Auger: 0.0' to 28.0'. Rotary Core: 28.0' to 259.0'. Surface casing set at 28.0' below ground surface on 04/25/89 by E.M. Hill. ASI Log.

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50%)
PERCENT RECOVERY (100% 0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



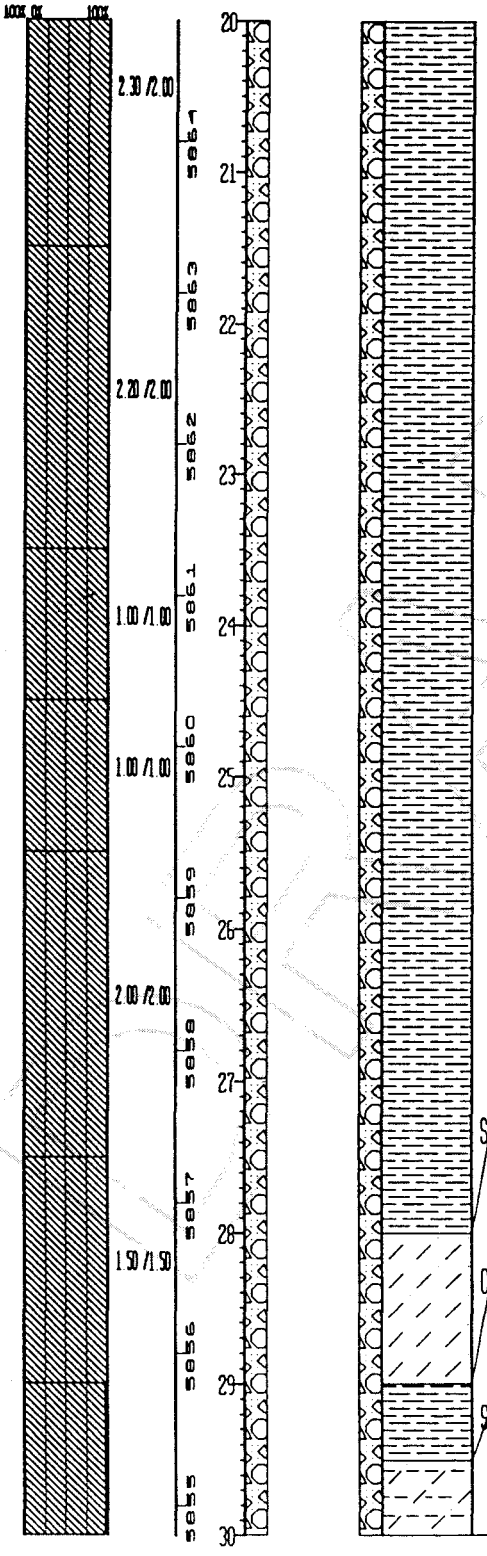
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CLAYSTONE	Color grades to med. gray (N5) below approx. 11.7', and carbonaceous material, Mg and Fe oxides diminish. Mg oxides are absent below approx. 13.0'. V.f.g. sand occurs locally and disseminated in irreg. pockets. Sand fraction diminishes with depth and is absent below approx. 14.5'. >50% clay.
CLAYSTONE	Silt fraction increases at approx. 19.8' and varies locally. Iron staining occurs on fracture surface. >50% clay

DRAFT

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 259.0	GROUND ELEVATION (FT): 5884.80	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH:	753092	AREA: LANDFILL	CASING DIAMETER (IN): 2 3/8 O.D.	GEOLOGIST: DCB	B207189
EAST:	2084837	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN): 4.0	DATE DRILLED: 06/13/89	

REMARKS: Hollow Stem Auger: 0.0' to 28.0'; Rotary Core: 28.0' to 259.0'. Surface casing set at 28.0' below ground surface on 04/25/89 by E.M. Hill. ASI Log.

CHEMICAL SAMPLE DEPTH | GRADATIONAL SAMPLE DEPTH | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% – 50%) | PERCENT RECOVERY (100% OK – 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION



SILTSTONE:	Light gray (N7), poorly bedded, slightly friable. Some clay, iron staining on fractures.
CLAYSTONE:	Highly weathered. Dark yellowish brown (10 YR 4/2), bedding not apparent. Mod. friable, slight amount of iron staining locally. >50% clay.
SILTY CLAYSTONE:	Light gray (N7), bedding not apparent. Well weathered, slightly friable; on fresh surface color is med. gray (N5). >50% clay.

DRAFT

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 259.0	GROUND ELEVATION (FT):	5884.80	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH: 753092	AREA: LANDFILL	CASING DIAMETER (IN):	2 3/8 O.D.	GEOLOGIST: DCB	B207189
EAST: 2084837	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN):	4.0	DATE DRILLED: 06/13/89	

REMARKS: Hollow Stem Auger: 0.0' to 28.0'; Rotary Core: 28.0' to 259.0'. Surface casing set at 28.0' below ground surface on 04/25/89 by E.M. Hill. ASI Log.

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50%)	PERCENT RECOVERY (100% 0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				3.00 /3.10	5854	30				
						31	09/08/89 ▽			
					5853	32			CLAYSTONE:	Dark yellowish brown (10 YR 4/2), bedding not apparent. Highly weathered, mod. friable. Iron staining on possible fracture surface at approx. 33.2'.
					5852	33				
				1.20 /3.90	5851	34			SILTY CLAYSTONE:	Med. dark gray (N4), bedding not apparent. Weathered, slightly friable. >50% clay.
					5850	35				
					5849	36				
				1.00 /1.10	5848	37			SILTY CLAYSTONE:	Same as above, bedding is thin (2 mm.) where apparent. >50% clay.
				1.70 /1.40	5847	38				
				0.00 /0.50	5846	39			CLAYSTONE:	Dark gray (N3), thin bedded (2 mm.) where apparent. Weathered, mod. friable. Mod. silt component, slight amount of carbonaceous material. >50% clay.
					5845	40				

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 259.0	GROUND ELEVATION (FT):	5881.80	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH: 753092	AREA: LANDFILL	CASING DIAMETER (IN):	2 3/8 O.D.	GEOLOGIST: DCB	B207189
EAST: 2084837	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN):	4.0	DATE DRILLED: 06/13/89	

REMARKS: Hollow Stem Auger: 0.0' to 28.0'; Rotary Core: 28.0' to 259.0'. Surface casing set at 28.0' below ground surf ace on 04/25/89 by E.M. Hill. ASI Log

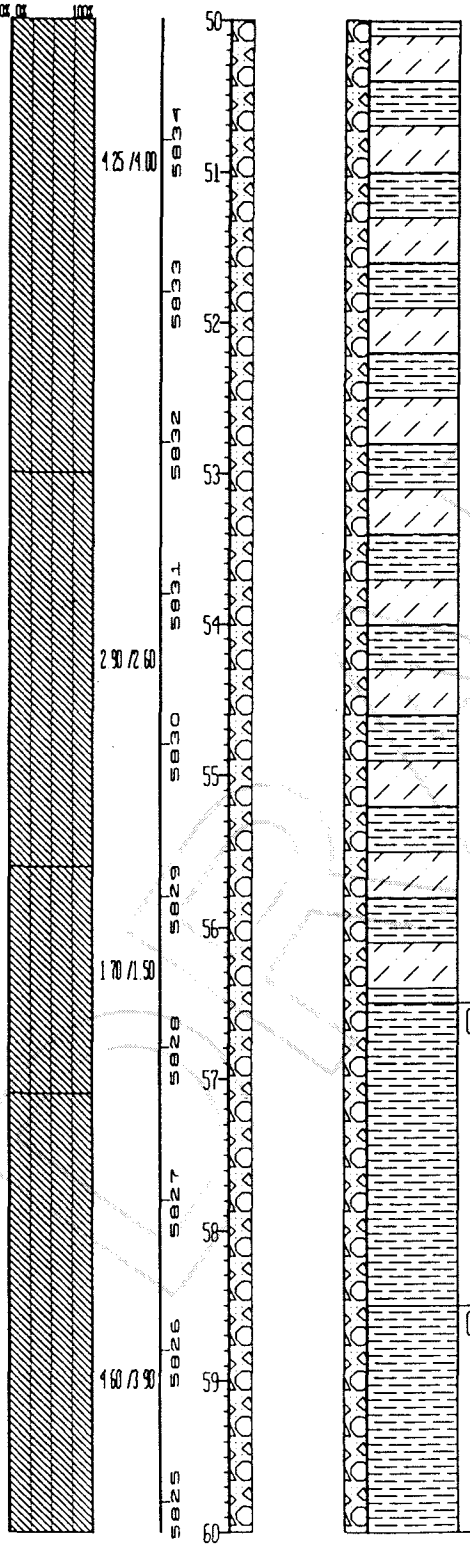
CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				3.85 /4.00	5841	40				
					5840	41				
					5839	42				
					5838	43				
				1.40 /1.40	5837	44				
					5836	45			CLAYSTONE	Claystone and Siltstone interbedded, dark gray (N3) and light gray (N7), respectively. Thin bedded (<2 mm.), soft sediment deformation apparent, slumping beds apparent. Slightly weathered, slightly friable. Some carbonaceous material. Iron staining on fractures and locally as irreg. mottling. Occasional bodies of coal (<2 mm.). Approx. 50% silt, approx. 50% clay
				2.45 /1.90	5835	46				
					5834	47				
				2.65 /2.70	5833	48				
					5832	49				
					5831	50				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 259.0	GROUND ELEVATION (FT): 5884.80	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH:	753092	AREA: LANDFILL	CASING DIAMETER (IN): 2 3/8 O.D.	GEOLOGIST: DCB	B207189
EAST:	2084937	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN): 4.0	DATE DRILLED: 06/13/89	

REMARKS: Hollow Stem Auger: 0.0' to 28.0'. Rotary Core: 28.0' to 259.0'. Surface casing set at 28.0' below ground surface on 04/25/89 by E.M. Hill. ASI Log

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CLAYSTONE	Same as above - silt fraction decreases. >50% clay
CLAYSTONE	Olive gray (5 Y 4/1), bedding not apparent. Weathered, slightly friable. >50% clay

DRAFT

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 259.0	GROUND ELEVATION (FT):	5884.80	PROJECT NUMBER:		LOG OF BORING NUMBER:
NORTH:	753092	AREA: LANDFILL	CASING DIAMETER (IN):	2 3/8 O.D.	GEOLOGIST:	DCB	B207189
EAST:	2084837	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN):	4.0	DATE DRILLED:	06/13/89	

REMARKS: Hollow Stem Auger: 0.0' to 28.0'; Rotary Core: 28.0' to 259.0'. Surface casing set at 28.0' below ground surface on 04/25/89 by E.M. Hill. ASI Log

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5824	60				
					5823	61			CLAYSTONE	Same as above, interval grades to dark gray (N3). >50% clay.
				3.40/3.30	5822	62			CLAYSTONE	Same as above. Iron nodules approx. 1 mm. in diam. at 62.5', and color grades to olive gray (5 Y 4/1) with slight silt fraction. >50% clay.
				0.80/0.70	5821	63				
					5820	64				
					5819	65			CLAYSTONE	Olive gray (5 Y 4/1), poorly bedded. Weathered, mod. friable. Mod. silt fraction that decreases with depth. Interval becomes carbonaceous from approx. 67.3' to approx. 67.6'. Bedding angle 0 degrees where apparent. >50% clay.
				4.70/4.00	5818	66				
					5817	67				
					5816	68			SILTY CLAYSTONE	Light gray (N7) to med. dark gray (N4). Bedding not apparent, slightly weathered, slightly friable.
					5815	69			SILTY CLAYSTONE	Interbedded Silty Claystone and m.g. to v.f.g. Sandstone. Thin bedded (<5 mm.), weathered. Mod. to slightly friable. Abundt. carbonaceous material in interval from approx. 70.0' to approx. 70.4'. Approx. 35% sand, approx. 10% silt, approx. 55% clay.
						70				

DRAFT

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 259.0		GROUND ELEVATION (FT):	5884.80	PROJECT NUMBER:	
NORTH:	753092	AREA: LANDFILL		CASING DIAMETER (IN):	2 3/8 O.D.	GEOLOGIST:	DCB
EAST:	2084837	LOCATOR NUMBER:	L13	BOREHOLE DIAMETER (IN):	4.0	DATE DRILLED:	06/13/89

REMARKS: Hollow Stem Auger: 0.0' to 28.0'; Rotary Core: 28.0' to 259.0'. Surface casing set at 28.0' below ground surface on 04/25/89 by E.M. Hill. ASI Log.

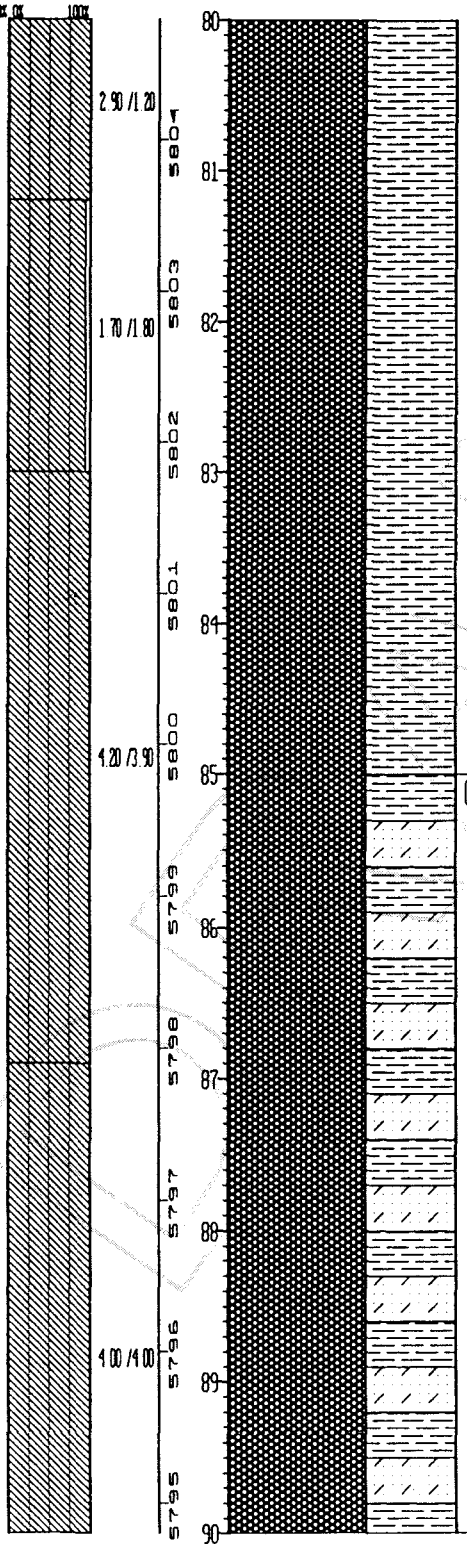
LOG OF BORING NUMBER: B207189

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
						70				
				4.10 /4.00	5814	71			SILTY CLAYSTONE	Interval grades to interbedded Silty Claystone and Siltstone. Silty Claystone and Siltstone med. dark gray (N4) to very light gray (N8), respectively. Thin bedded (<2 mm.), bedding exhibits soft sediment deformation. Slightly friable, some carbonaceous material. Slight to abundt. v.f.g. sand component. Fracture angle approx. 15 degrees. Approx. 35% sand, approx. 10% silt, approx. 55% clay
					5813	72				
					5812	73				
	B207189I				5811	74				
				1.55 /2.50	5810	75			CLAYSTONE	Dark gray (N3), bedding not apparent. Weathered, mod. friable. Mod. silt fraction, mod carbonaceous material.
				0.00 /0.50	5809	76			NO SAMPLE	NO SAMPLE
					5808	77			CLAYSTONE	Olive gray (5 Y 4/1), bedding not apparent. Weathered, mod. friable. Slight silt fraction increasing to mod. silt fraction with depth. Interval is carbonaceous from approx. 80.0' to 80.3'. >50% clay
				2.20 /4.00	5807	78				
					5806	79				
					5805	80				

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 259.0		GROUND ELEVATION (FT):	5884.80	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH:	753092	AREA: LANDFILL		CASING DIAMETER (IN):	2 3/8 O.D.	GEOLOGIST: DCB	B207189
EAST:	2084837	LOCATOR NUMBER: L13		BOREHOLE DIAMETER (IN):	4.0	DATE DRILLED: 06/13/89	

REMARKS: Hollow Stem Auger: 0.0' to 28.0'; Rotary Core: 28.0' to 259.0'. Surface casing set at 28.0' below ground surface on 04/25/89 by E.M. Hill. ASI Log.

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CLAYSTONE	Dark gray (N3), interfingering discontinuous beds of Silty Sandstone, <3 mm thick, very light gray (N8). Slightly friable, occasional carbonaceous material and iron stains. Sand is f.g. to v.f.g., Claystone has mod. silt fraction. Approx. 10% to 20% v.f.g. sand and silt, >70% clay.

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 259.0	GROUND ELEVATION (FT):	5884.80	PROJECT NUMBER:		LOG OF BORING NUMBER:
NORTH:	753092	AREA: LANDFILL	CASING DIAMETER (IN):	2 3/8 O.D.	GEOLOGIST:	DCB	B207189
EAST:	2084937	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN):	4.0	DATE DRILLED:	06/13/89	

REMARKS: Hollow Stem Auger: 0.0' to 28.0'; Rotary Core: 28.0' to 259.0'. Surface casing set at 28.0' below ground surf ace on 04/25/89 by E.M. Hill. AST Log

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%			90				
				0.00/0.10	5794	91			NO SAMPLE	NO SAMPLE
									CLAYSTONE	Same as above (reference interval 85.0' to 90.9')
				3.20/2.90	5793	92				
					5792	93				
				0.00/0.10	5791	94			NO SAMPLE	NO SAMPLE
									CLAYSTONE	Same as above (reference interval 85.0' to 90.9')
					5790	95				
				3.90/3.80	5789	96			CLAYSTONE	Med. dark gray (N4), bedding not apparent. Slightly friable, mod. silt fraction. >50% clay.
					5788	97			SILTY CLAYSTONE	Silty Claystone and Silty Sandstone, interbedded, med. dark gray (N4) and light gray (N7), respectively. Thin bedded (<4 mm.) to irreg. and distorted bedding (soft sediment deformation). Slightly friable, mod. carbonaceous material including occasional bodies of coal (<2 mm. diam.). Sand is m.g. to v.f.g., sub-rounded, poorly sorted. Bedding angle approx. 10 degrees. Approx. 45% sand and silt, approx. 55% clay.
					5787	98				
				2.60/2.40	5786	99				
					5785	100			CLAYSTONE	Claystone and Silty Sandstone interbedded, as above, with both intraclasts and sub-rounded Sandstone clasts

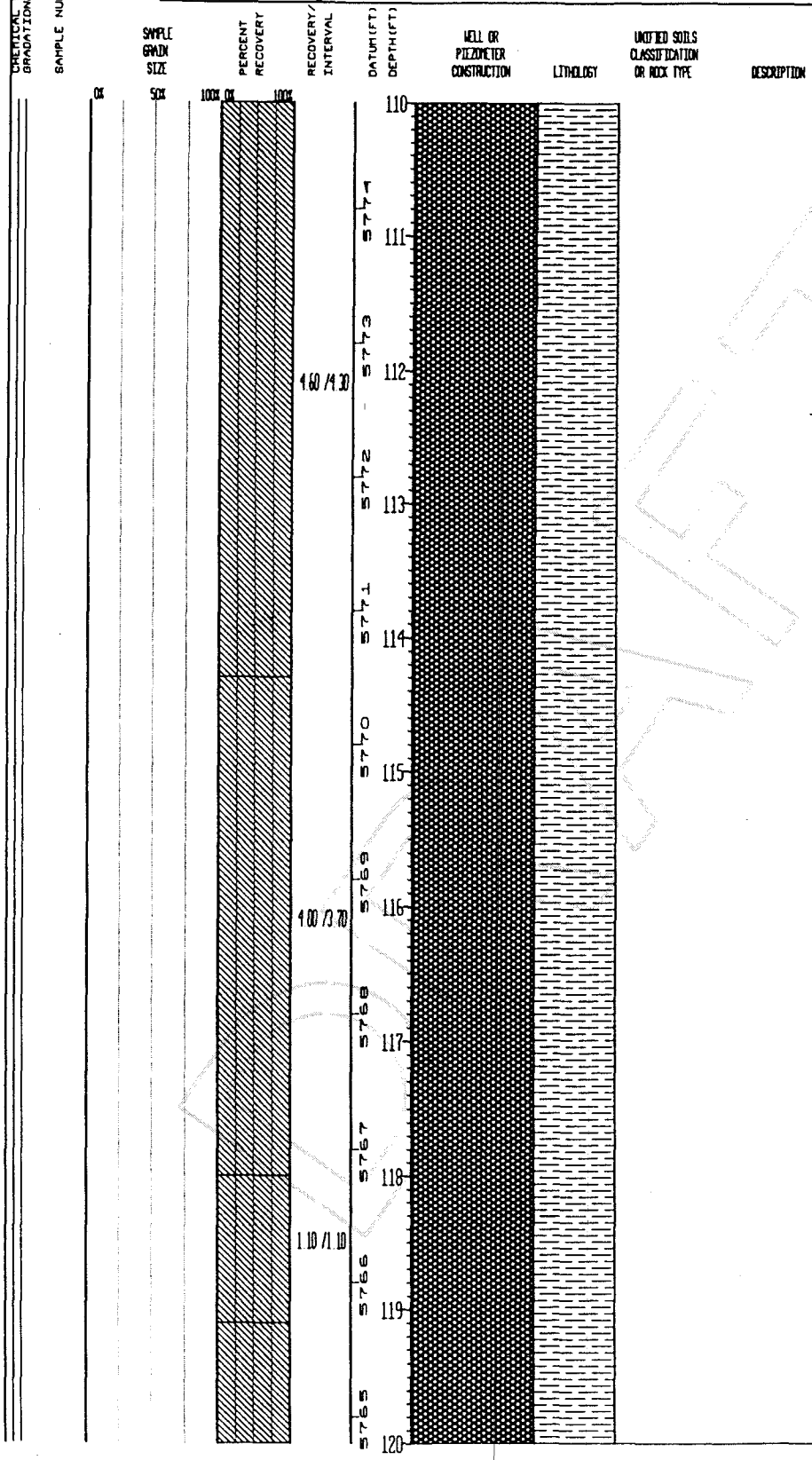
STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 259.0	GROUND ELEVATION (FT):	5884.80	PROJECT NUMBER:		LOG OF BORING NUMBER:
NORTH:	753092	AREA: LANDFILL	CASING DIAMETER (IN):	2 3/8 O.D.	GEOLOGIST:	DCB	B207189
EAST:	2084837	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN):	4.0	DATE DRILLED:	06/13/89	

REMARKS: Hollow Stem Auger 0.0' to 28.0'; Rotary Core 28.0' to 259.0'. Surface casing set at 28.0' below ground surface on 04/25/89 by E.M. Hill. ASI Log

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
						100				
				1.80 /1.80	5784	101			CLAYSTONE	Dom. Claystone from approx. 101.0' to approx. 101.8'
					5783	102			SANDSTONE	Sandstone interbedded with carbonaceous Claystone, light gray (N7) to dark gray (N3), respectively. Thin bedded (<4 mm.), mod. friable. Sand is f.g. to v.f.g. Claystone laminae exhibits soft sediment deformation. Mod. silt component in Sandstone. Bedding angle approx. 20 degrees. Approx. 80% f.g.-v.f.g. sand, approx. 20% clay and silt.
	B207189A				5782	103				
				3.50 /3.50	5781	104				
					5780	105			SANDY SILTSTONE	Sandy Siltstone with irreg. bedded v.f.g. Sandstone, med. gray (N5) and light gray (N7), respectively. Irreg. bedded, soft sediment deformation, occasional iron staining. Approx. 40% v.f.g. sand, approx. 60% silt.
				0.00 /0.50	5779	106			NO SAMPLE	NO SAMPLE.
	B207189B				5778	107			SANDY SILTSTONE	Same as above (reference interval 104.5' to 105.5') Small body of coal at approx. 108.1'. Approx. 40% v.f.g. sand, approx. 60% silt.
				4.10 /4.00	5777	108				
					5776	109			CLAYSTONE	Med. dark gray (N4), bedding not apparent. Mod. friable, slight silt component. >50% clay
					5775	110				

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 259.0	GROUND ELEVATION (FT):	5884.80	PROJECT NUMBER:		LOG OF BORING NUMBER:
NORTH:	753092	AREA: LANDFILL	CASING DIAMETER (IN):	2 3/8 O.D.	GEOLOGIST:	DCB	B207189
EAST:	2084837	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN):	4.0	DATE DRILLED:	06/13/89	

REMARKS: Hollow Stem Auger: 0.0' to 28.0'; Rotary Core: 28.0' to 259.0'. Surface casing set at 28.0' below ground surface on 04/25/89 by E.M. Hill. ASI Log

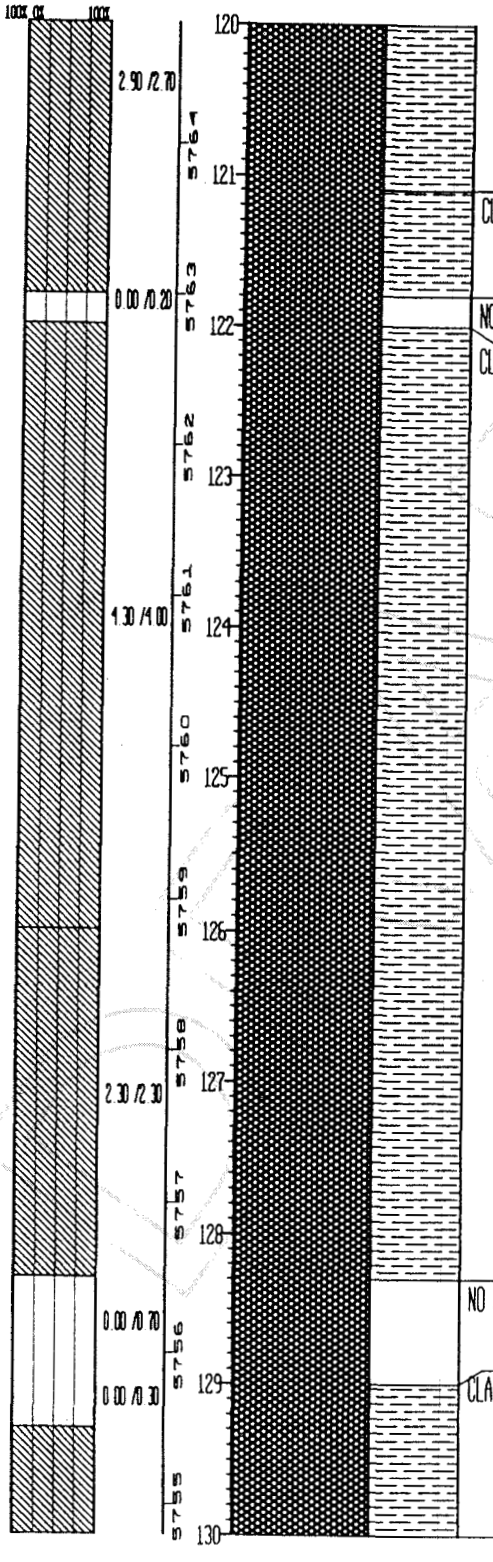


DRAFT

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 259.0	GROUND ELEVATION (FT):	5884.80	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH: 753092	AREA: LANDFILL	CASING DIAMETER (IN):	2 3/8 O.D.	GEOLOGIST: DCB	B207189
EAST: 2084837	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN):	4.0	DATE DRILLED: 06/13/89	

REMARKS: Hollow Stem Auger 0.0' to 28.0'; Rotary Core 28.0' to 259.0'. Surface casing set at 28.0' below ground surface on 04/25/89 by E.M. Hill. ASI Log.

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE
PERCENT RECOVERY
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION

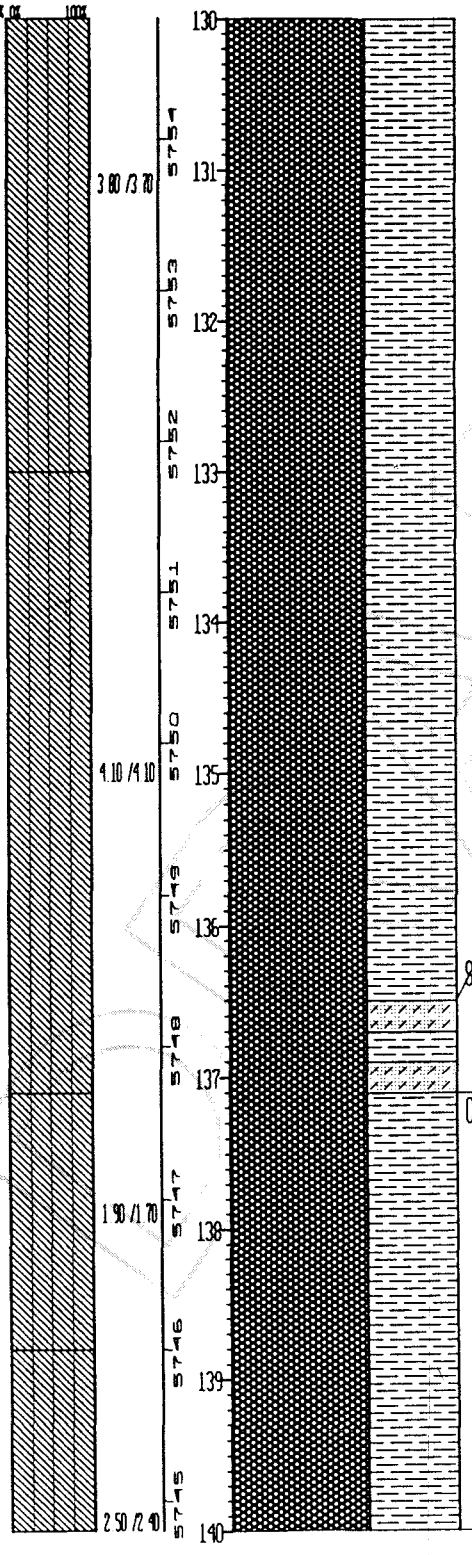


UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CLAYSTONE	Light brown (5 YR 6/4), massively bedded. Slightly friable, well indurated. Slight silt fraction.
NO SAMPLE	NO SAMPLE.
CLAYSTONE	Med. dark gray (N4), bedding not apparent. Mod. friable, very slight silt fraction. Slickensides at approx. 125.5' with approx. vertical attitude. >50% clay.
NO SAMPLE	NO SAMPLE.
CLAYSTONE	Same as above (reference interval 122.0' to 128.3'). Color grades to dark gray (N3) to grayish black (N2) from approx. 129.6' to approx. 130.0'. slight to mod. amount of carbonaceous material below 129.0'. >50% clay.

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 259.0	GROUND ELEVATION (FT):	5884.80	PROJECT NUMBER:		LOG OF BORING NUMBER:
NORTH:	753092	AREA: LANDFILL	CASING DIAMETER (IN):	2 3/8 O.D.	GEOLOGIST:	DCB	B207189
EAST:	2084837	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN):	4.0	DATE DRILLED:	06/13/89	

REMARKS: Hollow Stem Auger: 0.0' to 28.0'; Rotary Core: 28.0' to 259.0'. Surface casing set at 28.0' below ground surface on 04/25/89 by E.M. Hill. AST Log

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



SANDY SILTSTONE: Sandy Siltstone with interbedded Claystone, light gray (N7) to med. gray (N5), respectively. Thin bedded, slightly friable, mod. carbonaceous material.
Approx. 40% sand, approx. 50% silt, approx. 10% clay.

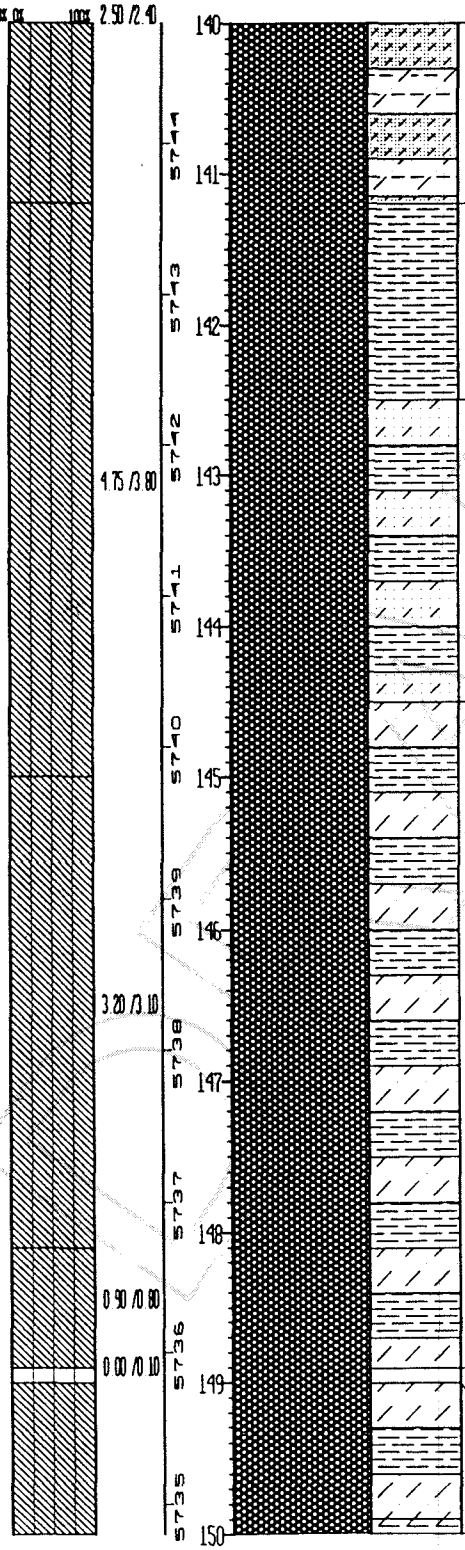
CLAYSTONE: Med. dark gray (N4), bedding not apparent. Mod. friable, slight silt component. Slight amount of carbonaceous material.
>50% clay

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 259.0	GROUND ELEVATION (FT):	5884.80	PROJECT NUMBER:		LOG OF BORING NUMBER:
NORTH:	753092	AREA: LANDFILL	CASING DIAMETER (IN):	2 3/8 O.D.	GEOLOGIST:	DCB	B207189
EAST:	2084837	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN):	4.0	DATE DRILLED:	06/13/89	

REMARKS: Hollow Stem Auger: 0.0' to 28.0'; Rotary Core: 28.0' to 259.0'. Surface casing set at 28.0' below ground surface on 04/25/89 by E.M. Hill. ASI Log.

CHEMICAL SAMPLE DEPTH | GRADATIONAL SAMPLE DEPTH | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50%) | PERCENT RECOVERY (100% 0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
SANDY SILTSTONE	Interbedded Sandy Siltstone and Silty Claystone, light gray (N7) and med. dark gray (N4). Thin bedded (<3 mm.), slightly friable, sand fraction is v.f.g. Approx. 30% v.f.g. sand, approx. 40% silt, approx. 30% clay.
CLAYSTONE	Interval grades to Claystone. Med. dark gray (N4), bedding not apparent. Slightly friable, slight to mod. carbonaceous material. >50% clay.
SILTY SANDSTONE	Silty Sandstone interbedded with Claystone, very light gray (N8) and med. dark gray (N4), respectively. Thin bedded (<2 mm.), soft sediment deformation apparent. Slight amount of carbonaceous material. Approx. 85% v.f.g. sand, approx. 15% clay and silt.
SILTSTONE	Interbedded Siltstone and Claystone, light gray (N7) and med. gray (N5), respectively. Thin bedded (<4 mm.) where apparent. Interval exhibits soft sediment deformation, slumping and convoluted bedding. Slightly friable, some v.f.g. sand occurs in beds and irreg. bodies. Approx. 15% v.f.g. sand, approx. 55% silt, approx. 30% clay.
NO SAMPLE	NO SAMPLE.
SILTSTONE	Interbedded Siltstone and Claystone as above (reference interval 144.5' to 148.9'). Bedding angle 10 degrees. >50% clay.

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 259.0	GROUND ELEVATION (FT): 5884.80	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH:	753092	AREA: LANDFILL	CASING DIAMETER (IN): 2 3/8 O.D.	GEOLOGIST: DCB	B207189
EAST:	2084837	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN): 4.0	DATE DRILLED: 06/13/89	

REMARKS: Hollow Stem Auger: 0.0' to 28.0'; Rotary Core: 28.0' to 259.0'. Surface casing set at 28.0' below ground surface on 04/25/89 by E.M. Hill. ASI Log.

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				3.75 /3.70	5734	150–151				
					5733	152				
					5732	153			CLAYSTONE	Dark gray (N3), bedding not apparent. Mod friable. Interval is carbonaceous from approx. 155.5' to 156.3'. >50% clay.
					5731	154				
				3.30 /4.00	5730	155				
					5729	156				
				0.00 /0.30	5728	157			NO SAMPLE	NO SAMPLE
				0.00 /0.30					CLAYSTONE	Same as above (reference interval 152.7' to 156.7'). >50% clay.
					5727	158			NO SAMPLE	NO SAMPLE
				0.00 /1.80	5726	159				
				1.60 /1.60	5725	160			CLAYSTONE	Same as above (reference interval 152.7' to 156.7'). >50% clay.

DRAFT

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 259.0	GROUND ELEVATION (FT): 5884.80	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH:	753092	AREA: LANDFILL	CASING DIAMETER (IN): 2 3/8 O.D.	GEOLOGIST: DCB	B207189
EAST:	2084837	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN): 4.0	DATE DRILLED: 06/13/89	

REMARKS: Hollow Stem Auger: 0.0' to 28.0'; Rotary Core: 28.0' to 259.0'. Surface casing set at 28.0' below ground surface on 04/25/89 by E.M. Hill. ASI Log.

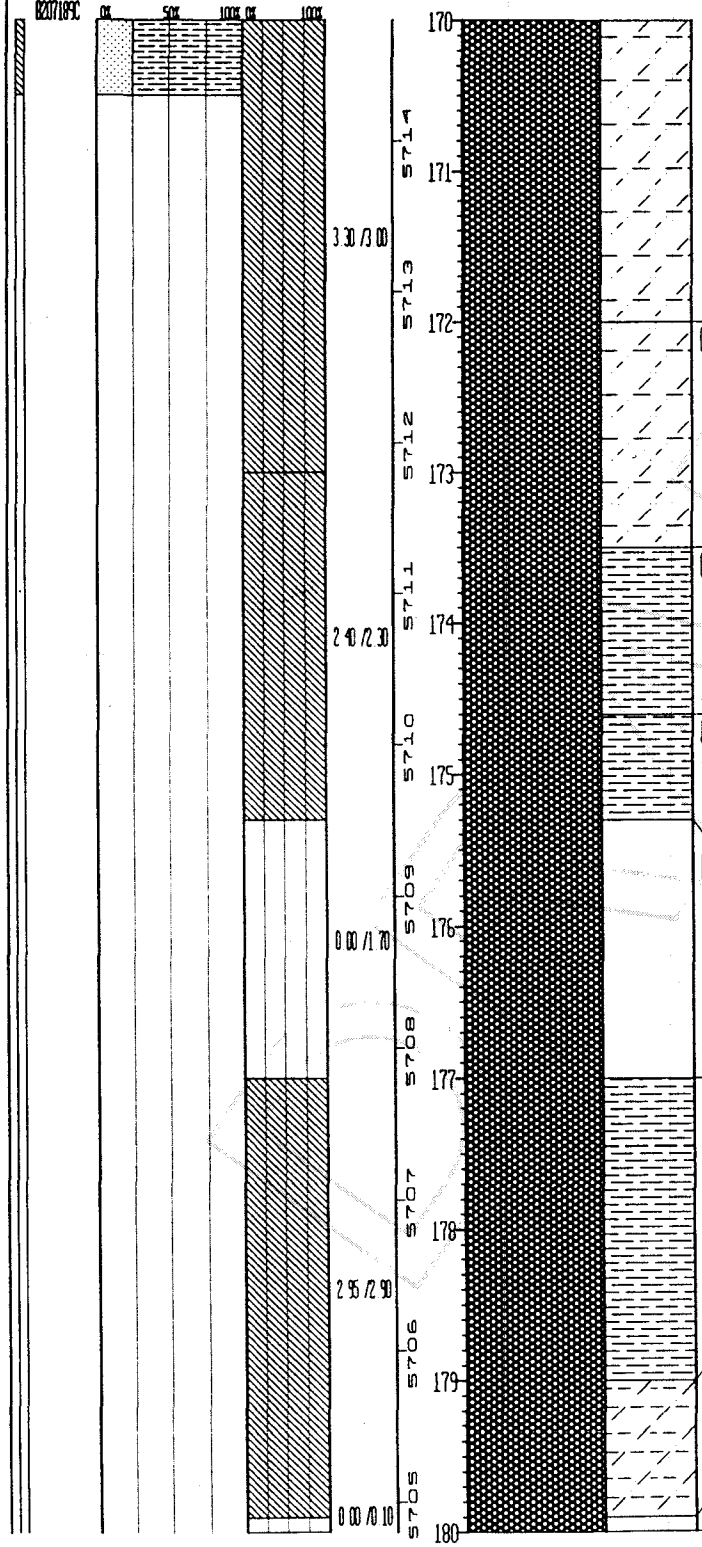
CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%	0.90/0.80	5724	160			CLAYSTONE	Olive gray (5 Y 4/1), bedding not apparent. Slightly friable, mod. silt fraction. Occasional carbonaceous material. Slickensides at approx. 161.3', attitude vertical. >50% clay.
					5723	161			CLAYSTONE	Interval is highly weathered Claystone. Brownish black (5 YR 2/1), bedding not apparent, soft and pliable consistency. >50% clay.
					5722	162			CLAYSTONE	Med. dark gray (N4), bedding not apparent. Slightly friable, slight to mod. silt fraction. >50% clay.
				3.60/3.50	5721	163			SILTY CLAYSTONE	Med. gray (N5), bedding not apparent. Slightly friable, occasional carbonaceous material. >50% clay.
					5720	164				
					5719	165				
				4.00/4.00	5718	166				
					5717	167				
					5716	168				
				1.00/1.00	5715	169			CLAYEY SILTSTONE	Interval grades to Clayey Sandy Siltstone. Light gray (N7) and med. light gray (N6). Irreg. bedded where apparent (sand both occurs in and defines bedding). Slightly friable, sand is v.f.g. Approx. 30% sand, approx. 40% silt, approx. 30% clay.
						170				

B207189C

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 259.0	GROUND ELEVATION (FT) 5884.80	PROJECT NUMBER		LOG OF BORING NUMBER
NORTH	753092	AREA LANDFILL	CASING DIAMETER (IN) 2 3/8 O.D.	GEOLOGIST	DCB	B207189
EAST	2084837	LOCATOR NUMBER L13	BOREHOLE DIAMETER (IN) 4.0	DATE DRILLED	06/13/89	

REMARKS: Hollow Stem Auger 0.0' to 28.0'; Rotary Core 28.0' to 259.0'. Surface casing set at 28.0' below ground surface on 04/25/89 by E.M. Hill. ASI Log

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE
PERCENT RECOVERY
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CLAYEY SILTSTONE	Clayey Sandy Siltstone as above. Mod. amount of carbonaceous material. Bedding is thin (<2 mm.) soft sediment deformation apparent. Bedding angle 0 degrees to 15 degrees.
CLAYSTONE	Carbonaceous Claystone, black (N1), bedding not apparent. Slightly friable. >50% clay.
CLAYSTONE	Med. dark gray (N4), bedding not apparent. Slightly friable, mod. silt fraction. Mod. to abundt. carbonaceous material. >50% clay.
NO SAMPLE	NO SAMPLE
CLAYSTONE	Same as above (reference interval from 174.6' to 175.3') >50% clay
SILTY CLAYSTONE	Med. light gray (N6), bedding not apparent. Slightly friable. Occasional carbonaceous material. Slight to mod. v.f.g. sand component. (Silty Claystone with some Sand) Approx. 15% v.f.g. sand, approx. 25% silt, approx. 60% clay.
NO SAMPLE	NO SAMPLE

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 259.0	GROUND ELEVATION (FT): 5884.80	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH:	753092	AREA: LANDFILL	CASING DIAMETER (IN): 2 3/8 O.D.	GEOLOGIST: DCB	B207189
EAST:	2084837	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN): 4.0	DATE DRILLED: 06/13/89	

REMARKS: Hollow Stem Auger: 0.0' to 28.0'; Rotary Core: 28.0' to 259.0'. Surface casing set at 28.0' below ground surf ace on 04/25/89 by E.M. Hill. ASI Log.

CHEMICAL SAMPLE DEPTH | GRADATIONAL SAMPLE DEPTH | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION

RECOVERY/INTERVAL: 0.90/0.90; 3.10/3.00; 4.10/4.10; 2.20/2.20

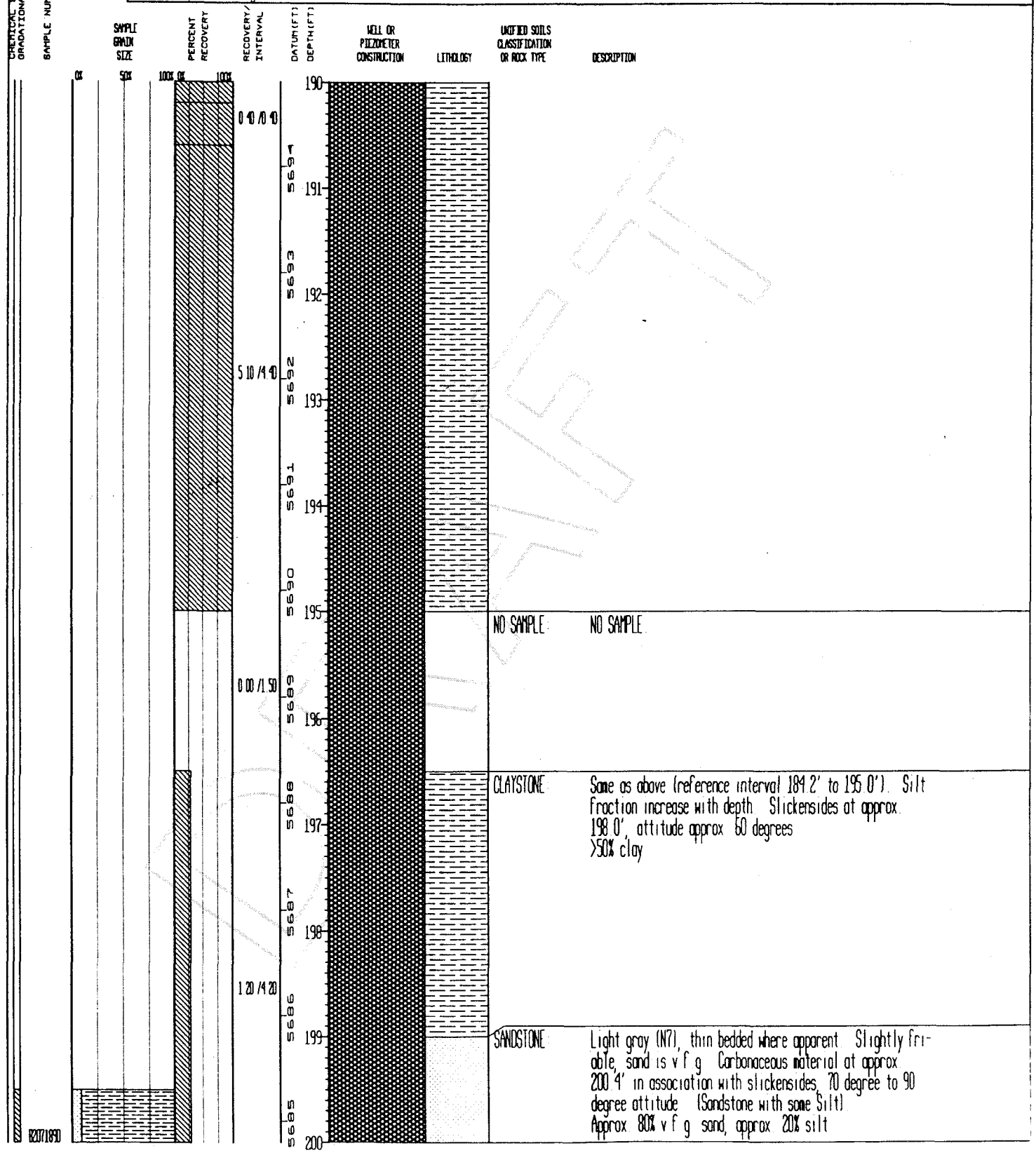
DATUM (FT): 5704, 5703, 5702, 5701, 5700, 5699, 5698, 5697, 5696, 5695

DEPTH (FT): 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190

UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
SILTY CLAYSTONE	Same as above (reference interval 179.0' to 179.9'). (Silty Claystone and some Sand). Approx. 15% v.f.g. sand, approx. 25% silt, approx. 60% clay.
SANDY SILTSTONE	Med. light gray (N6), massive bedding with some discontinuous thin beds of v.f.g. sand (<2" mm. thick). Slightly friable, sand is v.f.g. and is disseminated throughout the interval and in occasional thin beds. Some clay. (Sandy Siltstone with some Clay). Approx. 25% sand, >50% silt, approx. 10% clay.
SILTY CLAYSTONE	Med. dark gray (N4), poorly bedded. Slightly friable, silt fraction varies from Claystone. Some silt to sitly. >50% clay
CLAYSTONE	Dark gray (N4), poorly bedded. Slightly to mod. friable. Trace of carbonaceous material. Some to trace of silt. Slickensides at approx. 187.5', vertical attitude. Carbonaceous material is in association with slickensides. >50% clay

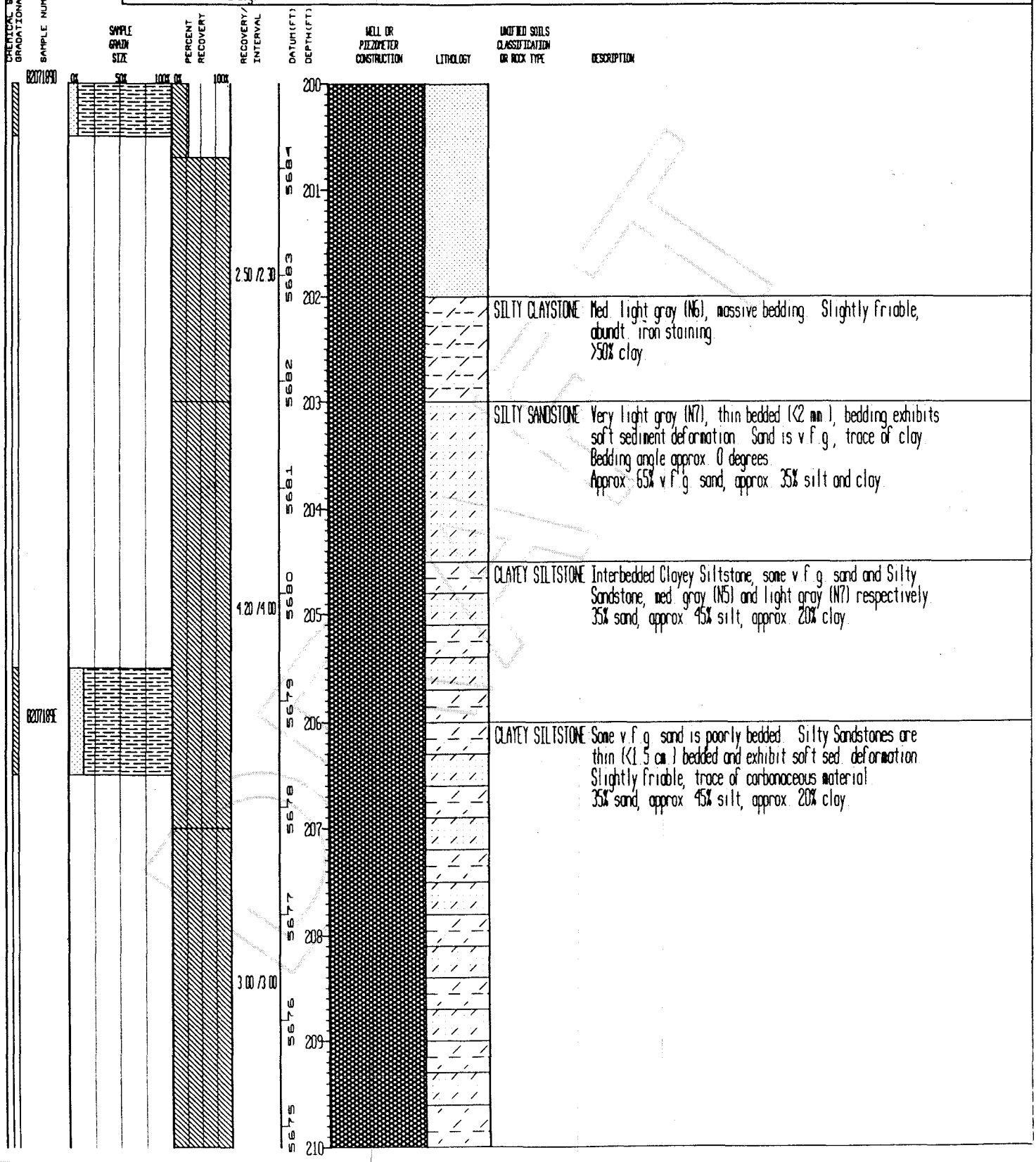
STATE PLANE COORDINATE		TOTAL DEPTH (FT): 259.0	GROUND ELEVATION (FT): 5884.80	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH:	753092	AREA: LANDFILL	CASING DIAMETER (IN): 2 3/8 O.D.	GEOLOGIST: DCB	B207189
EAST:	2094837	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN): 4.0	DATE DRILLED: 06/13/89	

REMARKS: Hollow Stem Auger: 0.0' to 28.0'; Rotary Core: 28.0' to 259.0'. Surface casing set at 28.0' below ground surface on 04/25/89 by E.M. Hill. ASI Log



STATE PLANE COORDINATE		TOTAL DEPTH (FT) 259.0	GROUND ELEVATION (FT) 5884.80	PROJECT NUMBER	LOG OF BORING NUMBER
NORTH:	753092	AREA: LANDFILL	CASING DIAMETER (IN) 2 3/8 O.D.	GEOLOGIST: DCB	B207189
EAST:	2084837	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN) 4.0	DATE DRILLED: 06/13/89	

REMARKS: Hollow Stem Auger: 0.0' to 28.0'; Rotary Core: 28.0' to 259.0'. Surface casing set at 28.0' below ground surface on 04/25/89 by E.M. Hill. ASI Log.



STATE PLANE COORDINATE		TOTAL DEPTH (FT) 259.0	GROUND ELEVATION (FT) 5884.80	PROJECT NUMBER		LOG OF BORING NUMBER
NORTH	753092	AREA LANDFILL	CASING DIAMETER (IN) 2 3/8 O.D.	GEOLOGIST	DCB	B207189
EAST	2084837	LOCATOR NUMBER L13	BOREHOLE DIAMETER (IN) 4.0	DATE DRILLED	06/13/89	

REMARKS: Hollow Stem Auger 0.0' to 28.0'. Rotary Core 28.0' to259.0' Surface casing set at 28.0' below ground surf ace on 04/25/89 by E.M. Hill. AST Log

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				1.40/1.60	5674	210–211			SANDSTONE	Light gray (N7), thin bedded where apparent (<2 mm.) Slightly friable, some silt. Trace of clay and carbonaceous material. Sand is v.f.g. Bedding angle approx. 10 degrees (Sandstone with some Silt and Clay) Approx. 85% v.f.g. sand, approx. 15% silt and clay
					5673	212				
					5672	213				
				3.90/4.00	5671	214				
					5670	215				
				0.00/0.10	5669	216			NO SAMPLE	NO SAMPLE
					5668	217			SANDSTONE	Same as above (reference interval 210.0' to 215.5') Locally silty. (Sandstone with some Silt and Clay) Approx. 85% v.f.g. sand, approx. 15% silt and clay
				4.00/3.90	5667	218				
					5666	219			SILTY SANDSTONE	Silty Sandstone interbedded with Sandy Siltstone, light gray (N7) and med. light gray (N6), respectively. Thin bedded (<2 mm. to approx. 1.5 cm.) Dewatering features apparent. Slightly friable, trace of carbonaceous material and clay. Sand is v.f.g. to f.g. Approx 65% v.f.g.-f.g. sand, approx. 30% silt, approx. 5% clay
					5665	220				

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 259.0	GROUND ELEVATION (FT): 5884.80	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH:	753092	AREA: LANDFILL	CASING DIAMETER (IN): 2 3/8 O.D.	GEOLOGIST: DCB	B207189
EAST:	2084837	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN): 4.0	DATE DRILLED: 06/13/89	

REMARKS: Hollow Stem Auger: 0.0' to 28.0'; Rotary Core: 28.0' to 259.0'. Surface casing set at 28.0' below ground surf ace on 04/25/89 by E.M. Hill. AST Log.

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	B207189F			3.90 /4.10	5664	220				
					5663	221				
					5662	222				
					5661	223				
					5660	224				
				3.90 /3.90	5659	225				
					5658	226				
					5657	227				SILTY SANDSTONE: Same as above. Core exhibits multiple displacements of approx. 2 cm, associated with soft sediment deformation (e.g., slumps, deformed bedding). Displacement angles approx. 60 degrees. (Silty Sandstone with trace of Clay) Approx. 65% sand, approx. 30% silt, approx. 5% clay
				2.00 /2.10	5656	228				
					5655	229				
						230				

DRAFT

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 259.0	GROUND ELEVATION (FT):	5884.80	PROJECT NUMBER:		LOG OF BORING NUMBER:
NORTH:	753092	AREA: LANDFILL	CASING DIAMETER (IN):	2 3/8 O.D.	GEOLOGIST:	DCB	B207189
EAST:	2084837	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN):	4.0	DATE DRILLED:	06/13/89	

REMARKS: Hollow Stem Auger: 0.0' to 28.0', Rotary Core: 28.0' to 259.0'. Surface casing set at 28.0' below ground surf ace on 04/25/89 by E.M. Hill. ASI Log.

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%			230				
					5651	231				
					5653	232				
				4.00/6.00	5652	233				
					5651	234				
					5650	235				
					5649	236				SILTY SANDSTONE: Light gray (N7) to med. light gray (N6), thin bedded (<2 mm). Slightly friable, trace of clay and carbonaceous material. Approx. 75% v.f.g. sand, approx. 25% silt and clay.
					5648	237				
				4.00/4.00	5647	238				
	B207189S				5646	239				
					5645	240				

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 259.0	GROUND ELEVATION (FT): 5884.80	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH:	753092	AREA: LANDFILL	CASING DIAMETER (IN): 2 3/8 O.D.	GEOLOGIST: DCB	B207189
EAST:	2084837	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN): 4.0	DATE DRILLED: 06/13/89	

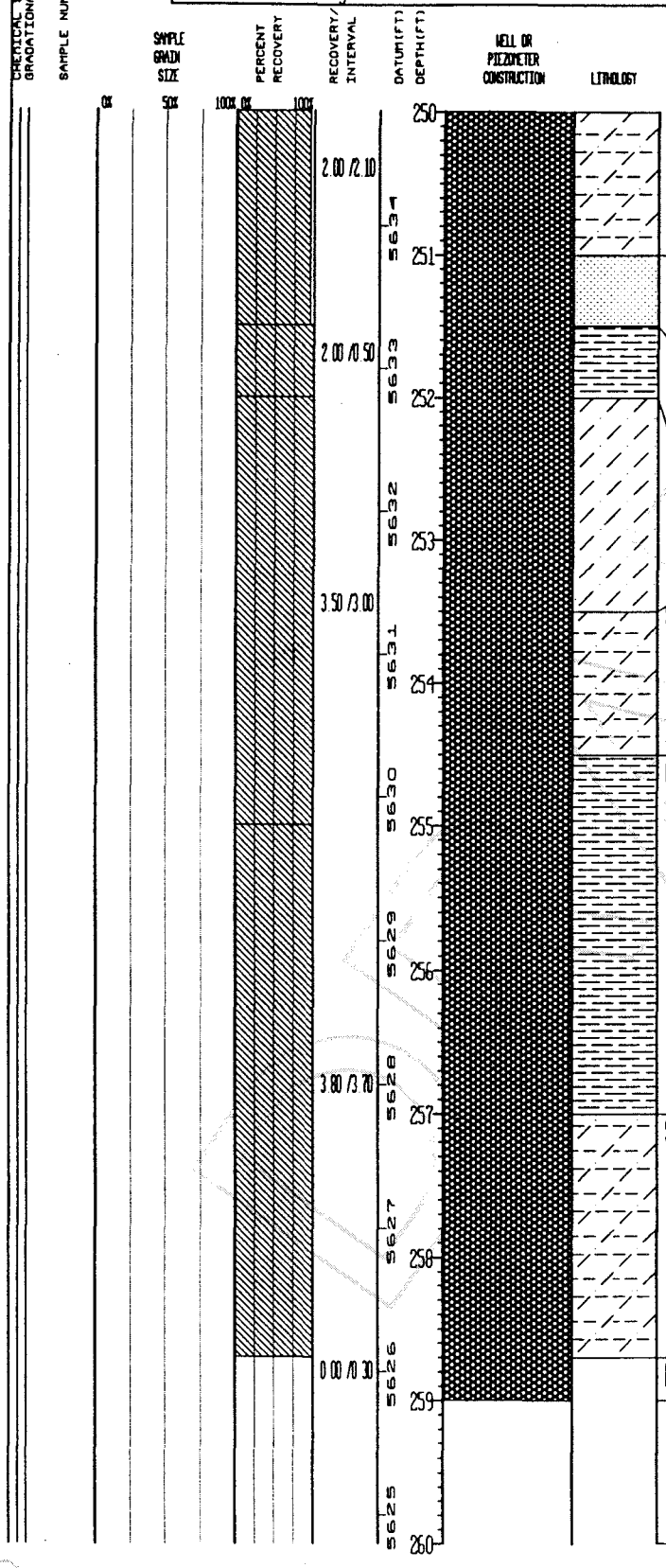
REMARKS: Hollow Stem Auger: 0.0' to 28.0'; Rotary Core: 28.0' to 259.0' Surface casing set at 28.0' below ground surface on 04/25/89 by E.M. Hill. ASI Log.

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL: 2.80/2.60; 4.30/4.40; 2.60/2.40
DATUM (FT): 5641, 5640, 5639, 5638, 5637, 5636, 5635
DEPTH (FT): 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY

UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
SILTSTONE	Light gray (N7), massive bedding. Slightly friable, trace of clay, some v.f.g. sand. Approx. 10% sand, >50% silt
SILTY CLAYSTONE	Med. dark gray (N4), poorly bedded. Slightly friable. Slickensides at approx. 242.8', attitude 40 degrees. >50% clay
SILTY CLAYSTONE	Same as above, trace of carbonaceous material. Slickensides at approx. 245.5', attitude vertical and approx. 38 degrees. Slickensides at approx. 246.5', attitude approx. 40 degrees and approx. 80 degrees. Slickensides at approx. 248.0', attitude approx. 50 degrees. Silt fraction increases in interval from 248.8' to 249.4'. Silt content decreases below 249.5'. >50% silt

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 259.0	GROUND ELEVATION (FT):	5884.80	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH: 753092	AREA: LANDFILL	CASING DIAMETER (IN):	2 3/8 O.D.	GEOLOGIST: DCB	B207189
EAST: 2084837	LOCATOR NUMBER: L13	BOREHOLE DIAMETER (IN):	4.0	DATE DRILLED: 06/13/89	

REMARKS: Hollow Stem Auger: 0.0' to 28.0'; Rotary Core: 28.0' to 259.0' Surface casing set at 28.0' below ground surface on 04/25/89 by E.M. Hill. ASI Log



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
SANDSTONE	Very light gray (N8), thin bedded. Slightly friable, v.f.g. sand >50% v.f.g. sand
CLAYSTONE	Carbonaceous Claystone and low grade coal. Grayish black (N2). Bedding not apparent. Slightly friable. >50% clay-and coal
SILTSTONE	Med. light gray (N6), poorly bedded. Slightly friable, some v.f.g. sand and clay. Trace of carbonaceous material, locally sandy. 10-30% v.f.g. sand, >50% silt.
SILTY CLAYSTONE	Med. light gray (N6), poorly bedded. Slightly friable, some to trace of v.f.g. sand <10% v.f.g. sand, >50% clay.
CLAYSTONE	Med. dark gray (N4), poorly bedded. Slightly friable, trace to some silt >50% clay.
SILTY CLAYSTONE	Light gray (N7), poorly bedded. Slightly friable, trace of carbonaceous material >50% clay.
NO SAMPLE	Core missing
	Total Drilled Depth = 259.0'

WELL COMPLETION INFORMATION

QA By/Date Farrell German 11-29-89

Location Rocky Flats Plant; Landfill Area **Well No.** B207189

Coordinates N 40107.09 E 21741.74 (RFP) **Elevation: Ground Surface** 5884.80'

Total Depth: Well 77.76' **Top of Casing** 5886.72'

Borehole 259'

Formation of Completion Unweathered Sandstone

Casing Material Schedule 80 PVC **Casing Diameter** 2 3/8" O.D.

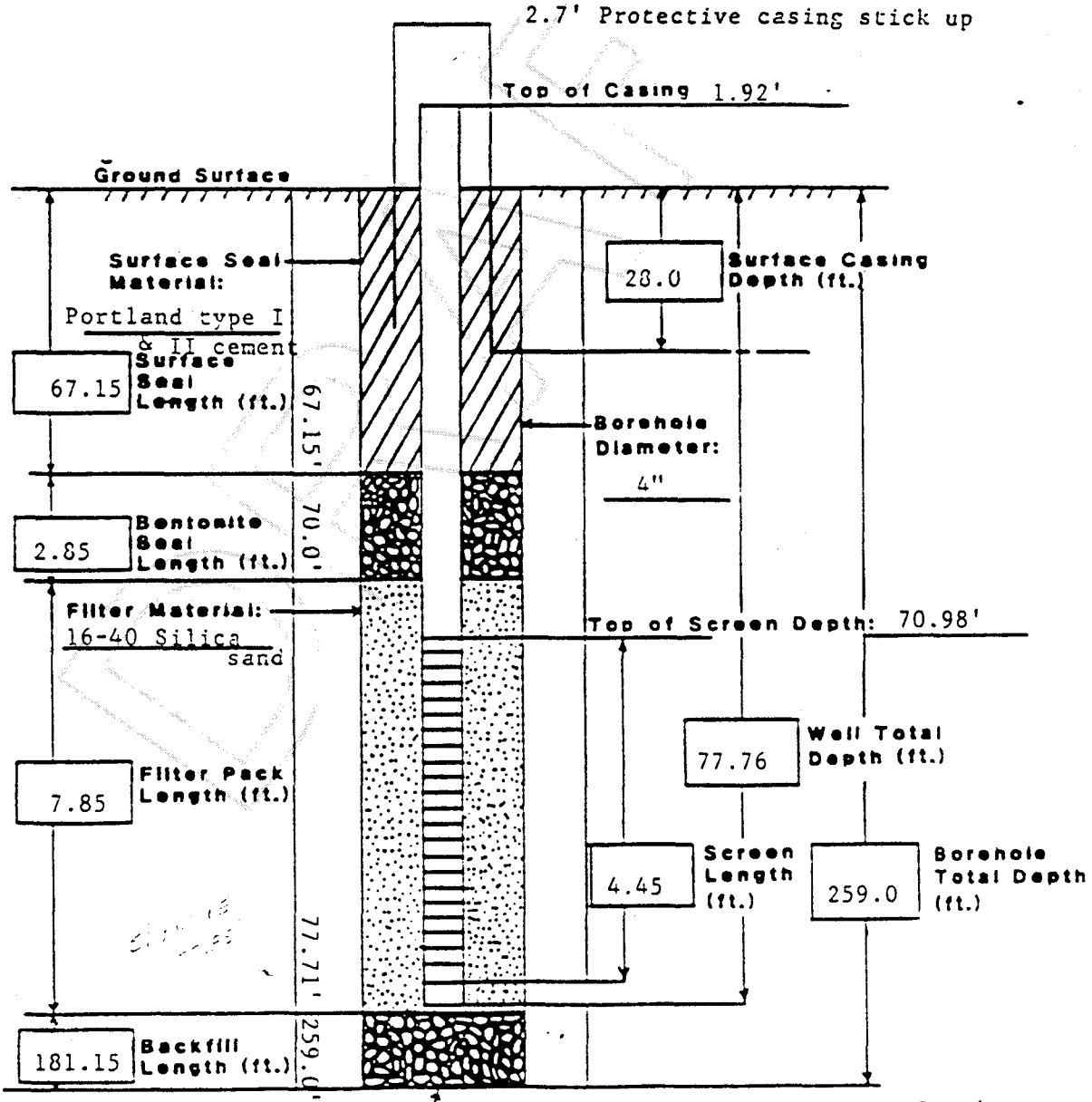
Screen Material Schedule 80 10-slotted PVC **Surface Casing Diameter** 5 5/8" O.D.

Date Installed 06/19 & 06/20/1989 **Approved By** Farrell German

Installed By H.G. Bienkowski, Geologist — Site Manager

CEARP Manager

Comments No centralizer used. Well was constructed inside drill rods.



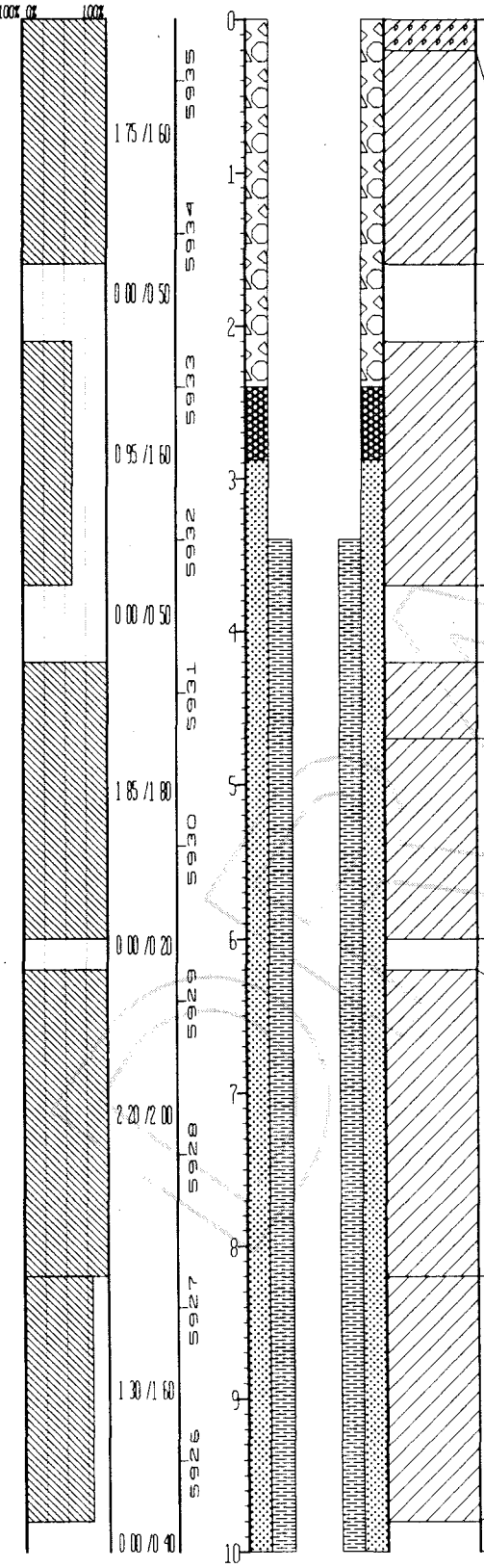
Backfill Material: Portland type I & II cement to 86.5'; 1/4" Volclay bentonite pellets 86.5' to 77.85' 16-40 Silica sand from 77.85' to well lid

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 22 2	GROUND ELEVATION (FT) 5935 40	PROJECT NUMBER	LOG OF BORING NUMBER
NORTH	751143	AREA SOLAR POND	CASING DIAMETER (IN) 4 5 0 D	GEOLOGIST DAT	B208089
EAST	2085876	LOCATOR NUMBER M11	BOREHOLE DIAMETER (IN) 7 25	DATE DRILLED 04/17/89	

REMARKS Hollow Stem Auger ASI Log

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER

SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
SC	Clayey Sand - dusky yellowish brown (10 YR 2/2), est mod plasticity Some sand, trace of gravel 70% sand, 30% clay
CL	Clayey Sand - dark yellowish orange (10 YR 6/6) grading to yellowish gray (5 Y 8/1) Massive bedding Highly weathered, mod friable Sand is f g, mod -well sorted Abundant Fe at top
NO SAMPLE	NO SAMPLE
CL	Sandy Clay - grayish orange (10 YR 7/4) Mod plasticity Sand is v f g - f g, some silt This core is broken up, possibly sluff
NO SAMPLE	NO SAMPLE
CL	Same as above
CL	Gravelly Sandy Clay - dark yellowish orange (10 YR 6/6) Mod plasticity Sand is v f g -m g, max gravel size approx 5 5 cm (Sandy Clay with some Gravel) 20% gravel, 25% sand, 55% clay
NO SAMPLE	NO SAMPLE
CL	Same as above Decreased gravel fraction Sandy Clay - highly sandy at approx 6 5' Red, v c g -c g sand, with assoc micaceous material
CL	Clay - grayish orange (10 YR 7/4), est mod plasticity Some sand, some iron staining as mottles
NO SAMPLE	NO SAMPLE

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 22 2	GROUND ELEVATION (FT)	5935 40	PROJECT NUMBER		LOG OF BORING NUMBER
NORTH	751143	AREA SOLAR POND	CASING DIAMETER (IN)	4 5 O D	GEOLOGIST	DAT	B208089
EAST	2085876	LOCATOR NUMBER M11	BOREHOLE DIAMETER (IN)	7 25	DATE DRILLED	04/17/89	

REMARKS Hollow Stem Auger ASI Log

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY

RECOVERY/INTERVAL	DATUM (FT)	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
0 00 /0 40			
0 40 /0 40	5925	GC	Clayey Gravel - matrix color is dark yellowish brown (10 YR 4/2), sub-angular to sub-rounded Mod poorly graded, max size approx 6 cm Some silt, trace sand
0 00 /1 60	5924	NO SAMPLE	NO SAMPLE
	5923	CLAYSTONE	Top of Bedrock Claystone - dark yellowish orange (10 YR 6/6) Highly weathered, some carbonaceous material at base Some sand f g -m g
1 70 /1 70	5922		
0 00 /0 30		NO SAMPLE	NO SAMPLE
	5921	CLAYSTONE	Grayish orange (10 YR 7/4), no apparent bedding Highly weathered, mod friable, broken texture Some v f g sand Some iron staining as mottles Trace of Mg staining
1 00 /1 50	5920		
0 00 /0 50		NO SAMPLE	NO SAMPLE
	5919	SANDY CLAYSTONE	Yellowish gray (5 Y 8/1), Non-apparent bedding Well weathered, mod friable Sand is v f g -f g, trace of carbonaceous material Some silt (Sandy Claystone with some Silt) 25% sand, 60% clay, 15% silt
1 60 /1 70	5918		
0 00 /0 30		NO SAMPLE	NO SAMPLE
	5917	SILTY CLAYSTONE	Yellowish gray (5 Y 8/1), non-apparent bedding Well weathered, mod friable Trace of sand Trace of iron staining as mottles Trace of carbonaceous material
1 30 /2 00	5916		

Depth scale: 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

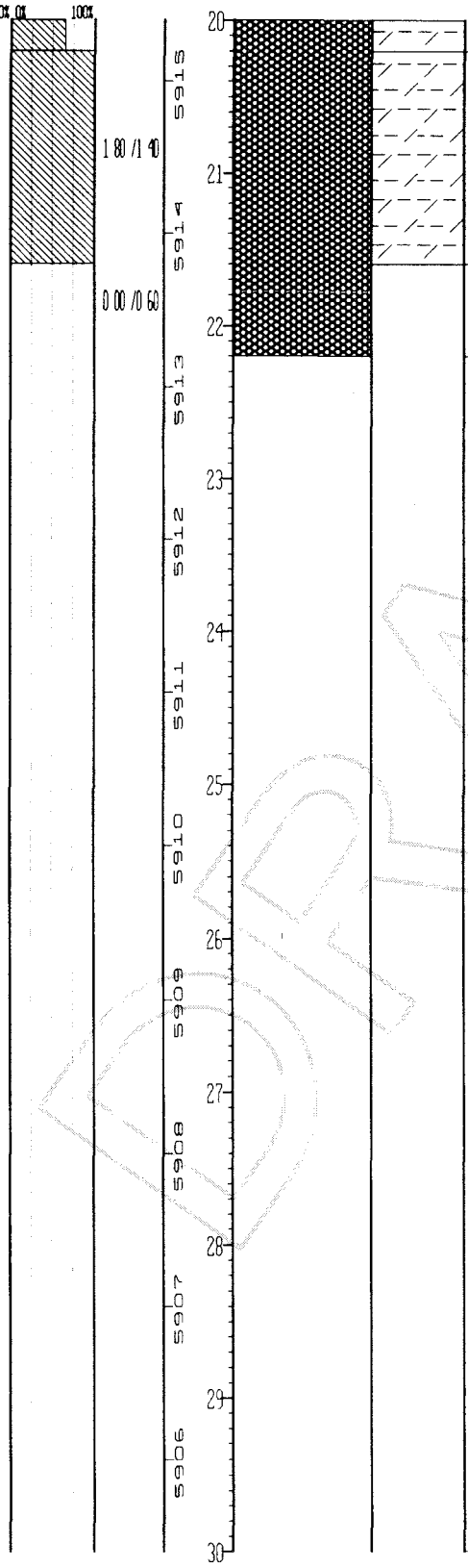
08/31/89

DRAFT

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 22 2	GROUND ELEVATION (FT)	5935 40	PROJECT NUMBER		LOG OF BORING NUMBER
NORTH	751143	AREA SOLAR POND	CASING DIAMETER (IN)	4 5 0 D	GEOLOGIST	DAT	B208089
EAST	2095876	LOCATOR NUMBER M11	BOREHOLE DIAMETER (IN)	7 25	DATE DRILLED	04/17/89	

REMARKS Hollow Stem Auger ASI Log

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
SILTY CLAYSTONE	Pale yellowish brown (10 YR 6/2), non-apparent bedding Highly weathered, mod to poorly friable Some iron staining (in possible micro-fractures) Some carbonaceous material
NO SAMPLE	NO SAMPLE
	Total Drilled Depth = 22 2'

DRAFT

WELL COMPLETION INFORMATION

QA By/Date Farrell Bergman 11-18-89

Location Rocky Flats Plant; Solar Pond Area

Well No. B208089

Coordinates N 38154.24 E 22774.48 (RFP)

Elevation: Ground Surface 5935.4'

Total Depth: Well 14.16'

Top of Casing 5937.07'

Borehole 22.2'

Formation of Completion Colluvium

Casing Material Schedule 40 PVC

Casing Diameter 4 1/2" O.D.

Screen Material Schedule 40 10-slotted PVC

Surface Casing Diameter 8 5/8" O.D.

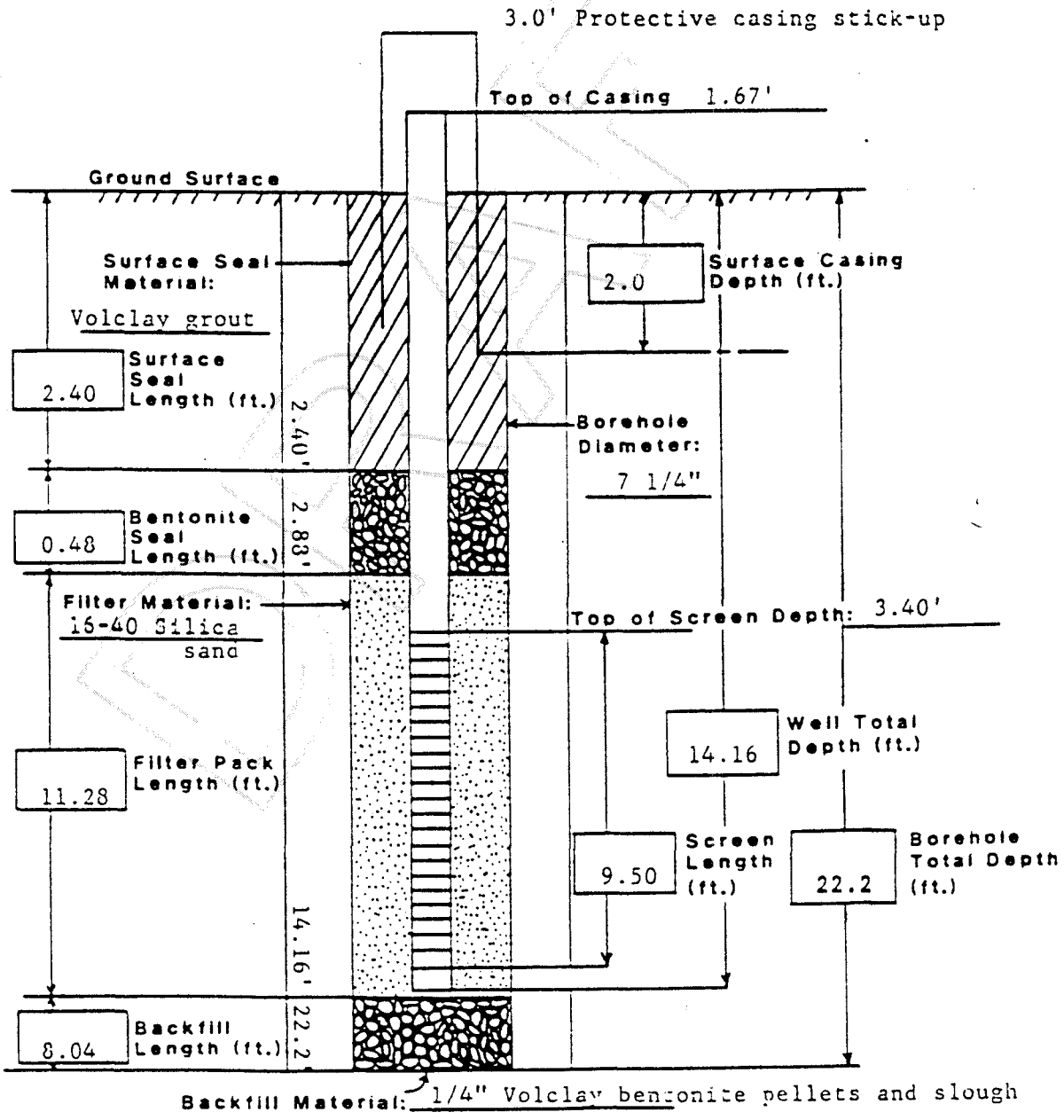
Date Installed 04/17/1989

Approved By Farrell Bergman
Site Manager

Installed By K.E. Miller
Geologist

CEARP Manager

Comments Set stainless steel centralizer from 12.59' to 13.84' below ground surface



STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 32.5	GROUND ELEVATION (FT): 5935.40	PROJECT NUMBER:		LOG OF BORING NUMBER:
NORTH: 751138	AREA: SOLAR POND	CASING DIAMETER (IN): 4.5 O.D.	GEOLOGIST:	DCB	B208189
EAST: 2085885	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN): 7.25	DATE DRILLED:	04/18/89	

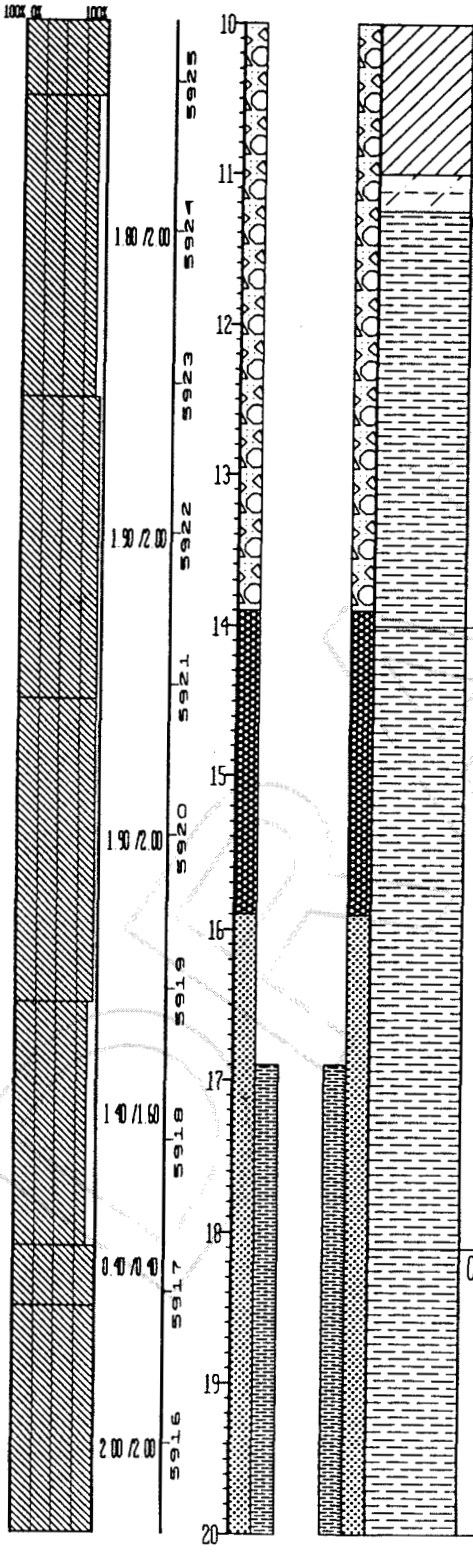
REMARKS: Hollow Stem Auger. ASI Log

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50%)	PERCENT RECOVERY (100% 0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5935	0			CL	Silty Clay - dark yellowish brown (10 YR 4/2), low plasticity. Trace of gravel, plant roots and debris. >50% clay.
				2.30 /2.20	5934	1			CL	Clay - mottled light gray (N7) to grayish orange (10 YR 7/4), mod. high plasticity. Some f.g. sand to sandy. Locally calcareous. Possibly highly weathered claystone. (Clay with some Sand). 20% to 10% f.g. sand, 80% to 90% clay.
					5933	2				
				1.90 /2.30	5932	3				
					5931	4				
					5930	5			CL	Gravelly Clay - light brown (5 YR 5/6) and light gray (N7). Mod. high plasticity, trace of silt and f.g. sand. Gravel is sub-angular to sub-rounded, max. size is approx. 6 cm. Possibly reworked claystone or fill.
				1.80 /2.00	5929	6				
					5928	7				
				2.30 /2.00	5927	8				
				0.60 /0.60	5926	9				
				1.60 /1.40		10				

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 32.5	GROUND ELEVATION (FT):	5935.40	PROJECT NUMBER:		LOG OF BORING NUMBER:
NORTH:	751138	AREA: SOLAR POND	CASING DIAMETER (IN):	4.500	GEOLOGIST:	DCB	B208189
EAST:	2085885	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED:	04/18/89	

REMARKS: Hollow Stem Auger ASI Log

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE
PERCENT RECOVERY
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CL	Gravelly Clay - as above. Gravel fraction decreases. (Gravelly Clay with trace Sand and Silt). 20% gravel, 5% f.g. sand and silt, 75% clay.
SILTY CLAYSTONE	Top of Bedrock. Silty Claystone - grayish black (N2). Trace of f.g. sand, some decomposed root fragments. Possibly top of original grade.
CLAYSTONE	Dark yellowish orange (10 YR 6/6). Some sand to sandy, (sand fraction is m.g. and rounded to well rounded). Sand fraction decreases with depth. Some irregular caliche bodies; clay is calcareous to approx. 13.5'. Possibly highly weathered claystone. 15% sand, 80% clay, sand/clay fraction varies locally.
CLAYSTONE	Light olive gray (5 Y 6/1) to med. light gray (N6). Bedding not apparent. Highly weathered, moderately friable, some f.g. sand. Trace of caliche as irreg. bodies (<2 mm. in diam.). Iron staining locally and on fractures. (Claystone with some Sand). 10% f.g. sand, 90% clay.
CLAYSTONE	Light olive gray (5 Y 6/1). Bedding not apparent. Highly weathered, mod. friability, trace of carbonaceous material. Some silt. Iron staining on fractures. >50% clay.

WELL COMPLETION INFORMATION

QA By/Date Karen Burman 14-19-89

Location Rocky Flats Plant; Solar Ponds Area

Well No. B208189

Coordinates N 38149.00 E 22783.27 (RFP)

Elevation: Ground Surface 5935.40'

Total Depth: Well 27.58'

Top of Casing 5937.46'

Borehole 32.5'

Formation of Completion Weathered Claystone

Casing Material Schedule 40 PVC

Casing Diameter 4 1/2" O.D.

Screen Material Schedule 40 10-slotted PVC

Surface Casing Diameter 8 5/8" O.D.

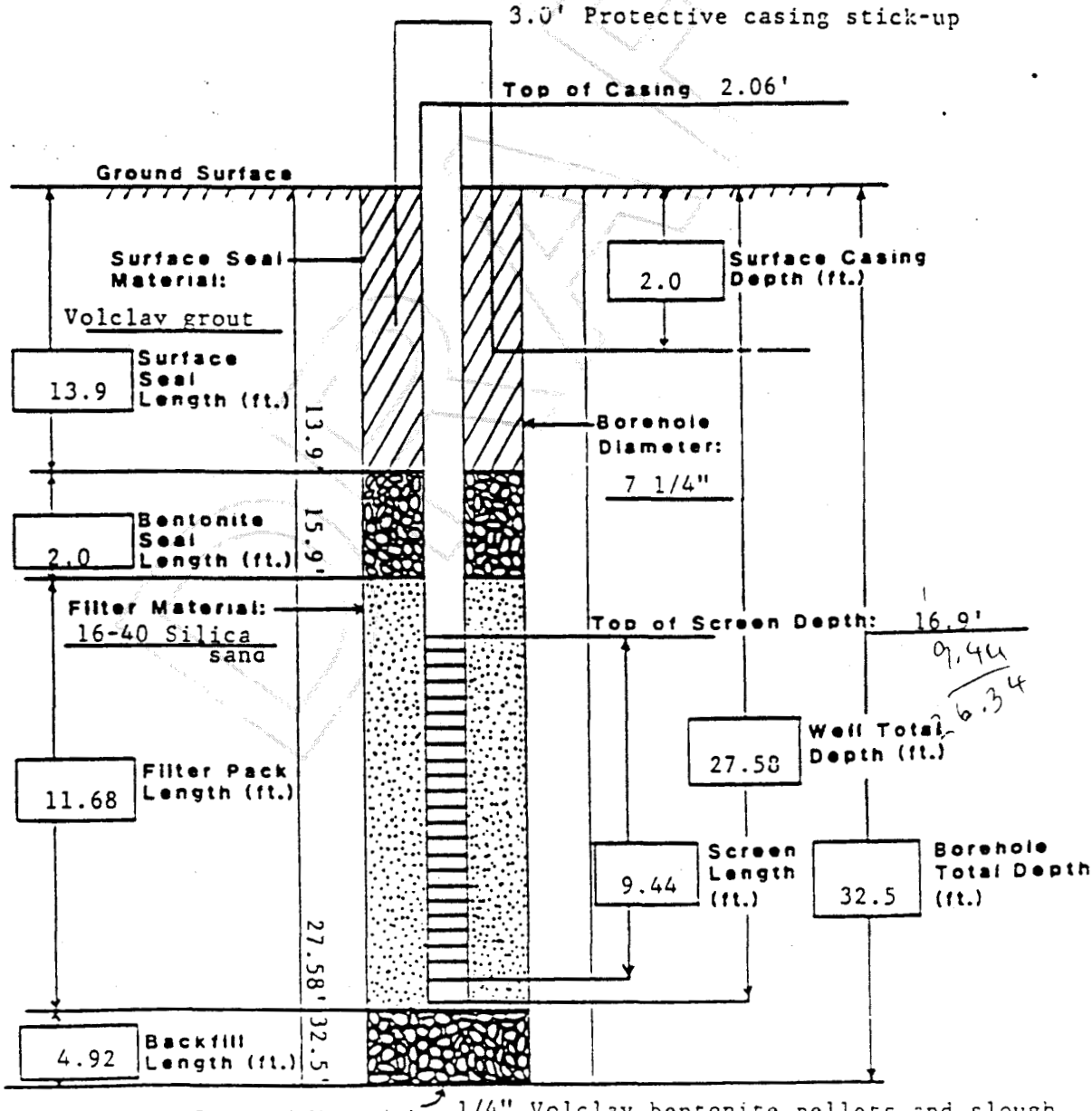
Date Installed 04/18/1989

Approved By Karen Burman
Site Manager

Installed By K.E. Miller
Geologist

CEARP Manager

Comments Set stainless steel centralizer from 26.12' to 27.37' below ground surface

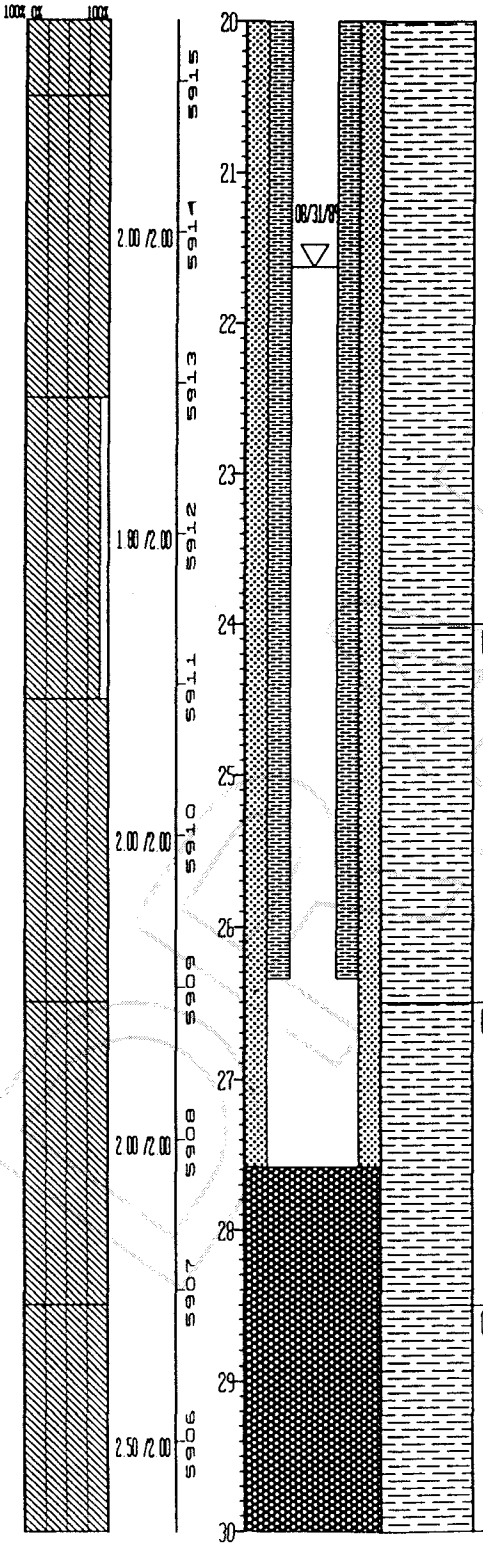


Backfill Material: 1/4" Volclay bentonite pellets and slough

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 32.5	GROUND ELEVATION (FT):	5935.40	PROJECT NUMBER:		LOG OF BORING NUMBER:
NORTH:	751138	AREA: SOLAR POND	CASING DIAMETER (IN):	4.5 O.D.	GEOLOGIST:	DCB	B208189
EAST:	2085885	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED:	04/18/89	

REMARKS: Hollow Stem Auger ASI Log

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CLAYSTONE	Same as above. Color grades to med. light gray (N6). Increase in amount of carbonaceous material from approx. 24.0' to 26.5'. Interval from 26.0' to 26.5' is heavily iron stained.
CLAYSTONE	Dark gray (N3). Bedding not apparent. Well weathered, mod. friable. Some carbonaceous material. Iron stains on fractures.
CLAYSTONE	Same as above. Color grades to med. light gray (N6) below 28.0'.

DRAFT

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 32.5	GROUND ELEVATION (FT):	5935.40	PROJECT NUMBER		LOG OF BORING NUMBER:
NORTH:	751138	AREA: SOLAR POND	CASING DIAMETER (IN):	4.5 O.D.	GEOLOGIST:	DCB	B208189
EAST:	2085885	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED:	04/18/89	

REMARKS: Hollow Stem Auger. ASI Log.

CHEMICAL SAMPLE DEPTH	GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRADA SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/ INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					2.00/2.00	5905	30				
						5904	31				
						5903	32				Total Drilled Depth = 32.5'
						5902	33				
						5901	34				
						5900	35				
						5899	36				
						5898	37				
						5897	38				
						5896	39				
							40				

DRAFT

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 19.0	GROUND ELEVATION (FT): 5650.70	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH: 751739	AREA: SOLAR POND	CASING DIAMETER (IN): 4.5 O.D.	GEOLOGIST: DAT	B208289
EAST: 2086289	LOCATOR NUMBER: N11	BOREHOLE DIAMETER (IN): 7.25	DATE DRILLED: 04/14/89	

REMARKS: Hollow Stem Auger. ASI Log.

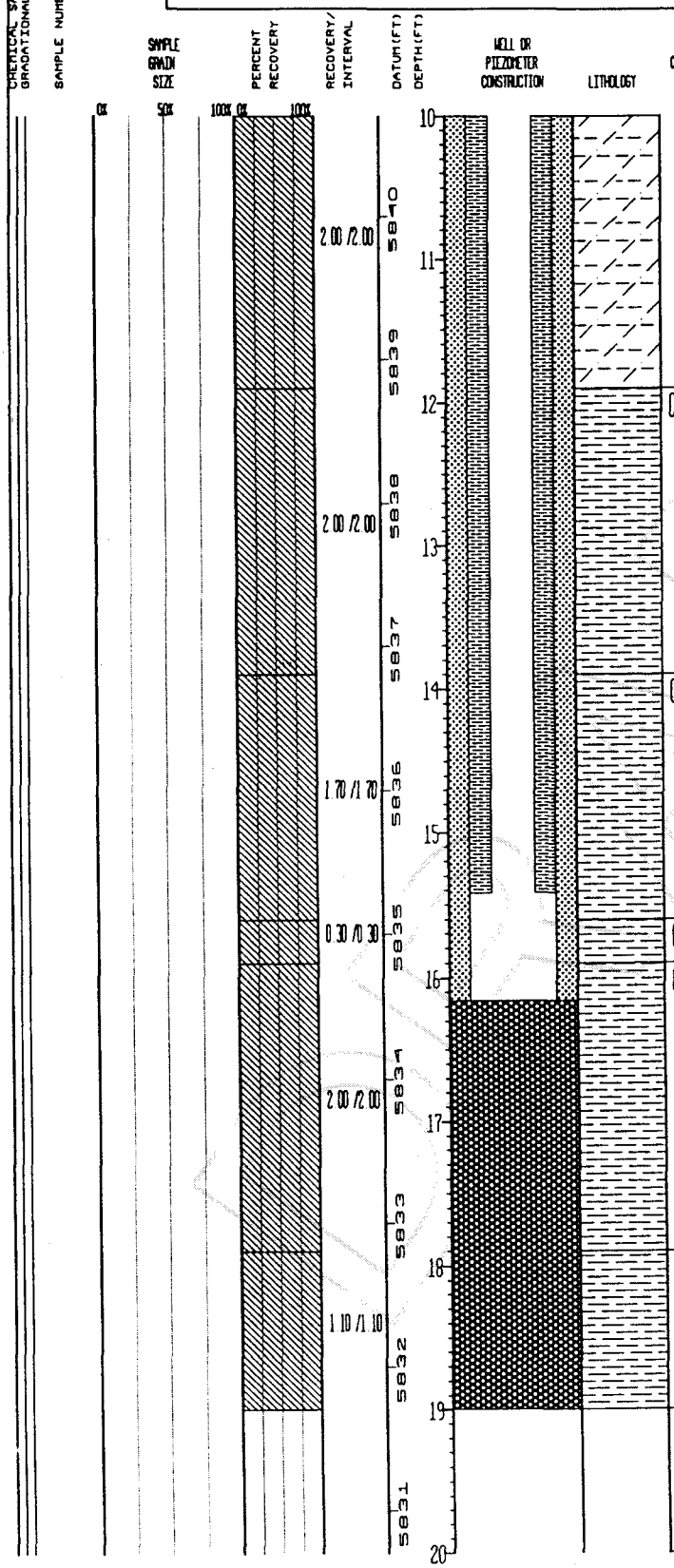
CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH / SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
MS-1	0% 50%	100% 0% 100%	1.75/1.90	5650	0			CLAYSTONE	Top of Bedrock at 0.8'. Claystone - light olive gray (5 Y 6/1). Highly weathered, trace of gravel at top of interval. Some roots and surficial grass.
				5649	1				
			1.90/2.00	5648	2			CLAYSTONE	Claystone - light olive gray (5 Y 6/1), massive bedding. Highly weathered, mod. friable. Some iron staining as mottles and as fracture filling.
				5647	3				
			1.70/2.00	5646	4			SILTY CLAYSTONE	Light olive gray (5 Y 6/1), non-apparent bedding, highly weathered, mod. to highly friable. Some v.f.g. sand, especially in middle of interval.
				5645	5				
			1.85/2.00	5644	6			CLAYSTONE	Moderate olive brown (5 Y 4/4). Massive bedding, mod. to highly weathered, mod. friable. Some iron staining as mottles, trace of Mg staining. Silt layer at approx. 6.0', trace of silt.
				5643	7				
			1.70/2.00	5642	8			SILTY CLAYSTONE	Med. light gray (N6), massive bedding. Mod. to highly weathered, mod. friable. Some iron staining as mottles.
				5641	9				
					10			SILTY CLAYSTONE	Same as above. Top of interval has abundant silt and some sand with flaky texture.

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 19.0		GROUND ELEVATION (FT)	5850.70	PROJECT NUMBER	
NORTH	751739	AREA SOLAR POND		CASING DIAMETER (IN)	4.5 O.D.	GEOLOGIST	DAT
EAST	2086289	LOCATOR NUMBER	N11	BOREHOLE DIAMETER (IN)	7.25	DATE DRILLED	04/14/89

REMARKS: Hollow Stem Auger ASI Log

LOG OF BORING NUMBER

B208289



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CLAYSTONE	Top 0.4' of interval is same as above. Olive black (5 Y 2/1), massive bedding, well weathered. Mod. to highly friable. Top has floury texture, some iron staining along possible fracture planes, some silt.
CLAYSTONE	Same as above. Brownish gray (5 YR 4/1), some carbonaceous material. Fracture at approx. 14.2' is approx. 70 degrees and shows slickensides. Some iron staining as mottles, trace silt.
CLAYSTONE	Same as above.
CLAYSTONE	Same as above. Some silt, trace of white, bladed mineralization (possibly gypsum).
CLAYSTONE	Same as above. Some possible multi-directional fracturing. NOTE: No water level encountered.
	Total Drilled Depth = 19.0'

WELL COMPLETION INFORMATION

QA By/Date Farell Burman 14-13-89

Location Rocky Flats Plant; Solar Ponds Area

Well No. B208289

Coordinates N 38748.93 E 23188.76 (RFP)

Elevation: Ground Surface 5850.7'

Total Depth: Well 16.16'

Top of Casing 5852.95'

Borehole 19.00'

Formation of Completion Weathered Claystone

Casing Material Schedule 40 PVC

Casing Diameter 4 1/2" O.D.

Screen Material Schedule 40 10-slotted PVC

Surface Casing Diameter 8 5/8" O.D.

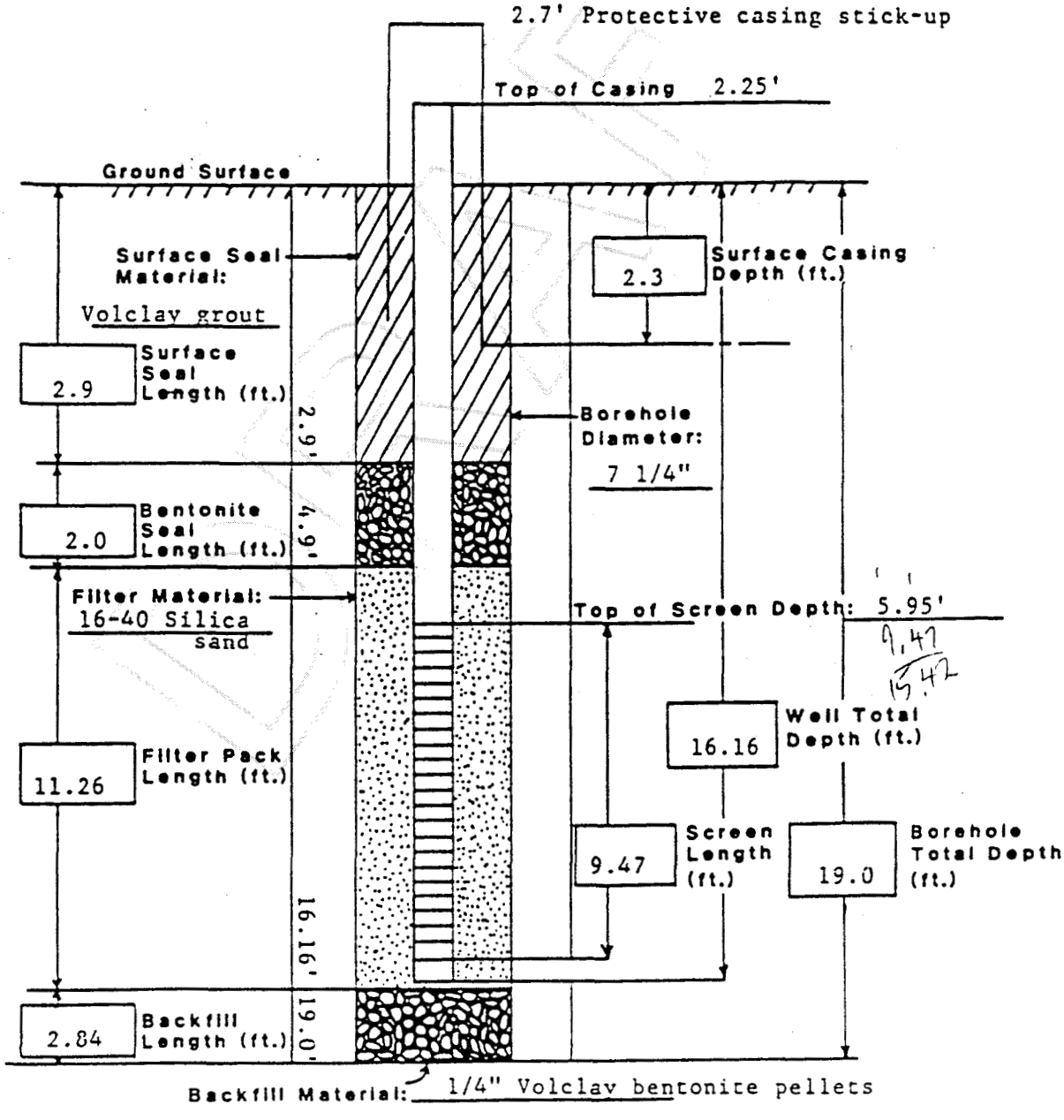
Date Installed 04/13/1989

Approved By Farell Burman
Site Manager

Installed By K.E. Miller
Geologist

CEARP Manager

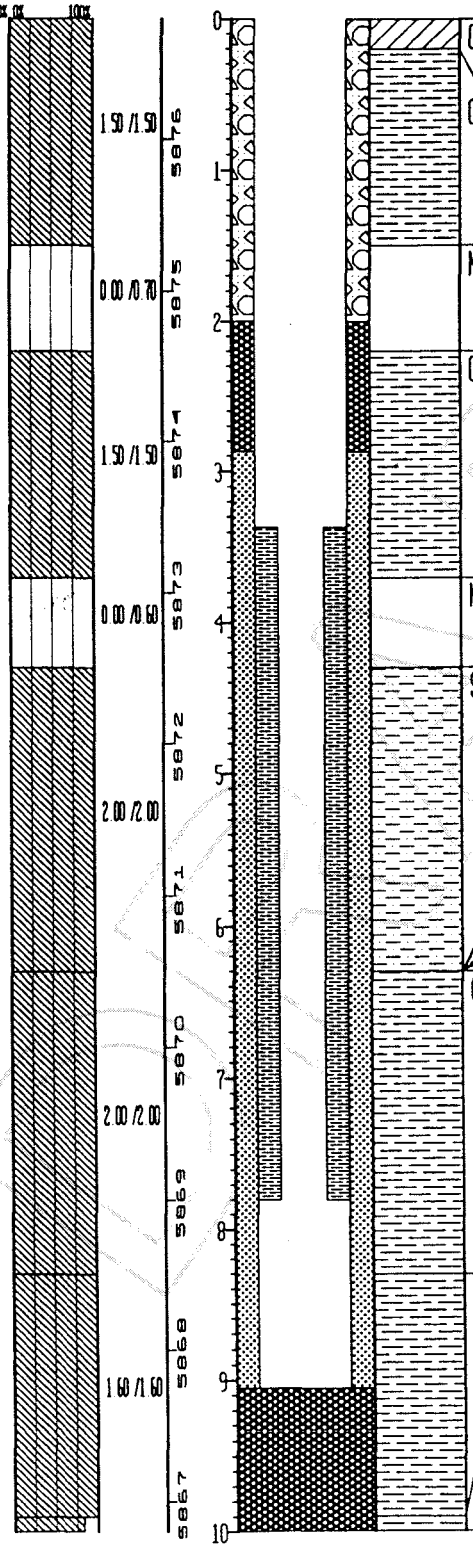
Comments Set stainless steel centralizer from 14.28' to 15.53' below ground surface



Backfill Material: 1/4" Volclay bentonite pellets

STATE PLANE COORDINATE	TOTAL DEPTH (FT): 16.3	GROUND ELEVATION (FT): 5876.80	PROJECT NUMBER:		LOG OF BORING NUMBER:
NORTH: 751687	AREA: SOLAR POND	CASING DIAMETER (IN): 4.5 O.D.	GEOLOGIST:	DAT	B208389
EAST: 2085584	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN): 7.25	DATE DRILLED	04/19/89	
REMARKS: Hollow Stem Auger. ASI Log		7 6.5			

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CL	Clay - mod. brown (5 YR 3/4) Trace gravel, some roots. Trace of sand.
CLAYSTONE	Top of Bedrock at 0.2' Mod. brown (5 YR 3/4) Trace of gravel, some roots. Trace of sand.
NO SAMPLE	NO SAMPLE.
CLAYSTONE	Mod. yellowish brown (10 YR 5/4) Some sand, some calcareous material
NO SAMPLE	NO SAMPLE.
SANDY CLAYSTONE	Mod. yellowish brown (10 YR 5/4). Some gravel, some calcareous material. Sand is f g - m g. Max. gravel size 4.0 cm
CLAYSTONE	Light olive gray (5 Y 6/1) massive bedding. Highly weathered, mod. friable. Abundt. iron staining as mottles. Abundt. calcareous material, possibly concentrated in fractures (approx. 30-90 degrees)
CLAYSTONE	Same as above. Some Mg. staining
CLAYSTONE	Light olive gray (5 Y 6/1). Massive bedding, mod. - highly friable. Some calcareous material. Some iron staining as mottles. Calcareous material is concentrated along possible fractures.

BR.

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 16.3	GROUND ELEVATION (FT):	5876.80	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH: 751687	AREA: SOLAR POND	CASING DIAMETER (IN):	4.5 O.D.	GEOLOGIST: DMT	B208389
EAST: 2085584	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED: 04/19/89	

REMARKS: Hollow Stem Auger. ASI Log

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				2.00/2.10	5866, 5865	10, 11, 12			CLAYSTONE	Same as above, at base. Iron staining increases and some Mg staining decrease to some calcareous material
				2.00/2.00	5864, 5863	13, 14			CLAYSTONE	Same as above. Trace of calcareous material at top of interval, more at base. Decrease in iron staining and Mg staining at base.
				2.00/2.00	5862, 5861	15, 16			CLAYSTONE	Same as above. Fracture with possible Mg smeared at approx. 50 degrees
					5860, 5859, 5858, 5857	17, 18, 19, 20				Total Drilled Depth = 16.3'

DRAFT

WELL COMPLETION INFORMATION

QA By/Date Jarell Burman 11-25-89

Location Rocky Flats Plant: Solar Ponds Area

Well No. B208389

Coordinates N 38699.83 E 22484.18 (RFP)

Elevation: Ground Surface 5876.80'

Top of Casing 5878.66'

Total Depth: Well 9.05'

Borehole 16.30'

Formation of Completion Colluvium

Casing Material Schedule 40 PVC

Casing Diameter 4 1/2" O.D.

Screen Material Schedule 40 10-slotted PVC

Surface Casing Diameter 8 5/8" O.D.

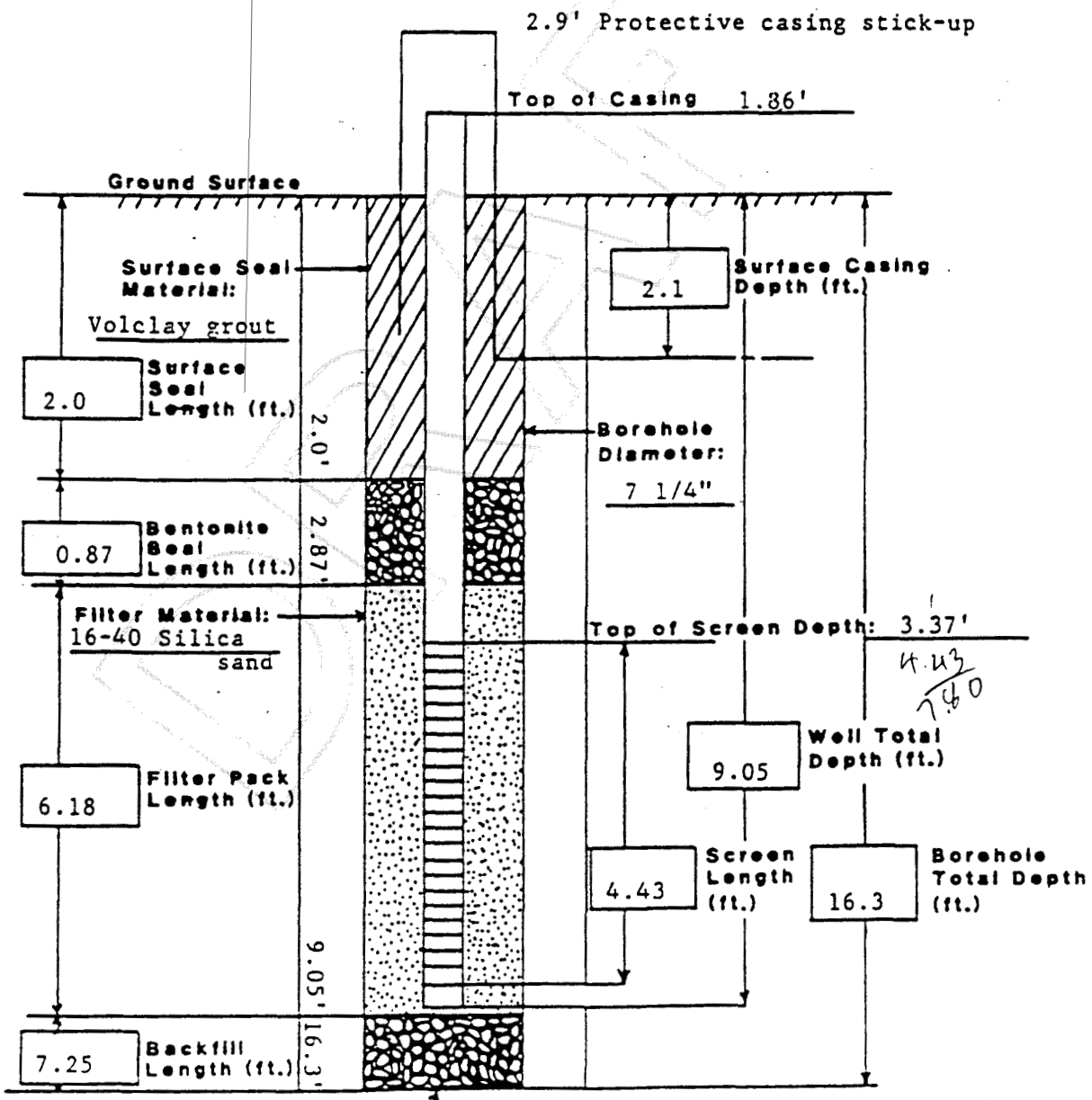
Date Installed 04/19/1989

Approved By Jarell Burman
Site Manager

Installed By K.E. Miller
Geologist

CEARP Manager

Comments Set stainless steel centralizer from 7.25' to 8.8' below ground surface



Backfill Material: 1/4" Volclay bentonite pellets and slough

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 33.2	GROUND ELEVATION (FT):	5876.30	PROJECT NUMBER:		LOG OF BORING NUMBER:
NORTH:	751683	AREA: SOLAR PONDS	CASING DIAMETER (IN):	4.5 O.D.	GEOLOGIST:	DCB	B208489
EAST:	2085636	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED:	04/14/89	

REMARKS: Hollow Stem Auger. ASI Log.

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				2.10 /2.10	5876	0			CL	Clay - grayish brown (5 YR 3/2), mod. high plasticity. Trace of silt, some root fragments and organic debris from 0.0' to 0.7'. Interval is locally calcareous. >50% clay.
				2.10 /2.10	5875	1			CL	Clay - mod. yellowish brown (10 YR 5/4), mod. plasticity. Some gravel to gravelly, some silt. Trace to some sand. Interval is locally calcareous and exhibits poorly developed caliche precipitate in gravelly zones and along fractures. >50% clay.
				2.00 /2.00	5874	2			CL	Silty Sandy Clay - pale yellowish brown (10 YR 6/2) to dark yellowish orange (10 YR 6/6), mottled. Mod. plasticity, locally calcareous
				1.40 /1.40	5873	3			NO SAMPLE	NO SAMPLE
				0.00 /0.60	5872	4			CL	Silty Sandy Clay - as above (reference interval 4.0' to 7.6') (Silty Clay with some Sand) >20% sand, >50% clay.
				1.85 /2.00	5871	5				
					5870	6				
					5869	7				
					5868	8				
					5867	9				
						10				

DRAFT

STATE PLANE COORDINATE:
NORTH: 751683
EAST: 2085636

TOTAL DEPTH (FT): 33.2
AREA: SOLAR PONDS
LOCATOR NUMBER: M11

GROUND ELEVATION (FT): 5876.30 5880.8
CASING DIAMETER (IN): 4.5 O.D.
BOREHOLE DIAMETER (IN): 7.25

PROJECT NUMBER:
GEOLOGIST: DCB
DATE DRILLED: 04/14/89

LOG OF BORING NUMBER: B208489

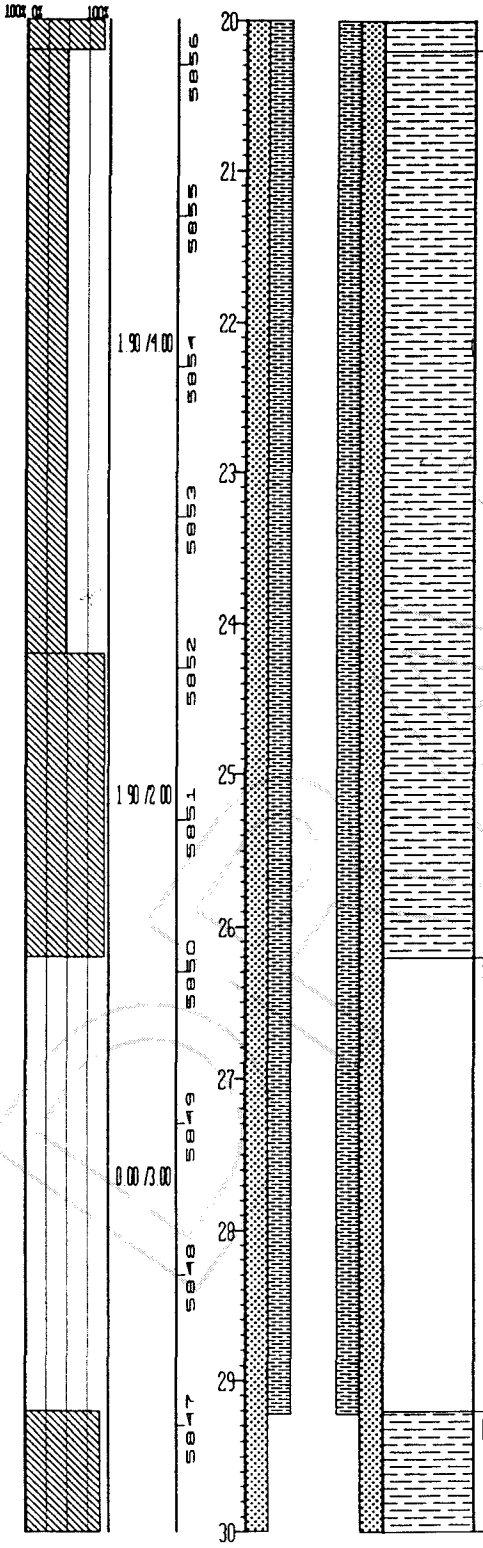
REMARKS: Hollow Stem Auger ASI Log

CHEMICAL SAMPLE / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%	1.85/2.00	5866	10			CL	Silty Sandy Clay - as above. Interval begins to exhibit some characteristics of highly weathered rock, e.g. mod well defined fracture planes. Mg and Fe stains. Weathered slickensides at approx. 12.2', attitude approx. 60 degrees with Fe and Mg oxide on slick face. 20% sand, >50% clay
				1.75/2.00	5865	11				
					5864	12				
					5863	13				
				1.80/1.60	5862	14			CL	Silty Sandy Clay - as above, with gravel to gravelly and some caliche in gravel zones. Max. gravel size approx. 5.5 cm. 50% gravel, 50% clay
				0.00/0.40	5861	15			NO SAMPLE	Top of Bedrock at 15.5'. NO SAMPLE.
				1.90/2.00	5860	16			NO SAMPLE	NO SAMPLE
					5859	17			SILTY CLAYSTONE	Mottled pale yellowish brown (10 YR 6/2) to dark yellowish orange (10 YR 6/6). >50% sand.
				1.85/2.00	5858	18			CLAYSTONE	Med. gray (N5), bedding not apparent. Well weathered, slightly friable, trace of silt and iron stains, some Mg oxides. Color grades to grayish black (N2) from approx. 17.8' to 18.2'. Slickensides at approx. 17.3', attitude approx. 30 degrees. At approx. 19.5' to 20.2' interval is heavily ironed stained and exhibits iron nodules approx. 1 cm. - 2 mm. in diam. and exhibits calcite fracture fillings. >50% clay
					5857	19				
						20				

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 33.2	GROUND ELEVATION (FT): 5876.30	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH:	751683	AREA: SOLAR PONDS	CASING DIAMETER (IN): 4.5 O.D.	GEOLOGIST: DCB	B208489
EAST:	2085636	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN): 7.25	DATE DRILLED: 04/14/89	

REMARKS: Hollow Stem Auger ASI Log

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CLAYSTONE	Med. light gray (N6), massively bedded. Slightly weathered, slightly friable. Local iron staining, some carbonaceous material, trace of silt. Slickensides at approx. 22.0', attitude approx. 30 degrees >50% clay
NO SAMPLE	NO SAMPLE
CLAYSTONE	Same as above (reference interval 20.2' to 26.2'). Slickensides at approx. 30.0', attitude 30 degrees

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 33.2	GROUND ELEVATION (FT): 5876.30	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH:	751683	AREA: SOLAR PONDS	CASING DIAMETER (IN): 4.5 O.D.	GEOLOGIST: DCB	B208489
EAST:	2085636	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN): 7.25	DATE DRILLED: 04/14/89	

REMARKS: Hollow Stem Auger. ASI Log

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				1.80/2.00	5876	30				
					5875	31			CLAYSTONE	Same as above. Slickensides at approx. 31.1', attitude approx. 70 degrees. Abundt. iron staining on face of slick.
				1.80/2.00	5871	32				
					5873	33				Total Drilled Depth = 33.2'
					5872	34				
					5871	35				
					5870	36				
					5869	37				
					5868	38				
					5867	39				
						40				

WELL COMPLETION INFORMATION

QA By/Date Janell Burman 14-17-89

Location Rocky Flats Plant; Solar Ponds Area

Well No. B208489

Coordinates N 38695.29 E 22535.71 (RFP)

Elevation: Ground Surface 5876.30'

Top of Casing 5878.34'

Total Depth: Well 30.49'

Borehole 33.2'

Formation of Completion Weathered Claystone

Casing Material Schedule 40 PVC

Casing Diameter 4 1/2" O.D.

Screen Material Schedule 40 10-slotted PVC

Surface Casing Diameter 8 5/8" O.D.

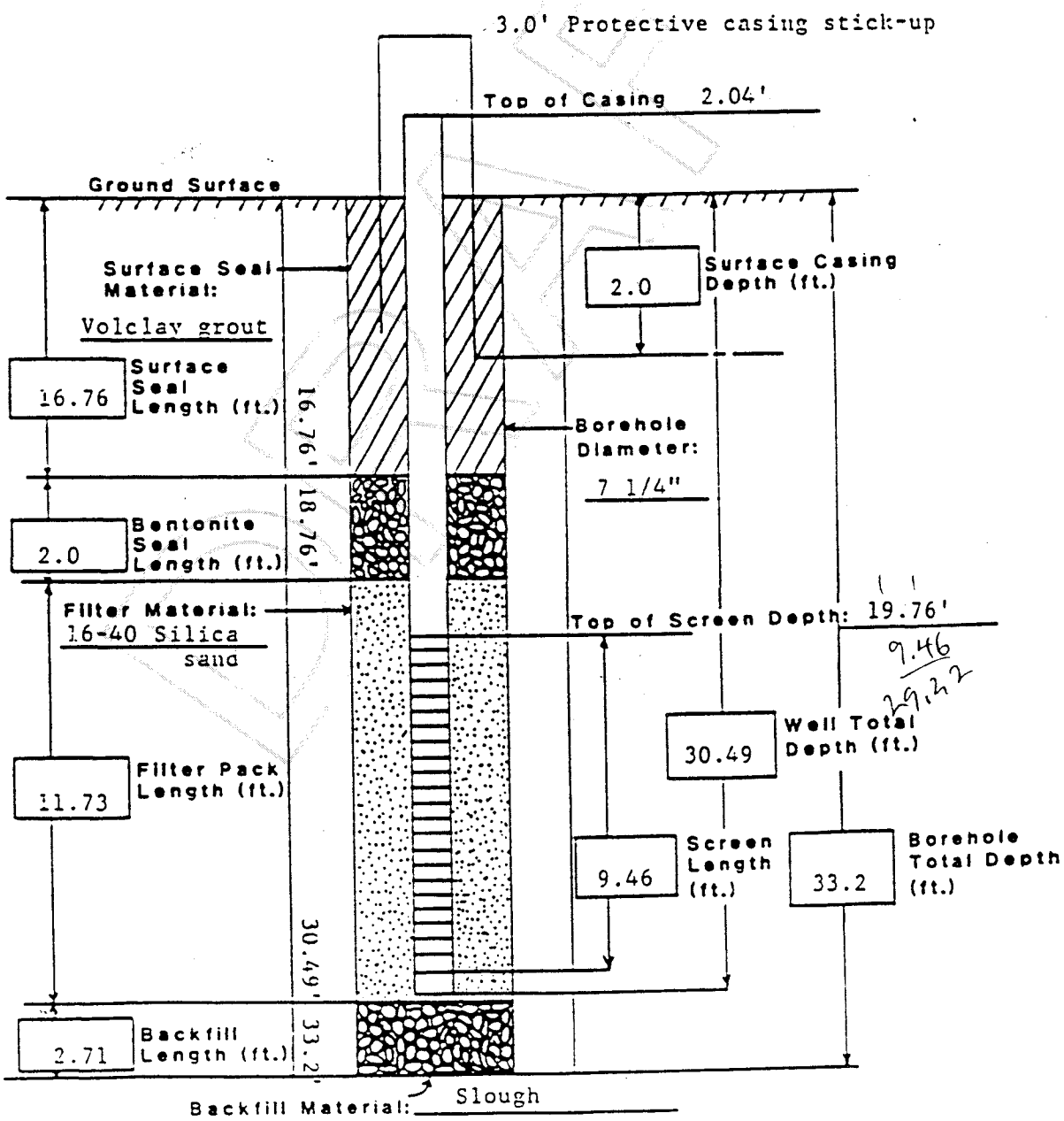
Date Installed 04/14/1989

Approved By Janell Burman
Site Manager

Installed By K.E. Miller
Geologist

CEARP Manager

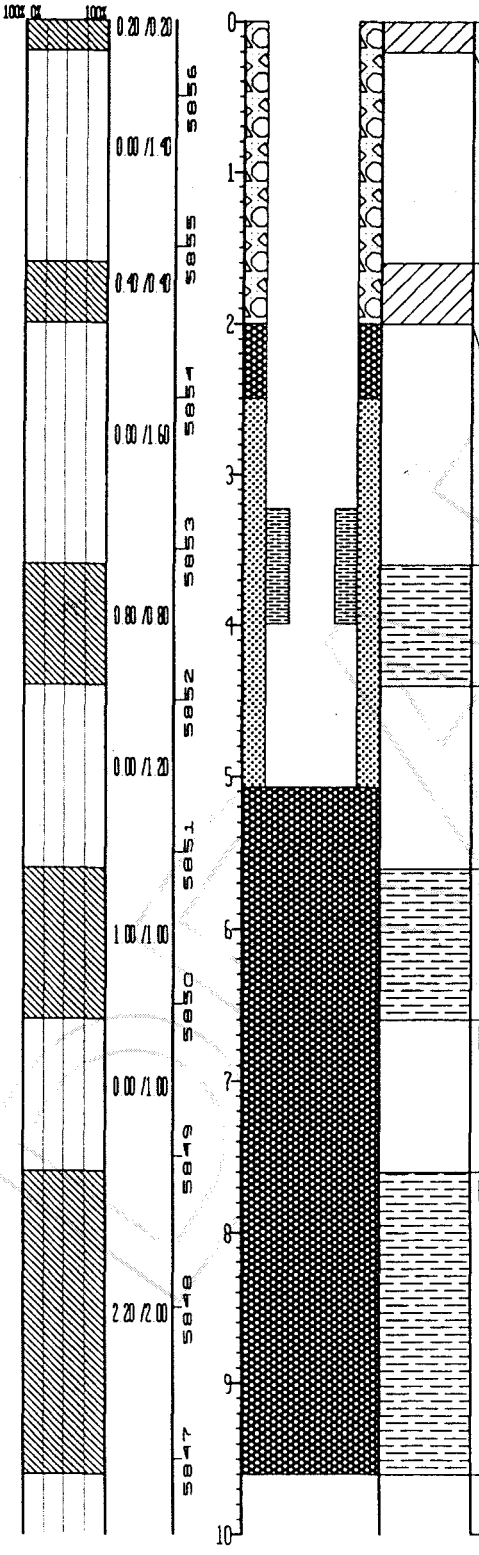
Comments Set stainless steel centralizer from 29.28' to 30.53' below ground surface



STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 9.6	GROUND ELEVATION (FT):	5856.50	PROJECT NUMBER:		LOG OF BORING NUMBER:
NORTH:	751804	AREA: SOLAR POND	CASING DIAMETER (IN):	4.5	GEOLOGIST:	DCB	B208589
EAST:	2085477	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED:	04/19/89	

REMARKS: Hollow Stem Auger ASI Log

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CL	Silty Gravelly Clay - dusky brown (5 YR 2/2), moderate plasticity, some plant debris.
NO SAMPLE	NO SAMPLE.
CL	Gravel and Clay - gravel is very light gray (N8), poorly sorted, angular to sub-angular, max. size approx 6 in. clay is pale yellowish brown (10 YR 6/2), low to mod. plasticity. Trace f g sand.
NO SAMPLE	NO SAMPLE.
CLAYSTONE	Top of Bedrock at 3.6' Claystone - pale yellowish brown, (10 YR 6/2). Trace of silt.
NO SAMPLE	NO SAMPLE.
CLAYSTONE	Claystone - same as above (reference interval 3.6' to 4.4').
NO SAMPLE	NO SAMPLE.
CLAYSTONE	Claystone, light gray (N2). Bedding not apparent, highly weathered, mod. friable. Trace of silt and carbonaceous material, localized iron staining.
	Total Drilled Depth = 9.6'

WELL COMPLETION INFORMATION

QA By/Date Janell Burman 14-25-89

Location Rocky Flats Plant; Solar Ponds Area

Well No. B208589

Coordinates N 38816.83 E 22377.09 (RFP)

Elevation: Ground Surface 5856.5'

Total Depth: Well 5.07'

Top of Casing 5858.35'

Borehole 9.6'

Formation of Completion Valley Fill Alluvium

Casing Material Schedule 40 PVC

Casing Diameter 4 1/2" O.D.

Screen Material Schedule 40 10-slotted PVC

Surface Casing Diameter 8 5/8" O.D.

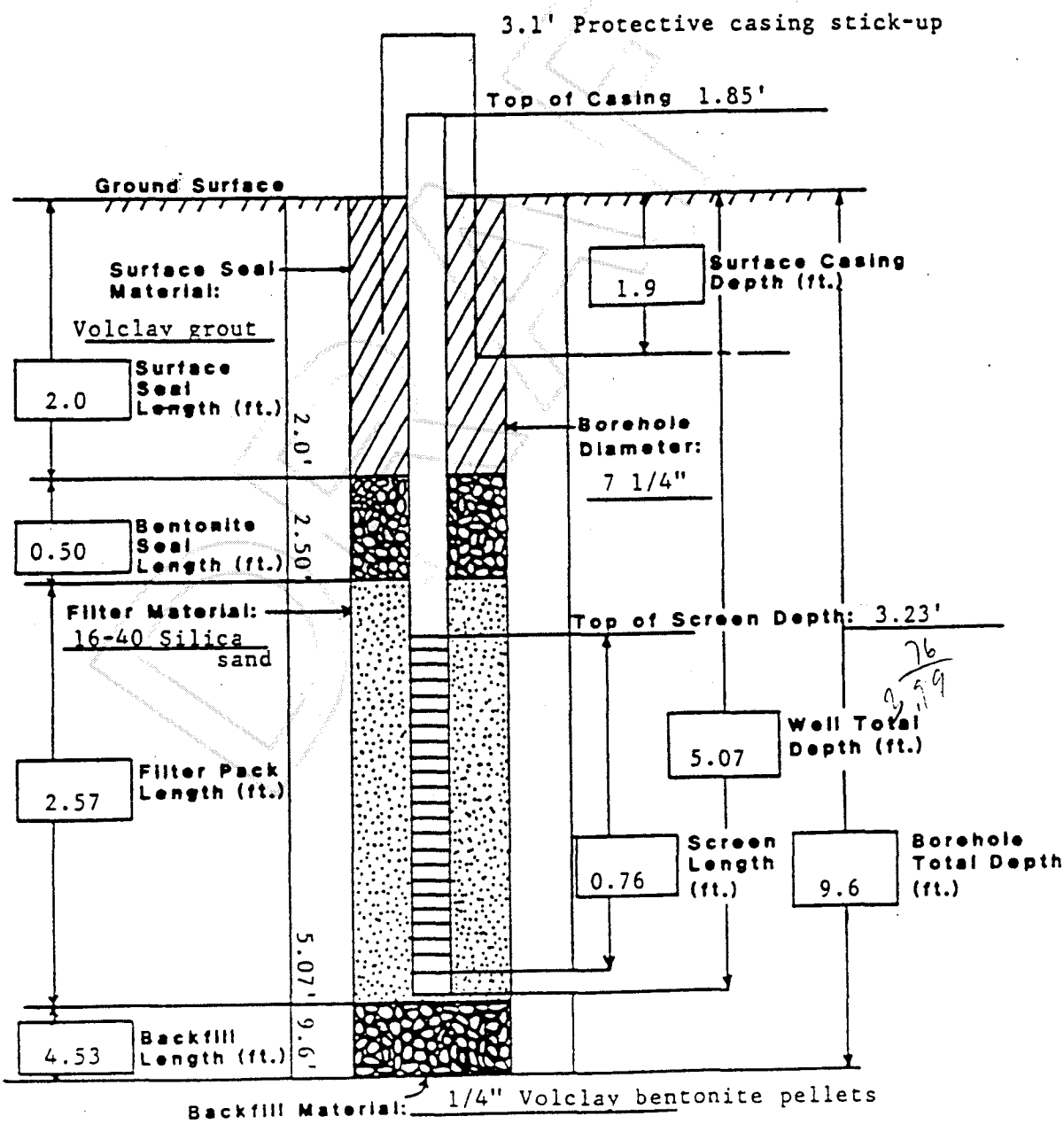
Date Installed 04/19/1989

Approved By Janell Burman
Site Manager

Installed By K.E. Miller
Geologist

CEARP Manager

Comments Set stainless steel centralizer from 3.62' to 4.87' below ground surface



STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 28.4	GROUND ELEVATION (FT):	5867.60	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH: 751728	AREA: SOLAR POND	CASING DIAMETER (IN):	4.5 O.D.	GEOLOGIST: KEM	B208689
EAST: 2085250	LOCATOR NUMBER: M12	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED: 04/20/89	
REMARKS: Hollow Stem Auger Weston Log					

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%	0.60/2.20	5867	0			CL	Silty Clay - olive gray (5 Y 3/2). Trace coarse to fine gravel, quartzite. Soft, non-plastic, (cl with gravel), dry.
				0.50/2.20	5866	1			CL	Gravelly Silty Clay - olive gray (5 Y 3/2). Coarse to fine quartzite gravel, 2 cm. to 3 cm.. Trace c.g. to f.g. quartz sand. Firm, low plasticity, (cl-gc), damp
				1.80/2.00	5865	2				
					5864	3				
					5863	4				
					5862	5	04/20/89		GM	Sandy Silty Gravel - light olive brown (5 Y 5/6). Coarse to fine quartzite gravel, 2 cm. to 4 cm., broken, sub-rounded. C.g. to f.g. sand, sub-rounded. Soft, no plasticity, trace clay (gc-sc), wet.
						6			NO SAMPLE	NO SAMPLE
				1.60/2.00	5861	7			GM	Sandy Silty Gravel - same as above (reference interval 5.7' to 6.2')
					5860	8			SILTY CLAYSTONE	Top of Bedrock at 7.4' Pale olive (10 Y 6/2) to med. gray (N 5/0). Consol., small calcareous nodules (HCl reactive), very stiff, low plasticity, damp
									NO SAMPLE	NO SAMPLE
				2.00/2.00	5859	9			SILTY CLAYSTONE	Same as above - grading to light olive brown (5 Y 5/6). Mottles of dark yellowish orange (10 YR 6/6). Consol., very stiff, low plasticity, damp
					5858	10				

DRAFT

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 28.4	GROUND ELEVATION (FT):	5867.60	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH: 751728	AREA: SOLAR POND	CASING DIAMETER (IN):	4.500	GEOLOGIST: KEM	B208689
EAST: 2085250	LOCATOR NUMBER: M12	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED: 04/20/89	
REMARKS: Hollow Stem Auger Weston Log					

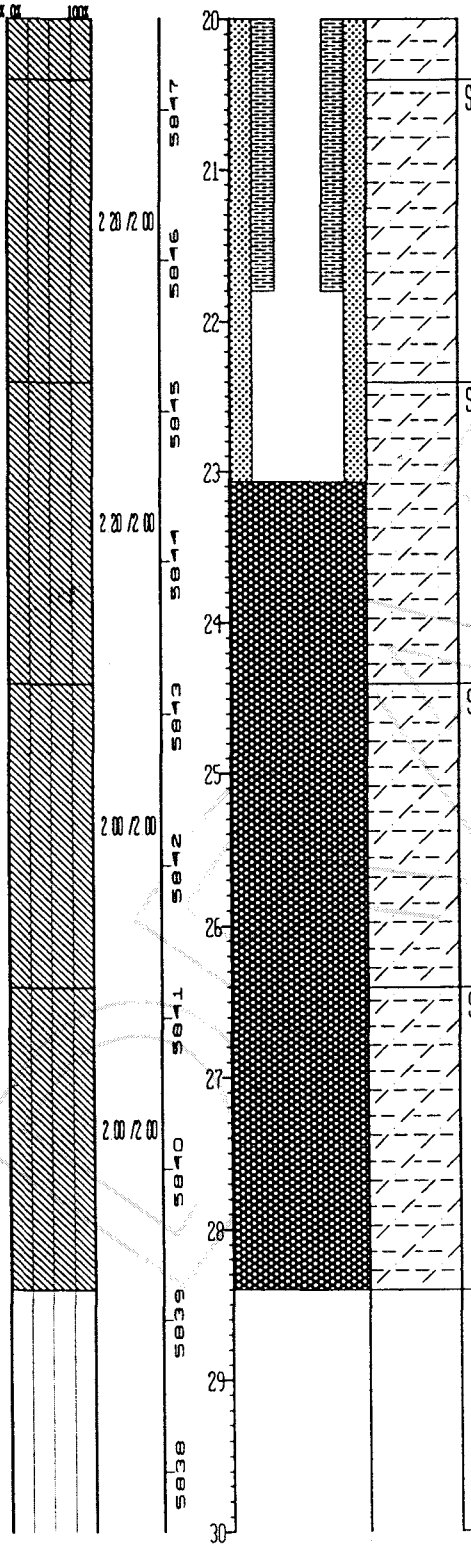
CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50%	100% 0% 100%			10				
					5857	11				SILTY CLAYSTONE: Same as above - lignite nodules black (N 1/0).
				0.50 /2.00	5856	12				
					5855	13	08/29/89			SILTY CLAYSTONE: Light olive brown (5 Y 5/6) to dusky yellow (5 Y 6/4). Trace c.g. to f.g. sand, mottles of mod. yellow (5 Y 7/6). Very stiff, low plasticity, consol., damp.
				0.40 /2.00	5851	14				
					5853	15				SILTY CLAYSTONE: Same as above - iron stains, dark yellowish orange (10 YR 6/6), fractured, grading to med. gray (N 5/0), dry.
				2.20 /2.00	5852	16				
					5851	17				SILTY CLAYSTONE: Olive gray (5 Y 4/1). Iron stains, dark yellowish orange (10 YR 6/6). Calcareous nodules (HCl reactive), very stiff, low plasticity, consol. Carbonaceous - lignite, black (N 1/0), dry.
				2.20 /2.00	5850	18				
					5849	19				SILTY CLAYSTONE: Same as above - more silt, dry.
				2.00 /2.00	5848	20				

DRAFT

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 28.4	GROUND ELEVATION (FT): 5867.60	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH:	751728	AREA: SOLAR POND	CASING DIAMETER (IN): 4.5 O.D.	GEOLOGIST: KEM	B208689
EAST:	2085250	LOCATOR NUMBER: M12	BOREHOLE DIAMETER (IN): 7.25	DATE DRILLED: 04/20/89	

REMARKS: Hollow Stem Auger Weston Log

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



SILTY CLAYSTONE: Med. dark gray (N 4/0). Mottles of mod. yellow (5 Y 7/6). Highly carbonaceous, abundt. lignite, black (N 1/0). Consol., very stiff to hard, low plasticity, dry

SILTY CLAYSTONE: Same as above - grading to light olive brown (5 Y 5/6). Highly carbonaceous, abundt. lignite, black (N 1/0). Dry.

SILTY CLAYSTONE: Olive gray (5 Y 4/1). Abundt. carbonaceous material, lignite pieces, black (N 1/0). Mod. consol., hard, low plasticity. Iron streaks, dark yellowish orange (10 YR 6/6). Dry

SILTY CLAYSTONE: Same as above - grading to med. dark gray (N 4/0)

Total Drilled Depth = 28.4'

DRAFT

WELL COMPLETION INFORMATION

QA By/Date Farell Burman 4-21-89

Location Rocky Flats Plant; Solar Ponds Area

Well No. B208689

Coordinates N 38741.72 E 22149.03 (RFP)

Elevation: Ground Surface 5867.6'

Total Depth: Well 23.07'

Top of Casing 5869.60'

Borehole 28.4'

Formation of Completion Weathered Claystone

Casing Material Schedule 40 PVC

Casing Diameter 4 1/2" O.D.

Screen Material Schedule 40 10-slotted PVC

Surface Casing Diameter 8 5/8" O.D.

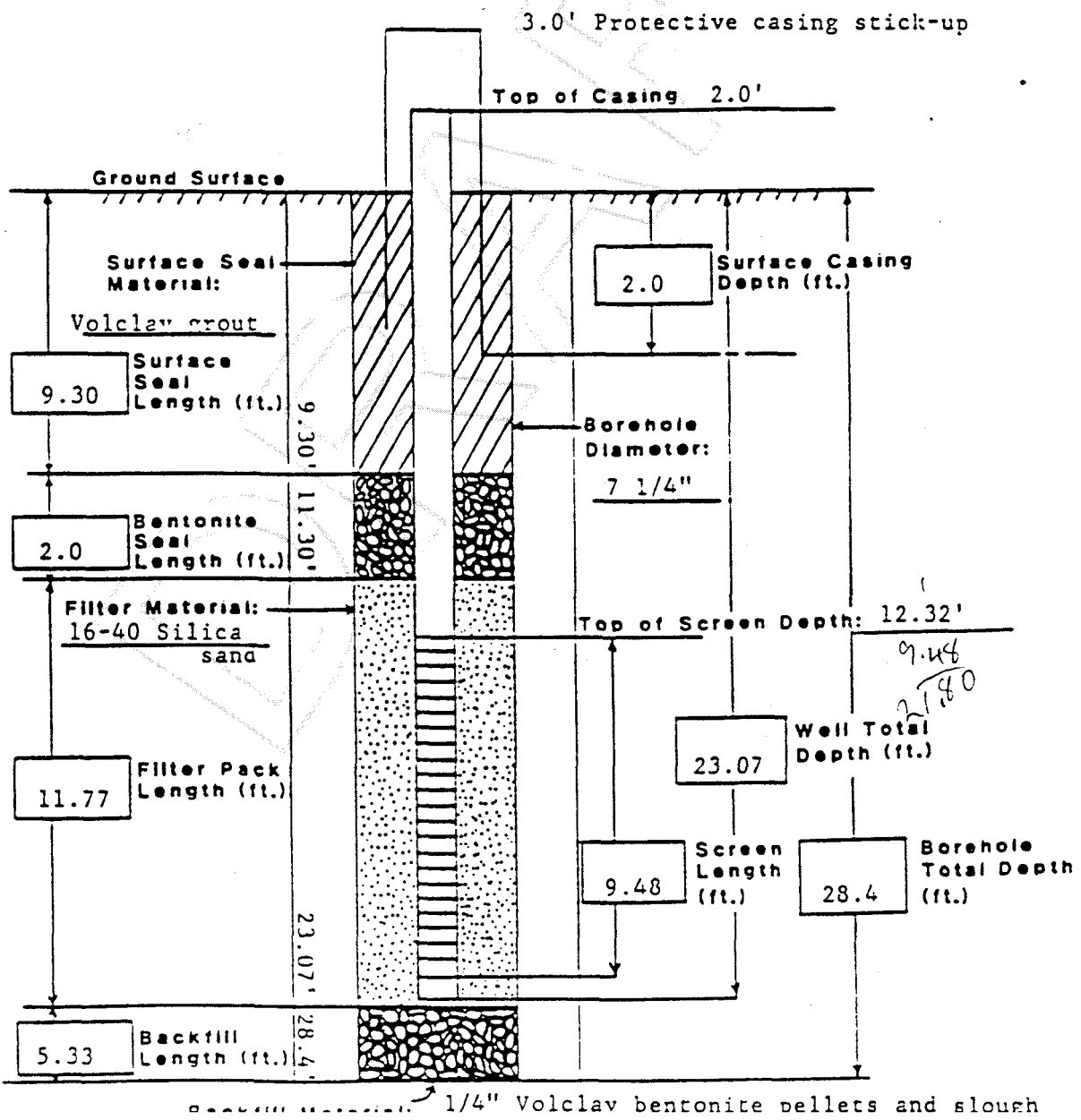
Date Installed 04/21/1989

Approved By Farell Burman
Site Manager

Installed By K.E. Miller
Geologist

CEARP Manager

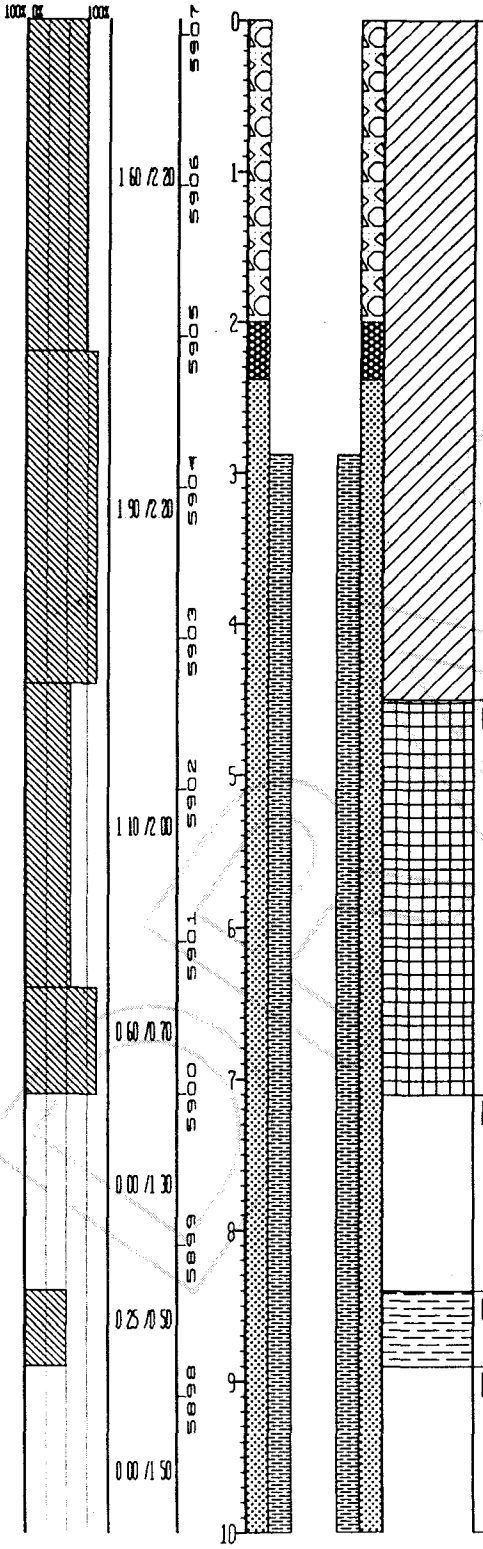
Comments Set stainless steel centralizer from 21.47' to 22.72' below ground surface



2.9

STATE PLANE COORDINATE	TOTAL DEPTH (FT): 14.4	GROUND ELEVATION (FT): 5907.10	PROJECT NUMBER:		LOG OF BORING NUMBER:
NORTH: 751775	AREA: SOLAR PONDS S	CASING DIAMETER (IN): 4.5 O.D.	GEOLOGIST:	DCB	B208789
EAST: 2084450	LOCATOR NUMBER: L11	BOREHOLE DIAMETER (IN): 7.25	DATE DRILLED:	04/24/89	
REMARKS: Hollow Stem Auger ASI Log					

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



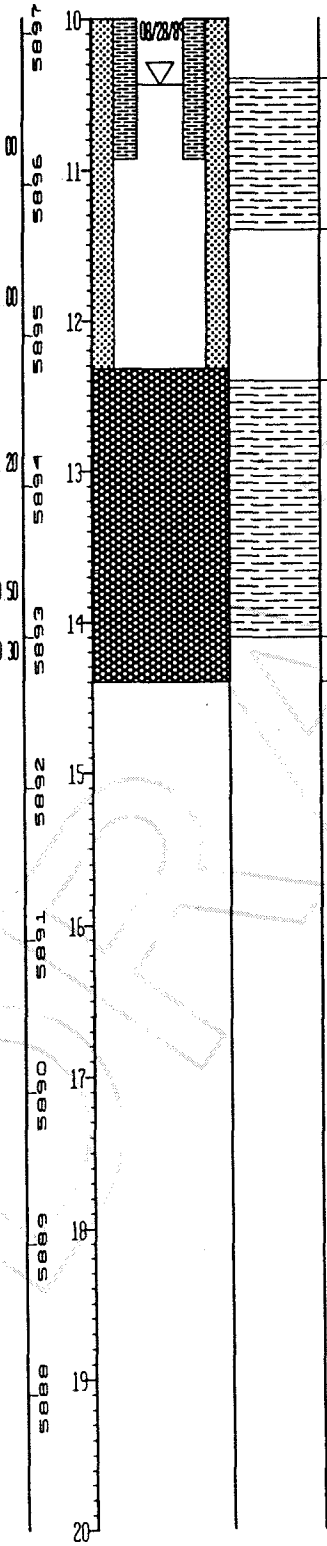
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CL	Clay - mod. yellowish brown (10 YR 5/4) to dark yellowish brown (10 YR 4/2), mod. plasticity. Trace to some v f g sand, some gravel. Root fragments in upper 2.4'. Sand fraction varies in amount and size locally, at approx 2.4' on 4.0', sand is m g. (Clay with some Gravel and Sand) 10% gravel, 10% f g sand, 80% clay
CALICHE	Top of Bedrock Caliche occurs as small (<2 mm diam.) bodies and possible fracture fills from approx 4.4' to 7.1'
NO SAMPLE	NO SAMPLE
CLAYSTONE	Dark yellowish brown (10 YR 4/2), trace of silt >50% clay
NO SAMPLE	NO SAMPLE

DRAFT

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 14.4	GROUND ELEVATION (FT):	5907.10	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH: 751775	AREA: SOLAR PONDS	CASING DIAMETER (IN):	4.5 O.D.	GEOLOGIST: 008	B208789
EAST: 2084450	LOCATOR NUMBER: L11	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED: 04/24/89	

REMARKS: Hollow Stem Auger. ASI Log.

CHEMICAL SAMPLE DEPTH | GRADATIONAL SAMPLE DEPTH | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CLAYSTONE	Same as above (reference interval 8.4' to 8.9'). >50% clay.
NO SAMPLE	NO SAMPLE.
CLAYSTONE	Dark yellowish orange (10 YR 6/6), bedding not apparent. Highly weathered, slightly friable, some silt. Trace of caliche as small irreg. bodies (<2 mm. diam.). >50% clay.
NO SAMPLE	NO SAMPLE.
	Total Drilled Depth = 14.4'

DRAFT

WELL COMPLETION INFORMATION

QA By/Date Jarell Burman 11-25-89

Location Rocky Flats Plant: Solar Ponds Area **Well No.** B208789

Coordinates N 38771.39 E 21350.22 (RFP) **Elevation: Ground Surface** 5907.1'

Total Depth: Well 12.32' **Top of Casing** 5909.03'

Borehole 14.4'

Formation of Completion Colluvium

Casing Material Schedule 40 PVC **Casing Diameter** 4 1/2" O.D.

Screen Material Schedule 40 10-slotted PVC **Surface Casing Diameter** 8 5/8" O.D.

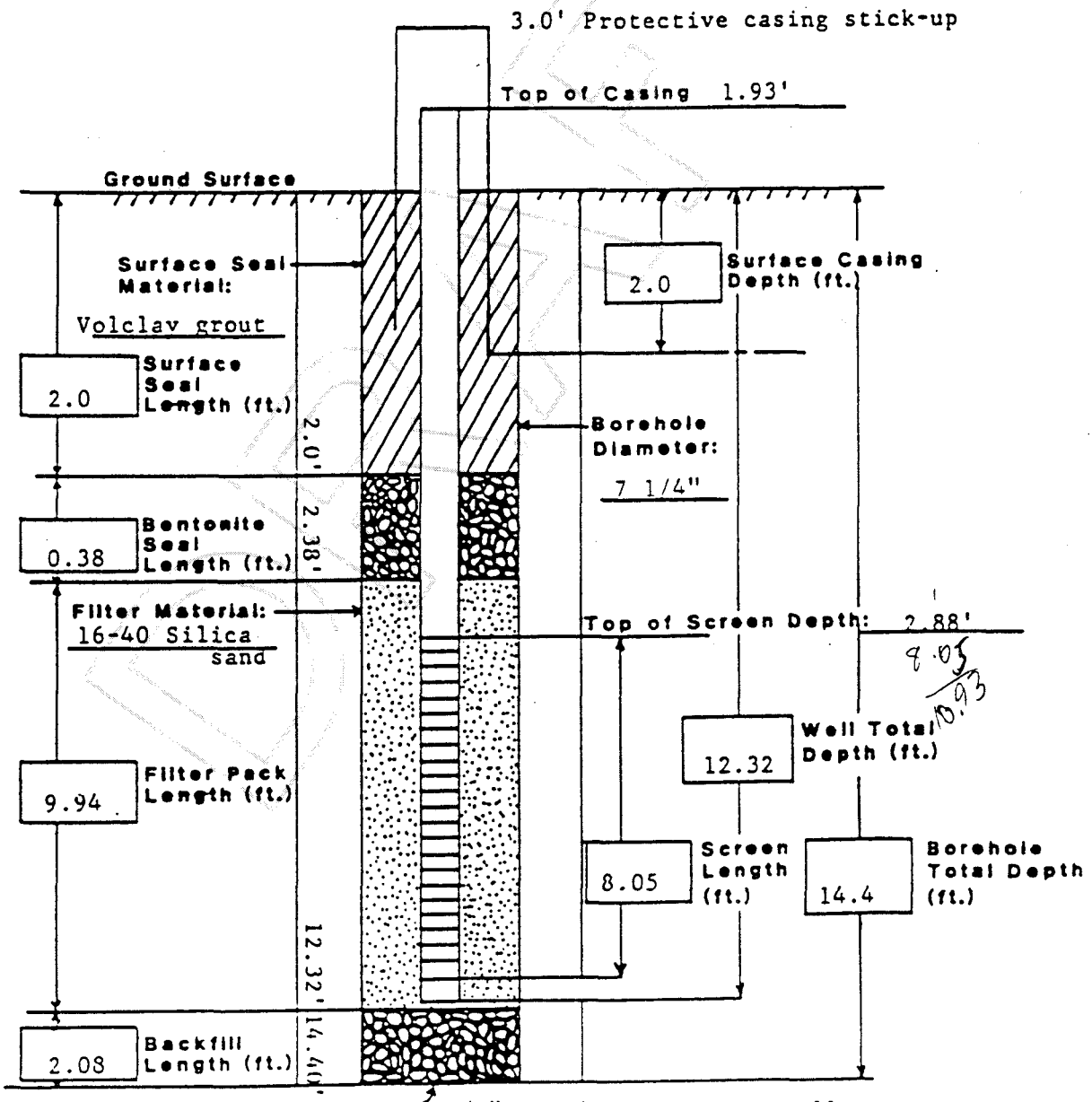
Date Installed 04/24/1989 **Approved By** Jarell Burman

Installed By K.E. Miller
Geologist

Site Manager

CEARP Manager

Comments Set stainless steel centralizer from 10.12' to 12.17' below ground surface



Backfill Material: 1/4" Volclay bentonite pellets

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 12.0	GROUND ELEVATION (FT):	5898.10	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH: 751565	AREA: SOLAR POND	CASING DIAMETER (IN):	4.5 0.0	GEOLOGIST: KEM	P209989
EAST: 208649	LOCATOR NUMBER: L11	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED: 04/26/89	

REMARKS: Hollow Stem Auger Weston Log

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%		5898	0			CL	Silty Clay - dusky yellow (5 Y 6/4). Abundt. organics. Trace c.g. to f.g. sand, unconsol., firm, non-plastic, dry
				2.00/2.00	5897	1			CL	Silty Clay - light olive brown (5 Y 5/6). Some gravel, quartzite, sub-angular, broken. Trace c.g. to f.g. sand. Mottles dark yellowish orange (10 YR 6/6), firm to stiff, low plasticity, (cl with gravel), damp
					5896	2			CL	Silty Clay - dusky yellow (5 Y 6/4) to light olive brown (5 Y 5/6). Trace coarse to fine quartzite gravel to 1 cm., sub-rounded. Trace c.g. to f.g. sand. Calcareous nodules, HCl reactive. Low plasticity, firm, (cl with gravel), damp
				2.00/2.00	5895	3				
					5894	4			CL	Silty Clay - same as above (reference interval 2.0' to 4.0'). More coarse to fine gravel, quartzite and K-feldspar. Broken, slight HCl reaction (slightly calcareous), damp
				2.10/2.00	5893	5				
					5892	6				
				2.00/2.00	5891	7				
					5890	8			SILTY CLAYSTONE	Top of Bedrock. Dusky yellow (5 Y 6/4) to pale olive (10 Y 6/2). Consol., very stiff, low plasticity. Streaks of yellowish orange (10 YR 6/6). Slightly calcareous, HCl reactive, damp
				2.10/2.00	5889	9			SILTY CLAYSTONE	Same as above (reference interval 7.7' to 8.0'). Trace c.g. to f.g. sand, dry
						10				

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 12.0	GROUND ELEVATION (FT):	5898.10	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH: 751565	AREA: SOLAR POND	CASING DIAMETER (IN):	4.5 0.0	GEOLOGIST: KEM	P209989
EAST: 2084649	LOCATOR NUMBER: L11	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED: 04/26/89	

REMARKS: Hollow Stem Auger. Weston Log

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRADIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM(FT)	DEPTH(FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				2.20/2.00	5888	10				SILTY CLAYSTONE: Same as above.
					5887	11				
					5886	12				Total Drilled Depth = 12.0'
					5885	13				
					5884	14				
					5883	15				
					5882	16				
					5881	17				
					5880	18				
					5879	19				
						20				

DRAFT

WELL COMPLETION INFORMATION

QA By/Date Jarell Burman 11-21-89

Location Rocky Flats Plant: Solar Ponds Area

Well No. P209989

Coordinates N 38580.65 E 21547.81 (RFP)

Elevation: Ground Surface 5898.1'

Total Depth: Well 9.58'

Top of Casing 5900.40'

Borehole 12.0'

Formation of Completion Colluvium

Casing Material Schedule 40 PVC

Casing Diameter 4 1/2" O.D.

Screen Material Schedule 40 10-slotted PVC

Surface Casing Diameter 8 5/8" O.D.

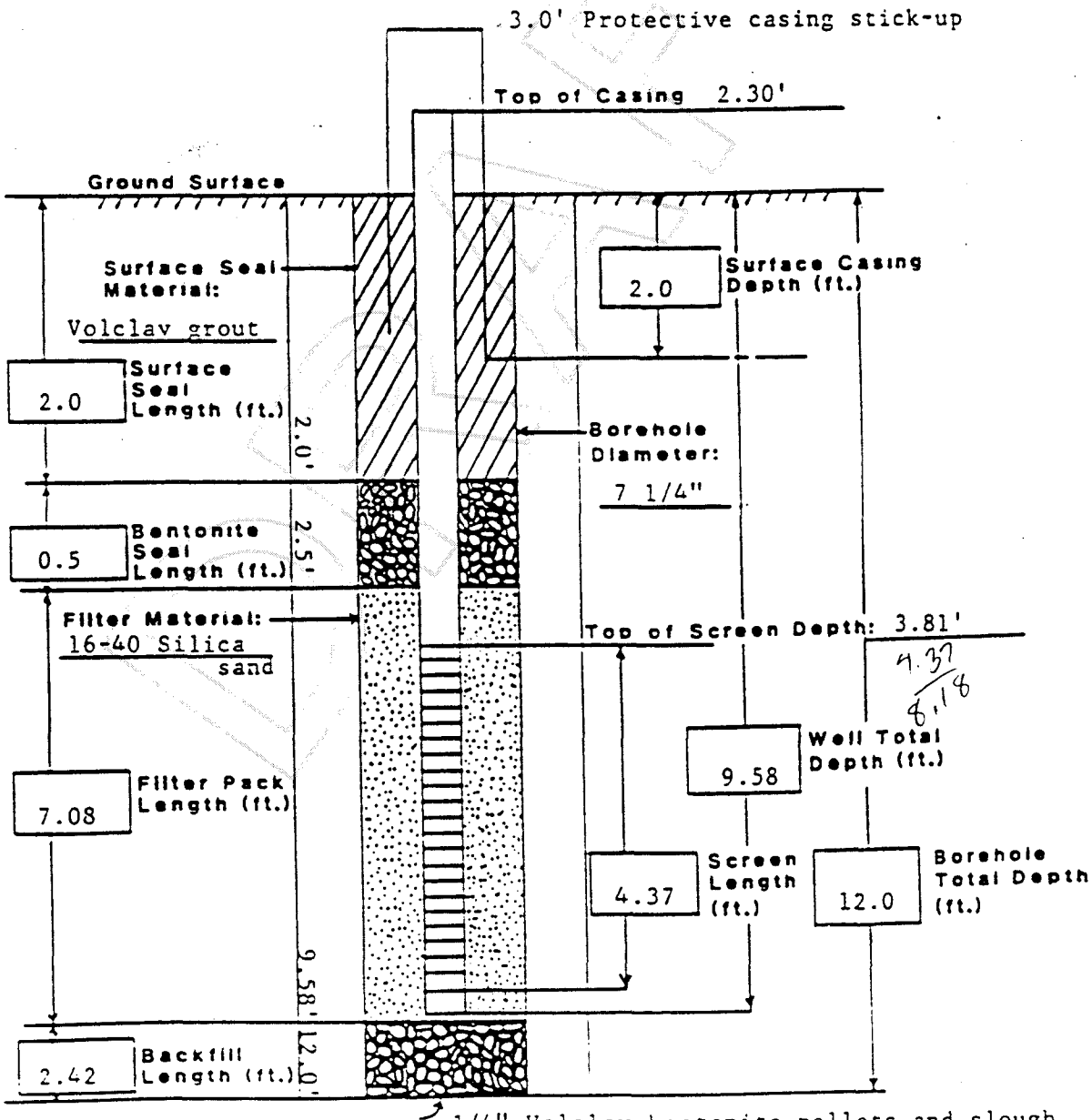
Date Installed 04/26/1989

Approved By Jarell Burman
Site Manager

Installed By K.E. Miller
Geologist

CEARP Manager

Comments Set stainless steel centralizer from 8.2' to 9.45' below ground surface

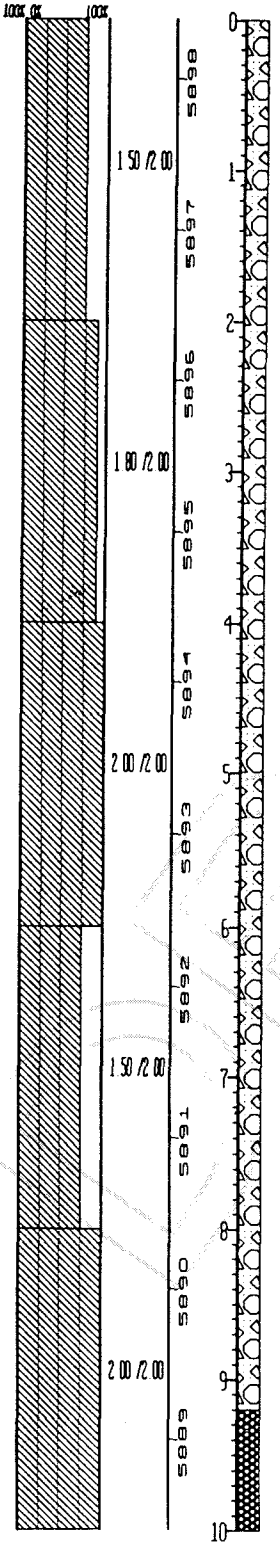


Backfill Material: 1/4" Volclay bentonite pellets and slough

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 28.0	GROUND ELEVATION (FT): 5898.40	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH:	751564	AREA: SOLAR POND	CASING DIAMETER (IN): 4.5 O.D.	GEOLOGIST: KEM/BJP	P210089
EAST:	2084639	LOCATOR NUMBER: L11	BOREHOLE DIAMETER (IN): 7.25	DATE DRILLED: 04/25/89	

REMARKS: Hollow Stem Auger. Surface casing set April 25, 1989 at 23.0' and cemented April 25, 1989 by K. E. Miller. Weston Log.

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50%)
PERCENT RECOVERY (100% 0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CL	Silty Clay - dark yellowish brown (10 YR 4/2).
CL	Silty Clay - mod. yellowish brown (10 YR 5/4) to mod. yellow (5 Y 7/6). Trace gravel, firm, low plasticity, damp.
NO SAMPLE	NO SAMPLE.
CL	Silty Clay - mod. yellowish brown (10 YR 5/4) to dark yellowish orange (10 YR 4/6). Trace gravel. C.g. to f.g. sand. Iron staining, stiff, low plasticity, damp.
CL	Silty Clay - same as above. Some gravel, 4 cm. to 5 cm., rounded to sub-rounded. Stiff, low plasticity, damp. (Silty Clay with some Gravel) 20% gravel.
CL	Silty Clay - mod. yellowish brown (5 Y 5/6). Dusky yellow (5 Y 6/4) to dark yellowish orange (10 YR 6/6). Trace gravel, rounded to sub-angular (2" cm.). Stiff, low plasticity, damp.
SILTY CLAYSTONE	Top of Bedrock. Light olive brown (5 Y 5/6). Stiff, low plasticity, damp.
SILTY CLAYSTONE	Light olive brown (5 Y 5/6) to dark yellowish orange (10 YR 6/6). Calcareous nodules, slight HCl reaction, stiff, low plasticity, damp.

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 28.0	GROUND ELEVATION (FT):	5898.40	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH:	751564	AREA: SOLAR POND	CASING DIAMETER (IN):	4.5 O.D.	GEOLOGIST: KEM/BJP	P210089
EAST:	2084639	LOCATOR NUMBER: L11	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED: 04/25/89	

REMARKS: Hollow Stem Auger. Surface casing set April 25, 1989 at 23.0' and cemented April 25, 1989 by K. E. Miller. Weston Log

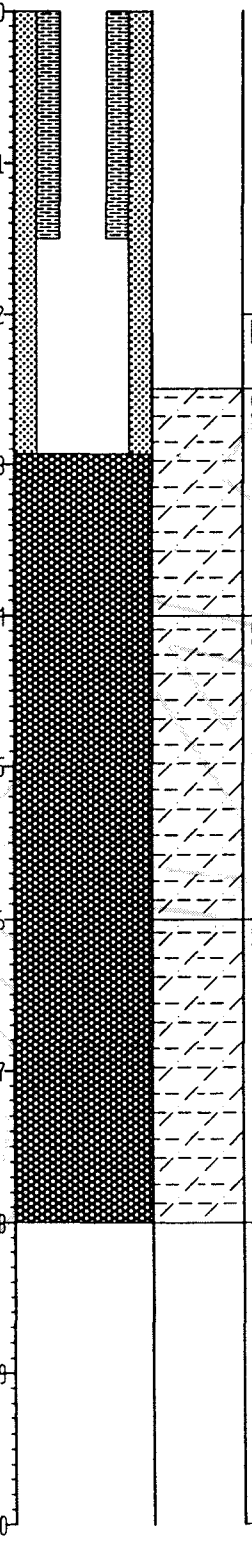
CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50%)	PERCENT RECOVERY (100% 0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				2.00/2.00	5888	10–11			SILTY CLAYSTONE	Light olive gray (5 Y 5/2) to dark yellowish orange (10 YR 6/6). Stiff to very stiff, low plasticity, damp.
				2.00/2.00	5887, 5886	11–12			SILTY CLAYSTONE	Olive gray (5 Y 4/1) to olive black (5 Y 2/1). Fractured, calcareous nodules, iron staining. Stiff to very stiff, low plasticity, damp.
				2.00/2.00	5885	12–13				
				2.20/2.00	5884, 5883	13–14			SILTY CLAYSTONE	Dark yellowish brown (10 YR 4/2) to light brownish gray (5 YR 6/1). Fractured, iron staining. Stiff, low to no plasticity, damp.
				2.20/2.00	5882, 5881	14–16	09/05/89		SILTY CLAYSTONE	Mod. olive brown (5 Y 4/4) to olive gray (5 Y 4/1). Fractured, iron staining. Stiff to low plasticity, damp.
				1.40/2.00	5880, 5879	16–19			CLAYEY SILTSTONE	Mod. brown (5 YR 3/4) to dark yellowish brown (10 YR 6/6). Hard, friable, no plasticity, slightly damp.
						19–20			NO SAMPLE	NO SAMPLE

DRAFT

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 28.0		GROUND ELEVATION (FT):	5898.40	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH:	751564	AREA: SOLAR POND		CASING DIAMETER (IN):	4.5 O.D.	GEOLOGIST: KEM/BJP	P210089
EAST:	2084639	LOCATOR NUMBER: L11		BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED: 04/25/89	

REMARKS: Hollow Stem Auger. Surface casing set April 25, 1989 at 23.0' and cemented April 25, 1989 by K. E. Miller. Weston Log

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
NO SAMPLE	Drilled with center bit. No sample recovery.
SILTY CLAYSTONE	Dark yellowish brown (10 YR 4/2). Iron staining, hard, low plasticity, dry.
SILTY CLAYSTONE	Dark yellowish brown (10 YR 4/2) to light brown (5 YR 5/6) to olive black (5 Y 2/1). Calcareous material, slight HCl reaction. Trace c.g. to f.g. sand. Very stiff, low plasticity, slightly damp.
SILTY CLAYSTONE	Same as above - olive black (5 Y 2/1). Trace c.g. to f.g. sand. Hard, low plasticity, strong HCl reaction (calcareous), dry.
	Total Drilled Depth = 28.0'

WELL COMPLETION INFORMATION

QA By/Date Jarell Burman 1-28-89

Location Rocky Flats Plant; Solar Ponds Area

Well No. P210089

Coordinates N 38579.31 E 21538.57 (RFP)

Elevation: Ground Surface 5898.4'

Top of Casing 5900.40'

Total Depth: Well 22.93'

Borehole 28.0'

Formation of Completion Weathered Claystone

Casing Material Schedule 40 PVC

Casing Diameter 4 1/2" O.D.

Screen Material Schedule 40 10-slotted PVC

Surface Casing Diameter 8 5/8" O.D.

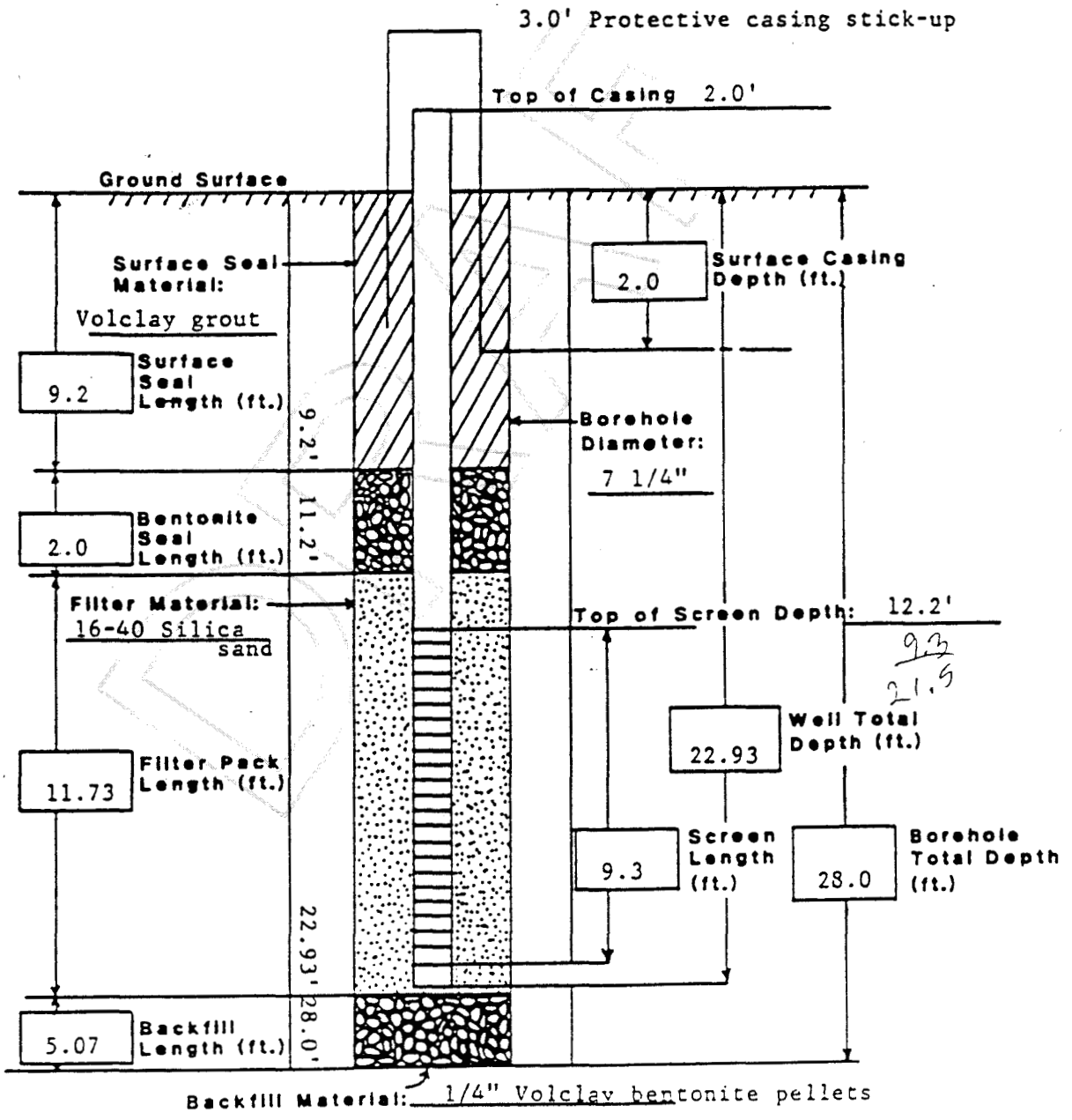
Date Installed 04/25/1989

Approved By Jarell Burman
Site Manager

Installed By K.E. Miller
Geologist

CEARP Manager

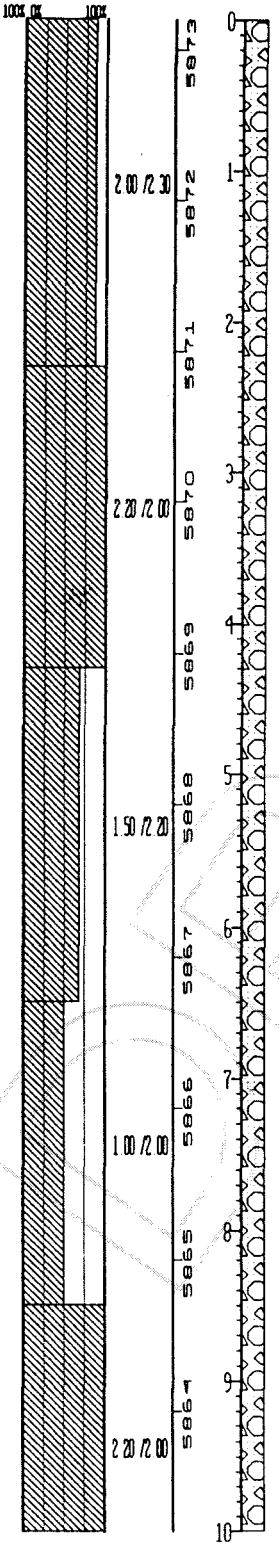
Comments Set stainless steel centralizer from 21.53' to 22.78' below ground surface



STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 28.5	GROUND ELEVATION (FT):	5873.20	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH:	751696	AREA: SOLAR POND	CASING DIAMETER (IN):	4.5 O.D.	GEOLOGIST: KEM	B210389
EAST:	2085116	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED: 04/21/89	

REMARKS: Hollow Stem Auger. Weston Log.

CHEMICAL SAMPLE DEPTH | GRADATIONAL SAMPLE DEPTH | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION

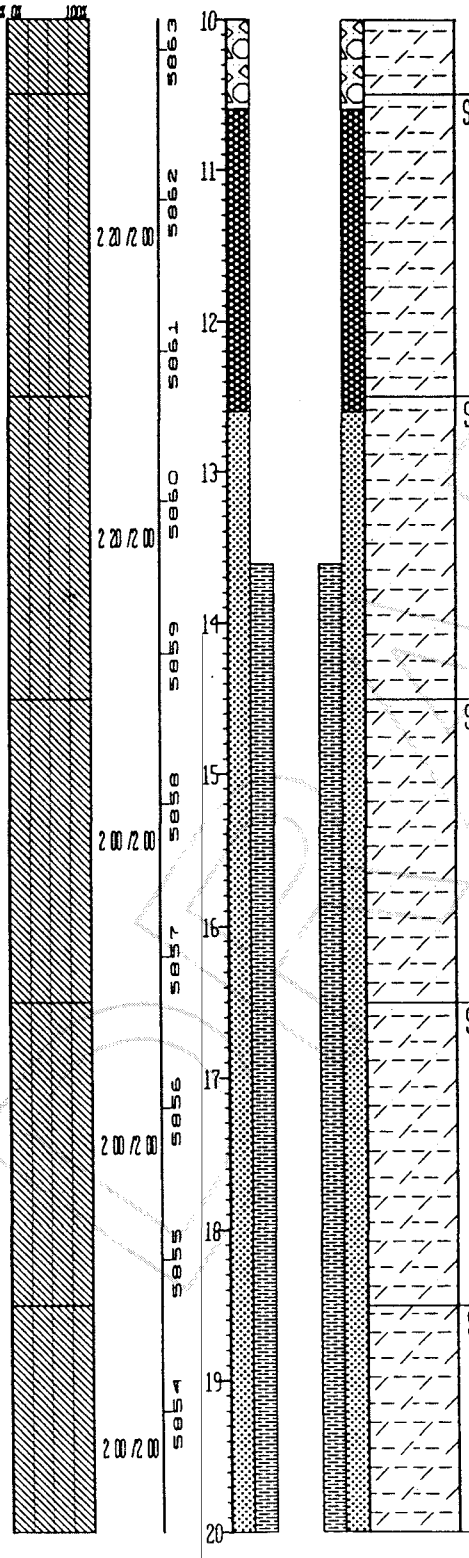


CL	Silty Clay - grayish brown (5 YR 3/2). Trace organics. Trace c.g. to f.g. sand, stiff, non-plastic, (ol), dry.
CL	Silty Clay - grayish brown (5 YR 3/2). Trace c.g. to f.g. sand. Trace coarse to fine gravel, quartzite, firm, non-plastic, dry.
CL	Gravelly Sandy Clay - grayish brown (5 YR 3/2) to olive black (5 Y 2/1). Coarse to fine gravel, quartzite, c.g. to f.g. sand, quartz, sub-rounded, poorly sorted, firm, low plasticity, (cl with gravel and sand), dry.
NO SAMPLE	NO SAMPLE
CL	Gravelly Sandy Clay - same as above.
GC	Sandy Clayey Gravel - mod. brown (5 YR 4/4). C.g. to f.g. quartz sand, sub-rounded. Coarse to fine quartzite gravel, broken to 4.0 cm., firm, no to low plasticity, (gc with sand), dry
GC	Sandy Clayey Gravel - same as above, wet.
GC	Sandy Clayey Gravel - same as above.
SILTY CLAYSTONE	Top of Bedrock Silty Claystone - mod. olive brown (5 Y 4/6). Consol., very stiff, low plasticity, streaks of dark yellowish orange (10 YR 6/6), dry

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 28.5	GROUND ELEVATION (FT): 5873.20	PROJECT NUMBER	LOG OF BORING NUMBER:
NORTH: 751696	AREA: SOLAR POND	CASING DIAMETER (IN): 4.5 O.D.	GEOLOGIST: KEM	B210389
EAST: 2085116	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN): 7.25	DATE DRILLED: 04/21/89	

REMARKS: Hollow Stem Auger Weston Log

CHEMICAL SAMPLE DEPTH | GRADATIONAL SAMPLE DEPTH | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE | DESCRIPTION



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
SILTY CLAYSTONE	Pale olive (10 Y 6/2), mottled Mod yellow (5 Y 7/6), consol., very stiff, low plasticity, calcareous nodules, HCl reactive, dolomite, dry
SILTY CLAYSTONE	Same as above - grading to med gray (N 5/0) Hard, low plasticity
SILTY CLAYSTONE	Med. gray (N 5/0) to olive gray (5 Y 4/6) Highly carbonaceous Lignite, black (N 1/0) Hard, low plasticity Iron stains, dark yellowish orange (10 YR 6/6), dry
SILTY CLAYSTONE	Same as above - fractured, med dark gray (N 4/0) Highly carbonaceous Lignite, black (N 1/0)
SILTY CLAYSTONE	Olive gray (5 Y 4/1) Trace carbonaceous material Lignite, black (N 1/0) Consol., very stiff, low plasticity, dry

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 28.5	GROUND ELEVATION (FT):	5873.20	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH: 751696	AREA: SOLAR POND	CASING DIAMETER (IN):	4.5 O.D.	GEOLOGIST: KEM	B210389
EAST: 2085116	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED: 04/21/89	

REMARKS: Hollow Stem Auger Weston Log

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5853	20	08/30/89			
				2.00/2.00	5852	21				SILTY CLAYSTONE: Same as above - fractured. Iron stains, dark yellowish orange (10 YR 6/6).
					5851	22				
				2.00/2.00	5850	23				SILTY CLAYSTONE: Same as above
					5849	24				
				2.00/2.00	5848	25				SILTY CLAYSTONE: Olive gray (5 Y 4/1) to med. dark gray (N 4/0). Mod. consol., very stiff, low plasticity. Iron stains, dark yellowish orange (10 YR 6/6), dry.
					5847	26				
				2.00/2.00	5846	27				SILTY CLAYSTONE: Same as above
					5845	28				
					5844	29				Total Drilled Depth = 28.5'
						30				

DRAFT

WELL COMPLETION INFORMATION

QA By/Date Jerell Bussman 14-25-89

Location Rocky Flats Plant; Solar Ponds Area

Well No. B210389

Coordinates N 38710.01 E 22016.16 (RFP)

Elevation: Ground Surface 5873.2'

Total Depth: Well 24.35'

Top of Casing 5875.32'

Borehole 28.5'

Formation of Completion Weathered Claystone

Casing Material Schedule 40 PVC

Casing Diameter 4 1/2" O.D.

Screen Material Schedule 40 10-slotted PVC

Surface Casing Diameter 8 5/8" O.D.

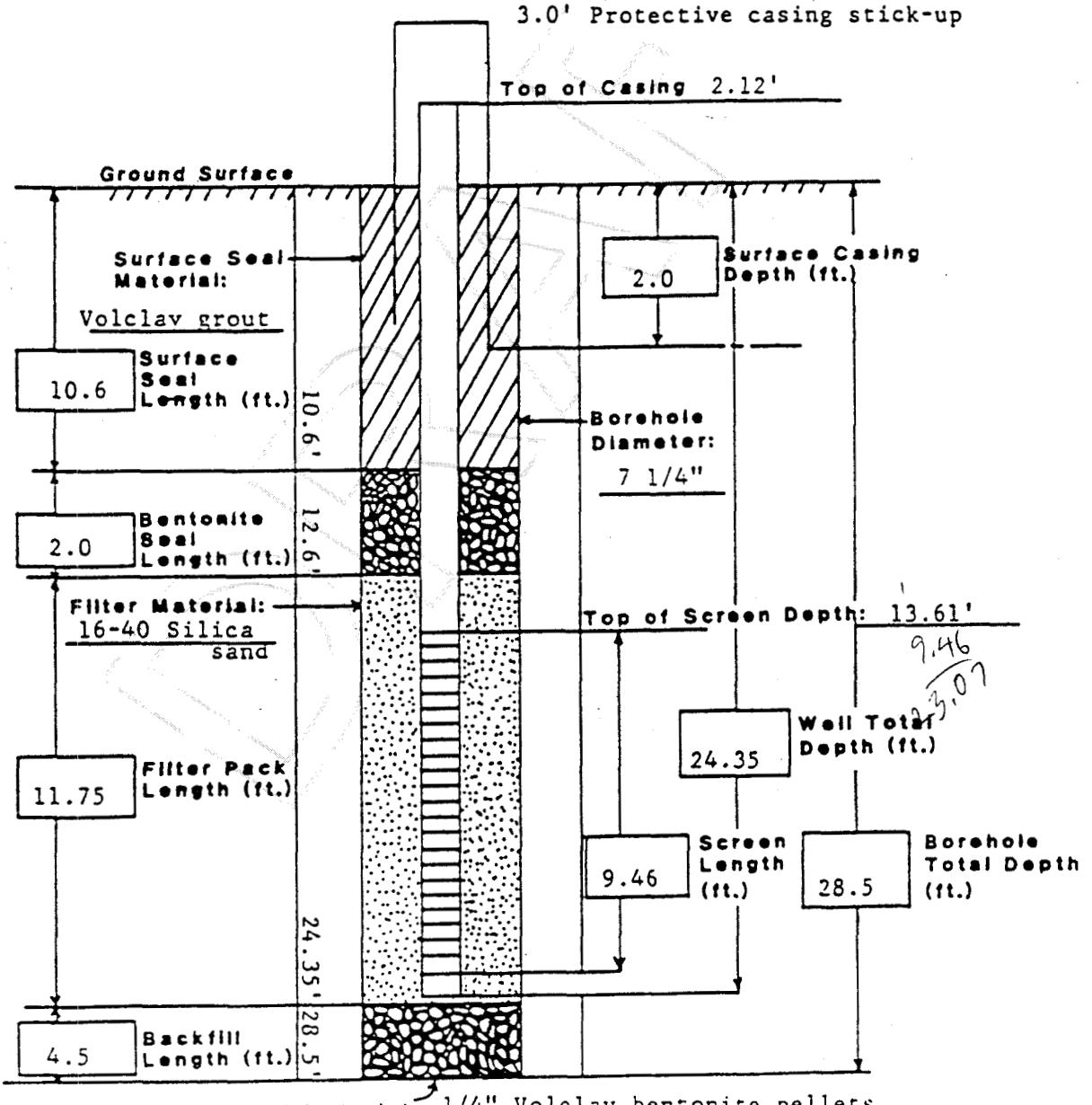
Date Installed 04/24/1989

Approved By Jerell Bussman
Site Manager

Installed By K.E. Miller
Geologist

CEARP Manager

Comments Set stainless steel centralizer from 22.75' to 24.0' below ground surface

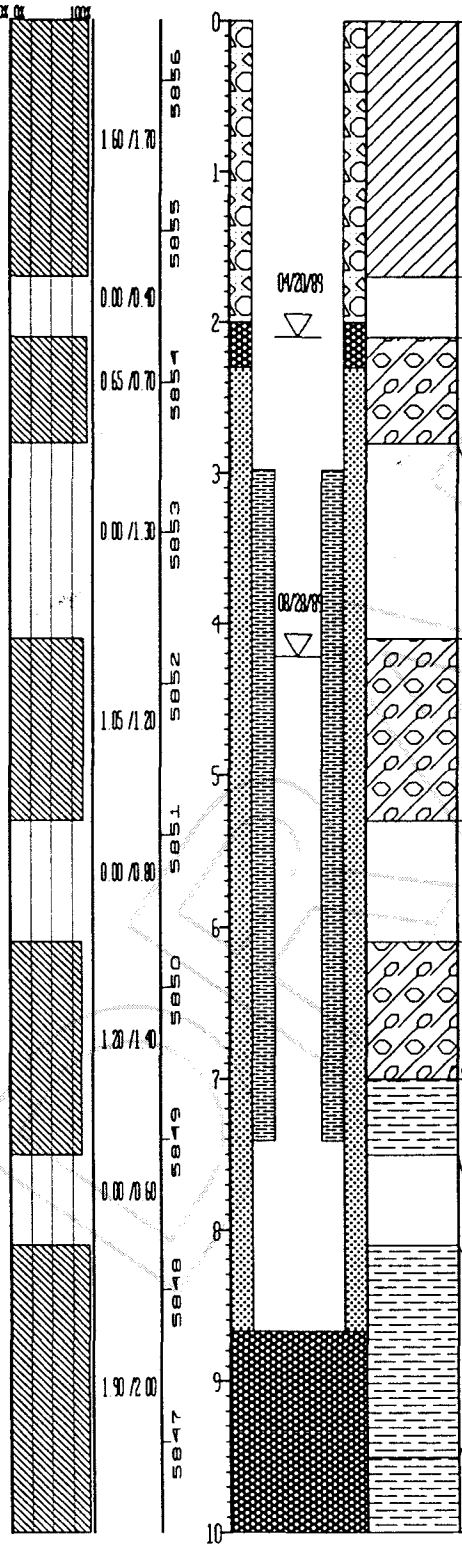


Backfill Material: 1/4" Volclay bentonite pellets

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 28.1	GROUND ELEVATION (FT):	5856.40	PROJECT NUMBER:		LOG OF BORING NUMBER:
NORTH:	751802	AREA: SOLAR POND	CASING DIAMETER (IN):	4.5 O.D.	GEOLOGIST:	DCB	B210489
EAST:	2085513	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED:	04/20/89	

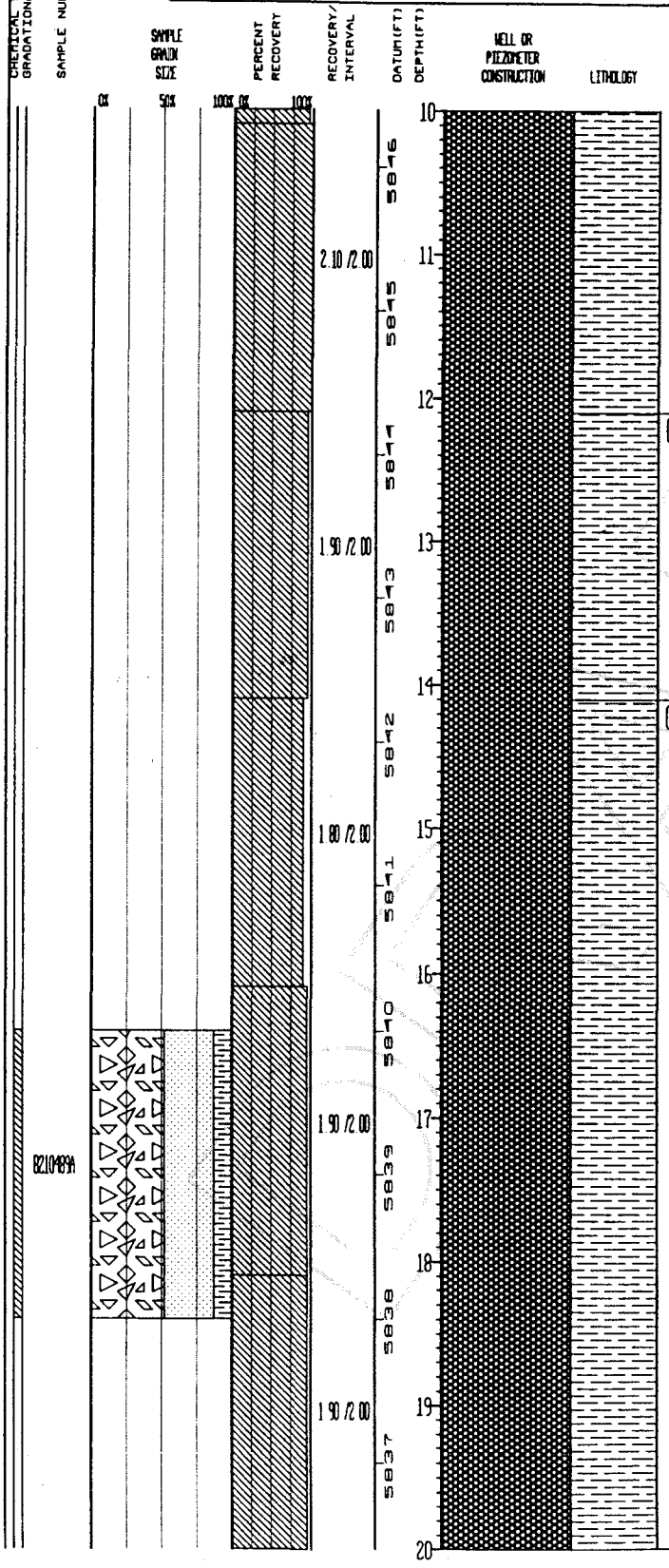
REMARKS: Hollow Stem Auger ASI Log

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRADI SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CL	Clay - dusky yellowish brown (10 YR 2/2), low to mod. plasticity. Some gravel to gravelly, trace of f.g. to m.g. sand, roots and plant debris in upper 1.5'. >50% clay.
NO SAMPLE	NO SAMPLE
GC	Clayey Gravel - dom. med. light gray (N6). Matrix is dark yellowish brown (10 YR 4/2), sub-angular, mod. graded. Max. size approx. 6 cm. Some f.g. to c.g. sand. Approx. 65% gravel, approx. 10% f.g.-c.g. sand, approx. 25% clay.
NO SAMPLE	NO SAMPLE
GC	Clayey Gravel as above (reference interval 2.1' to 2.8'). Approx. 65% gravel, approx. 10% f.g.-c.g. sand, approx. 25% clay.
NO SAMPLE	NO SAMPLE
GC	Clayey Gravel as above (reference interval 2.1' to 2.8'). Approx. 65% gravel, approx. 10% f.g.-c.g. sand, approx. 25% clay.
CLAYSTONE	Top of Bedrock. Claystone - dark yellowish brown (10 YR 4/2), bedding not apparent. Highly weathered, mod. friability. Trace of f.g. sand to sandy, sand fraction varies locally. >50% clay.
NO SAMPLE	NO SAMPLE
CLAYSTONE	Same as above (reference interval 7.0' to 7.5'). Sand fraction decreases with depth. 0-30% f.g. sand, >50% clay.
CLAYSTONE	Color grades to light olive gray (5 Y 6/1) and light gray (N7). Sand fraction absent below approx. 10.5'. Caliche body approx. 1.5 cm. diam. at approx. 11.9'. >50% clay.

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 28.1	GROUND ELEVATION (FT):	5856.40	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH: 751802	AREA: SOLAR POND	CASING DIAMETER (IN):	4.5 O.D.	GEOLOGIST: DCB	B210489
EAST: 2085513	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED: 04/20/89	
REMARKS: Hollow Stem Auger ASI Log					



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CLAYSTONE	Same as above (reference interval 9.5' to 12.1'). Iron staining occurs locally and on fractures. >50% clay.
CLAYSTONE	Med. dark gray (N4), bedding not apparent. Well weathered, mod. friable. Trace of carbonaceous material, local iron staining frequently as accessory to carbonaceous material. >50% clay.

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 28.1	GROUND ELEVATION (FT):	5856.40	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH: 751802	AREA: SOLAR POND	CASING DIAMETER (IN):	4.5 O.D.	GEOLOGIST: DCB	B210489
EAST: 2085513	LOCATOR NUMBER: M11	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED: 04/20/89	
REMARKS: Hollow Stem Auger ASI Log					

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					5836	20			CLAYSTONE	Light olive gray (5 Y 6/1), bedding not apparent. Well weathered, mod friability. Iron staining locally and on fractures. Trace of silt to some silt. >50% clay
				1.80/2.00	5835	21				
					5834	22				
				1.80/2.00	5833	23				
					5832	24				
				1.90/2.00	5831	25				
					5830	26			CLAYSTONE	Same as above color grades to dark gray (N3). >50% clay
				1.80/2.00	5829	27				
					5828	28				Total Drilled Depth = 28.1'
					5827	29				
						30				

WELL COMPLETION INFORMATION

QA By/Date [signature] 14-21-89

Location Rocky Flats Plant; Solar Ponds Area

Well No. B210489

Coordinates N 38814.87 E 22413.47 (RFP)

Elevation: Ground Surface 5856.4'

Total Depth: Well 8.67'

Top of Casing 5858.71'

Borehole 28.1'

Formation of Completion Colluvium

Casing Material Schedule 40 PVC

Casing Diameter 4 1/2" O.D.

Screen Material Schedule 40 10-slotted PVC

Surface Casing Diameter 8 5/8" O.D.

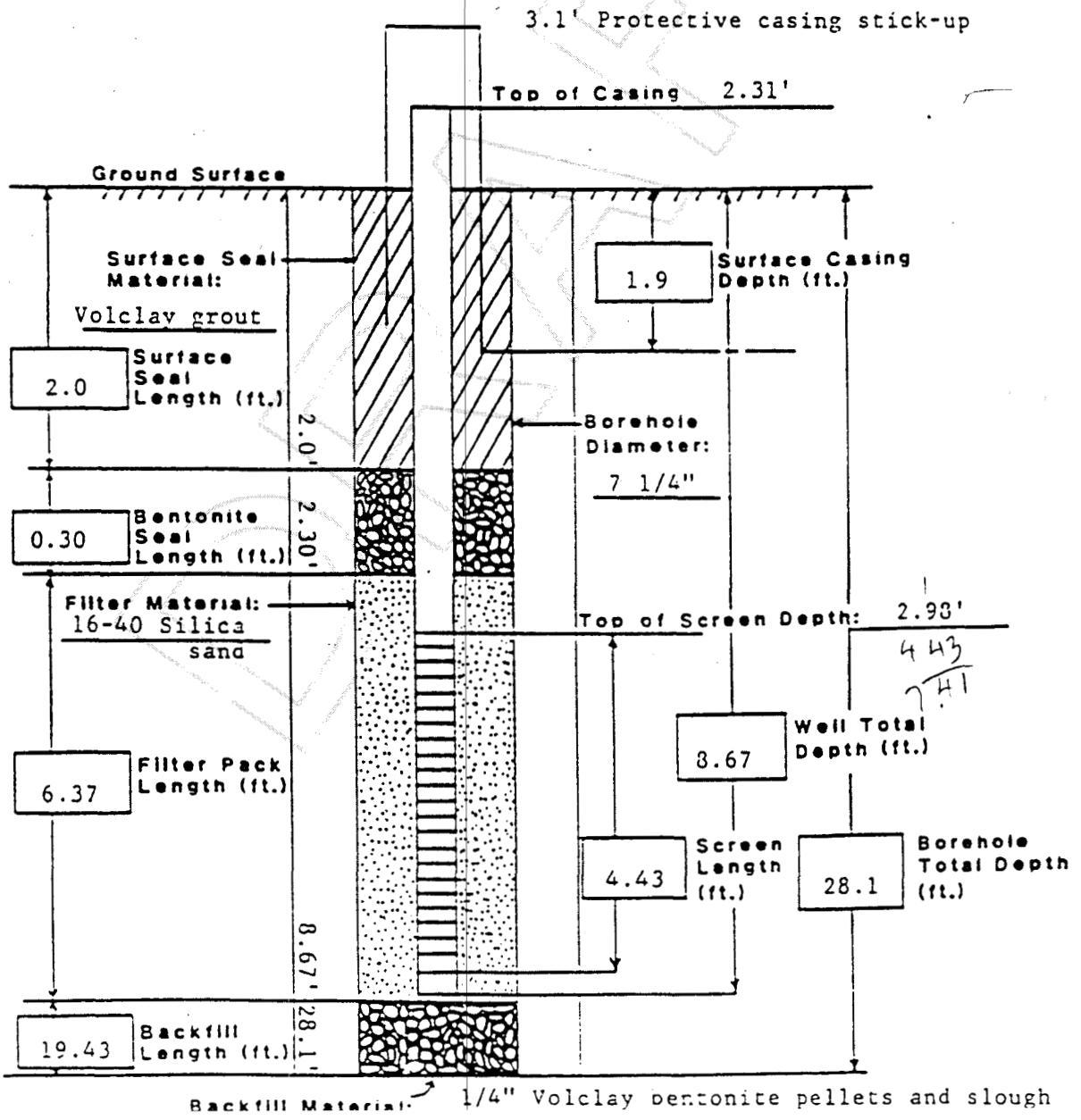
Date Installed 04/20/1989

Approved By [signature]
Site Manager

Installed By K.E. Miller
Geologist

CEARP Manager

Comments Set stainless steel centralizer from 7.25' to 8.50' below ground surface



STATE PLANE COORDINATE		TOTAL DEPTH (FT): 9.6	GROUND ELEVATION (FT):	5917.80	PROJECT NUMBER:		LOG OF BORING NUMBER
NORTH:	750538	AREA: B-1 POND	CASING DIAMETER (IN):	2-3/8 O.D.	GEOLOGIST:	SPC	B213789
EAST:	2086677	LOCATOR NUMBER: N10	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED:	06/13/89	

REMARKS: Hollow Stem Auger. Weston Log

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% 50% 100%)	PERCENT RECOVERY (0% 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				1.40/1.60	5917	0–1			CL	Sandy Clay - mod. brown (5 YR 4/4) to dusky yellowish brown (10 YR 2/2). Trace gravel to pebbles, non-stratified. F.g. to v.c.g. sand, poor sorting, sub-angular, quartzose. Poorly consol., stiff, med. plasticity, moist.
				2.00/2.00	5916	2			CL	Sandy Clay - mod. yellowish brown (10 YR 5/4), non-stratified. F.g. to v.c.g. sand, poor sorting, sub-angular, quartzose. Poor consol., stiff, med. plasticity, calcareous, moist.
				1.95/2.00	5915	3			CL	Sandy Clay - same as above. Light brown (5 YR 5/6) to dark yellowish orange (10 YR 6/6), increased calcareous deposits.
				1.90/2.00	5914	4			CLAYEY SANDSTONE	Top of Bedrock. Dark yellowish orange (10 YR 6/6) to grayish orange (10 YR 7/4) to light gray (N 7/0), non-stratified, mottled. F.g. to c.g. sand, poor sorting, sub-angular, quartzose. Poorly consol., calcareous, very weathered, moist.
				2.00/2.00	5913	5			CLAYSTONE	Very light gray (N 8/0). Non-stratified, blocky, mod. consol., med. to high plasticity, weathered, abundt. iron oxide staining, moist.
					5912	6			NO SAMPLE	NO SAMPLE
					5911	7			CLAYSTONE	Same as above - light olive gray (5 Y 5/2) to dark yellowish orange (10 YR 6/6) to med. light gray (N 6/0), mottled. Calcareous deposits.
	P213891506				5910	8				
					5909	9				
					5908	10				Total Drilled Depth = 9.6'

WELL COMPLETION INFORMATION

QA By/Date Janell Burman 10-14-89

Location Rocky Flats Plant; Original Process Waste Lines (RFP) **Well No.** B213789

Coordinates N 37546.69 E 23573.81 **Elevation: Ground Surface** 5917.8'

Total Depth: Well 8.25' **Top of Casing** 5920.01'

Borehole 9.4'

Formation of Completion Colluvium

Casing Material Schedule 40 PVC **Casing Diameter** 2 3/8" O.D.

Screen Material Schedule 40 10-slotted PVC **Surface Casing Diameter** 5 5/8" O.D.

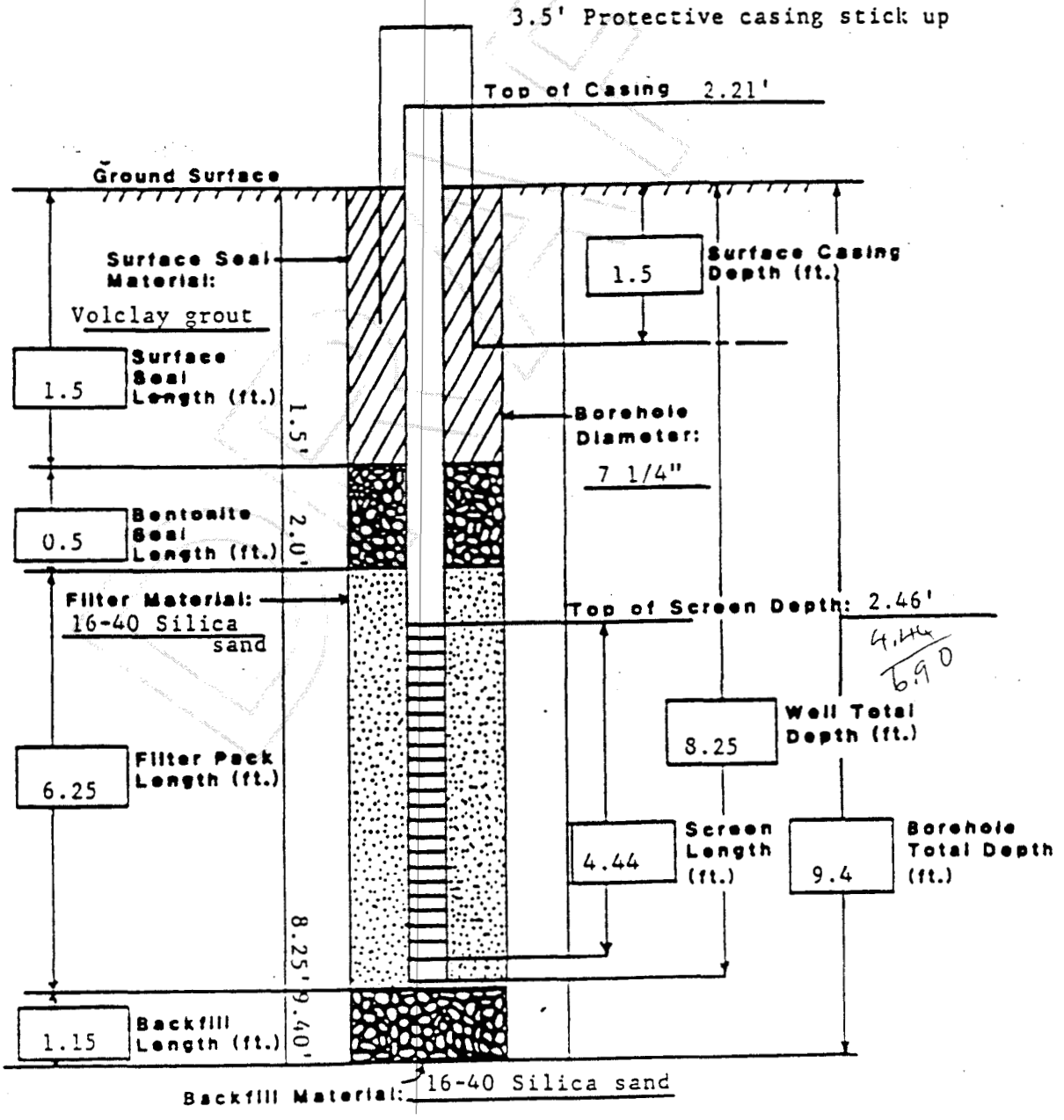
Date Installed 06/13/1989 **Approved By** Janell Burman

Installed By S.P. Carpenter
Geologist

Site Manager

CEARP Manager

Comments Set stainless steel centralizer from 6.92' to 8.13' below ground surface.

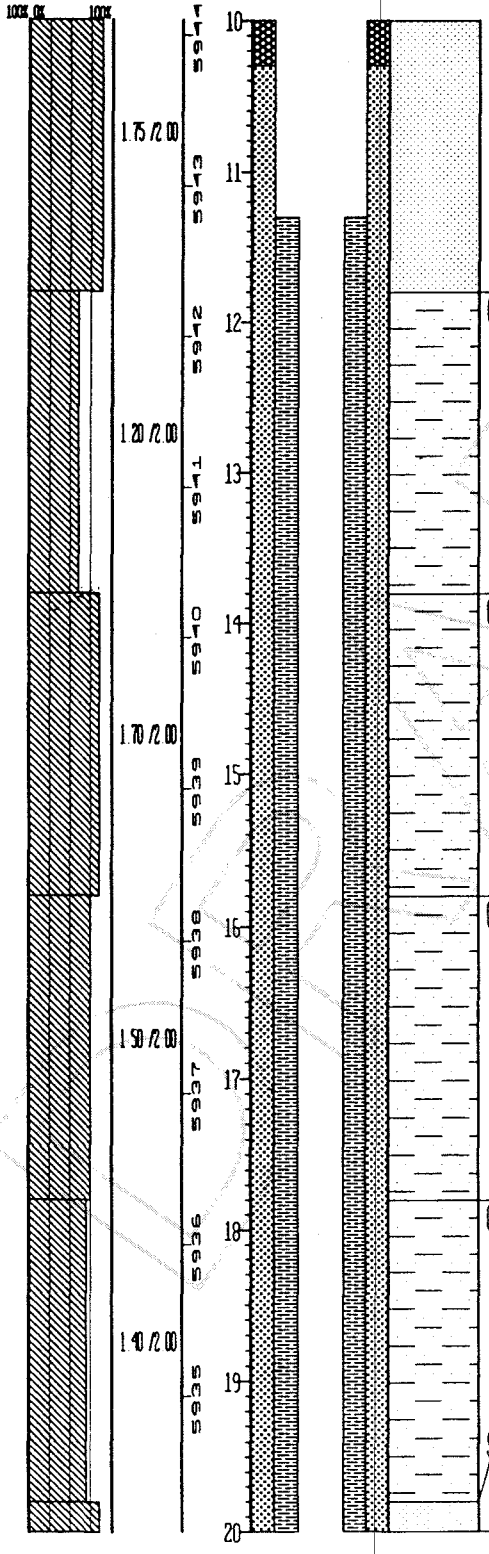


STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 31.85	GROUND ELEVATION (FT): 5954.10	PROJECT NUMBER:		LOG OF BORING NUMBER:
NORTH: 750466	AREA: PLANT	CASING DIAMETER (IN): 2 3/8 O.D.	GEOLOGIST:	DAT	P213889
EAST: 2086109	LOCATOR NUMBER: N10	BOREHOLE DIAMETER (IN): 7.25	DATE DRILLED:	06/16/89	
REMARKS: Hollow Stem Auger. ASI Log.					

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50% – 100%)	PERCENT RECOVERY (0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	P213889A			1.40 /1.80	5955	0			CL	Sandy Clay - grayish orange (10 YR 7/4), grading to mod. brown (5 YR 3/4), mod. graded. Sand is m.g. to c.g., angular to sub-angular, mod. plasticity. Some gravel approx. 5 cm. in diam. at base of interval, calcareous. 30% sand, 70% clay.
					5953	1				
				1.30 /2.00	5952	2			CL	Same as above. Top is dark reddish brown (10 R 3/4), gravel fraction increases. (Sandy Gravelly Clay). 20% gravel, 20% sand, 60% clay.
					5951	3				
				1.30 /2.00	5950	4			GC	Calcareous Gravel - grayish orange pink (10 R 8/2). Mod. to well graded, angular to sub-angular. Some sand f.g. to c.g., some clay. (Sandy Clayey Gravel). 70% gravel, 15% sand, 15% clay.
					5949	5				
	P214890507				5948	6			NO SAMPLE	NO SAMPLE.
				0.00 /2.00	5947	7				
					5946	8			SANDSTONE	Top of Bedrock at 8.0'. Sandstone - pinkish gray (5 YR 8/1). V.f.g. to f.g., rounded to sub-rounded, poorly graded. Fe staining, trace gravel, largest is diameter of core (approx. 6 cm.). >90% sand.
	P213889B			0.60 /2.00	5945	9			SANDSTONE	Pinkish gray (5 YR 8/1). V.f.g. to f.g., rounded to sub-rounded, poorly graded. Fe staining as mottles, some calcareous material in middles of interval, unconsol. Some clay. >90% sand.
						10				

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 31.85	GROUND ELEVATION (FT):	5954.10	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH: 750466	AREA: PLANT	CASING DIAMETER (IN):	2 3/8 O.D.	GEOLOGIST: DAT	P213889
EAST: 2086109	LOCATOR NUMBER: N10	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED: 06/16/89	
REMARKS: Hollow Stem Auger. AST Log.					

CHEMICAL SAMPLE DEPTH
GRADATIONAL SAMPLE DEPTH
SAMPLE NUMBER
SAMPLE GRAIN SIZE (0% 50% 100%)
PERCENT RECOVERY (0% 100%)
RECOVERY/INTERVAL
DATUM (FT)
DEPTH (FT)
WELL OR PIEZOMETER CONSTRUCTION
LITHOLOGY
UNIFIED SOILS CLASSIFICATION OR ROCK TYPE
DESCRIPTION



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CLAYEY SANDSTONE	Pale yellowish orange (10 YR 8/6). V f g. sand, well sorted, mod. to well rounded, mod friability. Fe staining as mottles and in fractures. Trace of Mg staining, mod consol. 70% sand, 30% clay
CLAYEY SANDSTONE	Same as above. Approx. 30 degrees laminae, evidence of soft sed. deformation. 70% sand, 30% clay
CLAYEY SANDSTONE	Same as above. 70% sand, 30% clay
CLAYEY SANDSTONE	Same as above. Mod to high friability. 70% sand, 30% clay
SANDSTONE	Same as above. Mod to low friability. F g sand, clay fraction is decreased. (Sandstone with some Clay) 80% sand, 20% clay

DRAFT

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 31.85	GROUND ELEVATION (FT): 5954.10	PROJECT NUMBER:		LOG OF BORING NUMBER:
NORTH: 750466	AREA: PLANT	CASING DIAMETER (IN): 2 3/8 O.D.	GEOLOGIST:	DAT	P213889
EAST: 2086109	LOCATOR NUMBER: N10	BOREHOLE DIAMETER (IN): 7.25	DATE DRILLED:	06/16/89	
REMARKS: Hollow Stem Auger. ASI Log.					

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE (0% – 50%)	PERCENT RECOVERY (100% 0% – 100%)	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
				1.70 /2.00	5934	20				
					5933	21				
					5932	22			SANDSTONE	Very pale orange (10 YR 8/2). V.f.g. sand, mod. well sorted, sub-rounded to rounded, mod. friability. Fe staining as mottles. >90% sand.
				2.00 /2.00	5931	23				
					5930	24			SANDSTONE	Same as above. >90% sand.
				2.00 /2.00	5929	25				
					5928	26			SANDSTONE	Same as above, decrease in clay fraction in top of interval and is yellowish gray (5 Y 5/2). Fissile. >90% sand.
				2.00 /2.00	5927	27				
					5926	28			SANDSTONE	Same as above. >90% sand.
				2.00 /2.00	5925	29				
	P213889C					30			SANDSTONE	Same as above, more clay fraction at base. >90% sand.

STATE PLANE COORDINATE:	TOTAL DEPTH (FT): 31.85	GROUND ELEVATION (FT):	5954.10	PROJECT NUMBER:	LOG OF BORING NUMBER:
NORTH: 750466	AREA: PLANT	CASING DIAMETER (IN):	2 3/8 O.D.	GEOLOGIST: DAT	P213889
EAST: 2086109	LOCATOR NUMBER: N10	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED: 06/16/89	

REMARKS: Hollow Stem Auger. ASI Log

CHEMICAL SAMPLE / GRADATIONAL SAMPLE / DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/ INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50%	100% 0% 100%	2.00 /2.05	5924 5923 5922 5921 5920 5919 5918 5917 5916 5915	30 31 32 33 34 35 36 37 38 39 40				Total Drilled Depth = 31.85'

DRAFT

WELL COMPLETION INFORMATION

QA By/Date Janell Burman 11-20-89

Location Rocky Flats Plant: Original Process Waste Lines (RFP)

Well No. P213889

Coordinates N 37476.24 E 23005.19

Elevation: Ground Surface 5954.1'

Total Depth: Well 22.03'

Top of Casing 5955.94'

Borehole 31.85'

Formation of Completion Weathered Sandstone

Casing Material Schedule 40 PVC

Casing Diameter 2 3/8" O.D.

Screen Material Schedule 40 10-slotted PVC

Surface Casing Diameter 5 5/8" O.D.

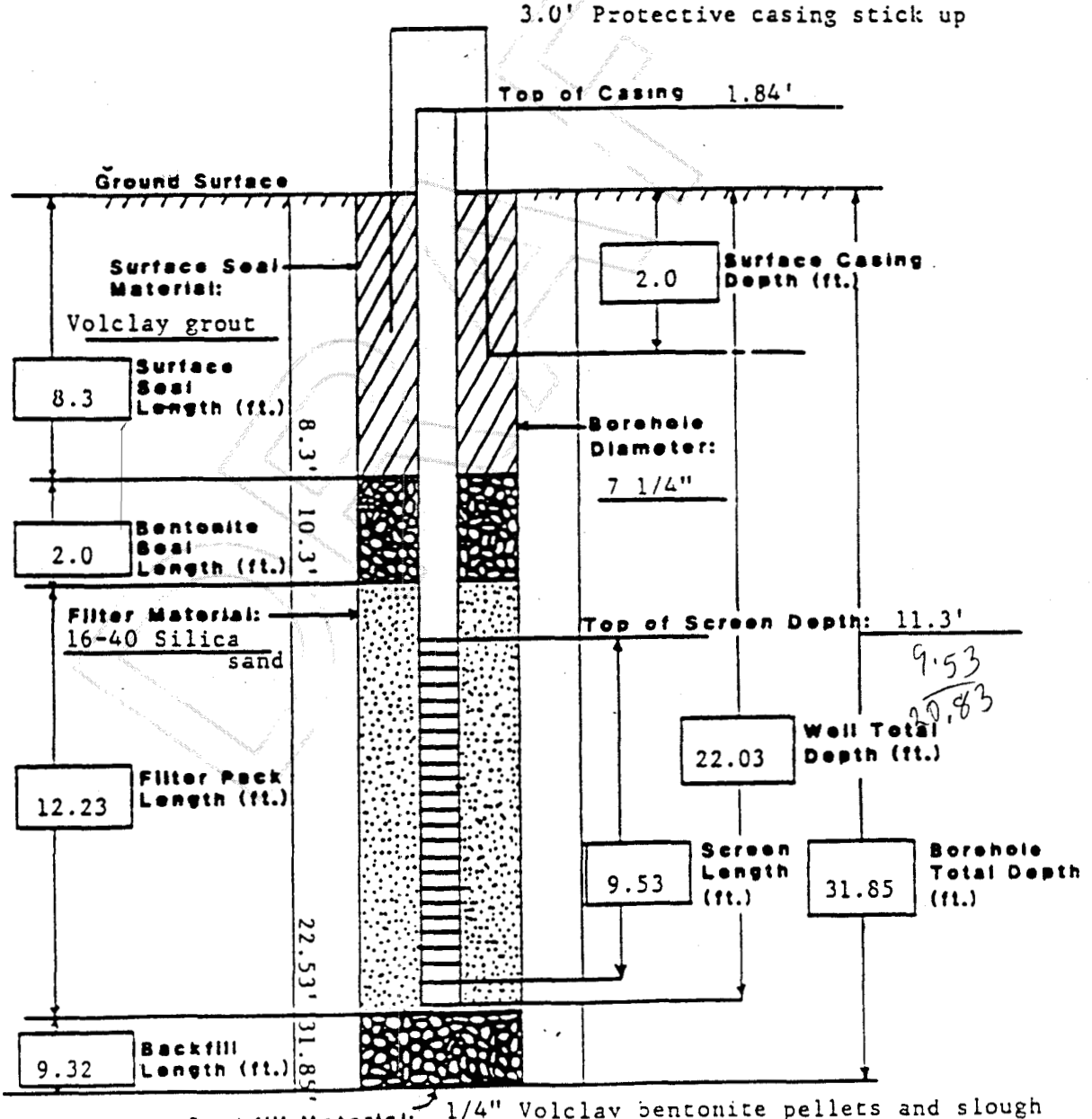
Date Installed 06/16/1989

Approved By Janell Burman
Site Manager

Installed By S.P. Carpenter
Geologist

CEARP Manager

Comments



Backfill Material: 3/4" Volclay bentonite pellets and slough

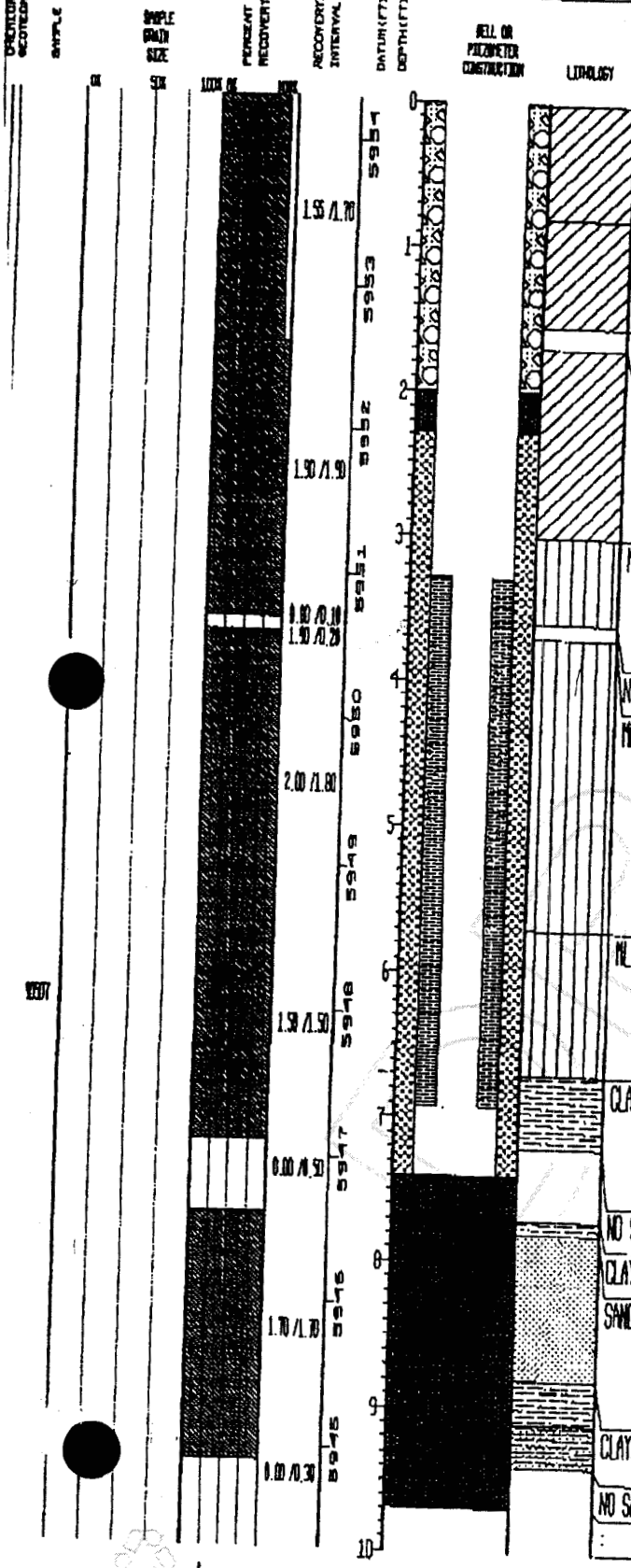
STATE PLANE COORDINATE:
NORTH: 750468
EAST: 2086102
REMARKS: Hollow Stem Auger. Weston Log.

TOTAL DEPTH (FT): 9.7
AREA: PLANT
LOCATOR NUMBER: N10

GROUND ELEVATION (FT): 5954.30
CASING DIAMETER (IN): 2-3/8 O.D.
BOREHOLE DIAMETER (IN): 7.25

OLD WELL NUMBER: PZ14-89A
GEOLOGIST: SPC
DATE DRILLED: 06/19/89

LOG OF BORING NUMBER: P213989



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
CL:	Sandy Clay - dark yellowish orange (10 YR 6/6), non-stratified. F.g. to c.g. sand, mod. consol., non-cemented, low to med. plastic, stiff, moist.
CL:	Sandy Gravelly Clay - mod. brown (5 YR 3/4). F.g. to c.g. sand. 1 mm. to 3 mm. gravel, poorly sorted, sub-angular, quartzose. Low plastic, stiff, moist.
NO SAMPLE:	No recovery.
CL:	Sandy Gravelly Clay - same as above - mod. brown (5 YR 3/4) to mod. reddish brown (10 YR 4/6).
ML:	Gravelly Silty Sand - mod. orange pink (5 YR 8/4). F.g. to c.g. sand. 1 mm. to 4 mm. gravels, poorly sorted, sub-angular, quartzose. Non-stratified, unconsol., dense to very dense, calcareous, dry.
NO SAMPLE:	NO SAMPLE
ML:	Gravelly Silty Sand - same as above. Mod. orange pink (5 YR 8/4) to light brown (5 YR 5/6). 1 mm. to 6 mm. gravels. Trace of 1 mm. to 2 mm. clay laminations.
ML:	Gravelly Silty Sand - same as above. Slightly moist at contact with Claystone bedrock.
CLAYSTONE:	Top of Bedrock. Light olive gray (5 Y 6/1), non-stratified. Mod. consol., blocky, weathered, med. to high plastic, iron oxide staining, calcareous, moist.
NO SAMPLE:	NO SAMPLE
CLAYSTONE:	Same as above (reference interval 6.7' to 7.2').
SANDSTONE:	Light gray (N 7/0). V.f.g. to f.g. sand, mod. sorting, sub-angular, quartzose. Non-stratified, unconsol., non-cemented. Slightly calcareous, with increasing clay content and iron oxide staining with depth.
CLAYSTONE:	Interbedded Claystone and Sandstone - same as above, with lenses of 1 mm. to 5 mm. in thickness.
NO SAMPLE:	NO SAMPLE
:	Total Drilled Depth = 9.7'.

WELL COMPLETION INFORMATION

QA By/Date Janell Berman 16-20 89

Location Rocky Flats Plant: Original Process Waste Lines

Well No. P213989

Coordinates N 37478.56 E 22997.66 (SFP)

Elevation: Ground Surface 5954.3'

Total Depth: Well 7.2'

Top of Casing 5956.38'

Borehole 9.7'

Formation of Completion Rocky Flats Alluvium

Casing Material Schedule 80 PVC

Casing Diameter 2 3/8" O.D.

Screen Material Schedule 80 10-slotted PVC

Surface Casing Diameter 5 5/8" O.D.

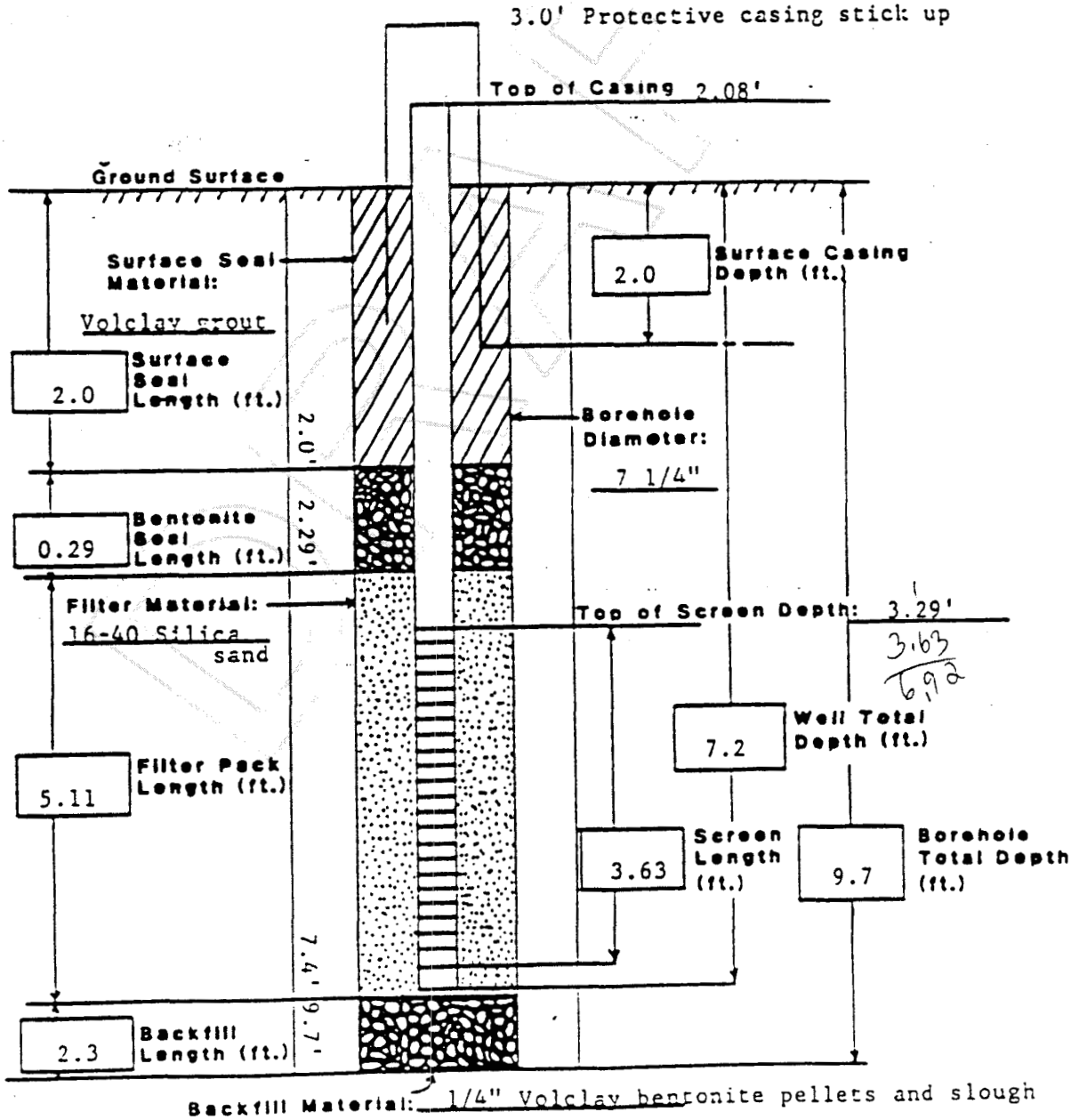
Date Installed 06/19/1989

Approved By Janell Berman
Site Manager

Installed By S.P. Carpenter
Geologist

CEARP Manager

Comments



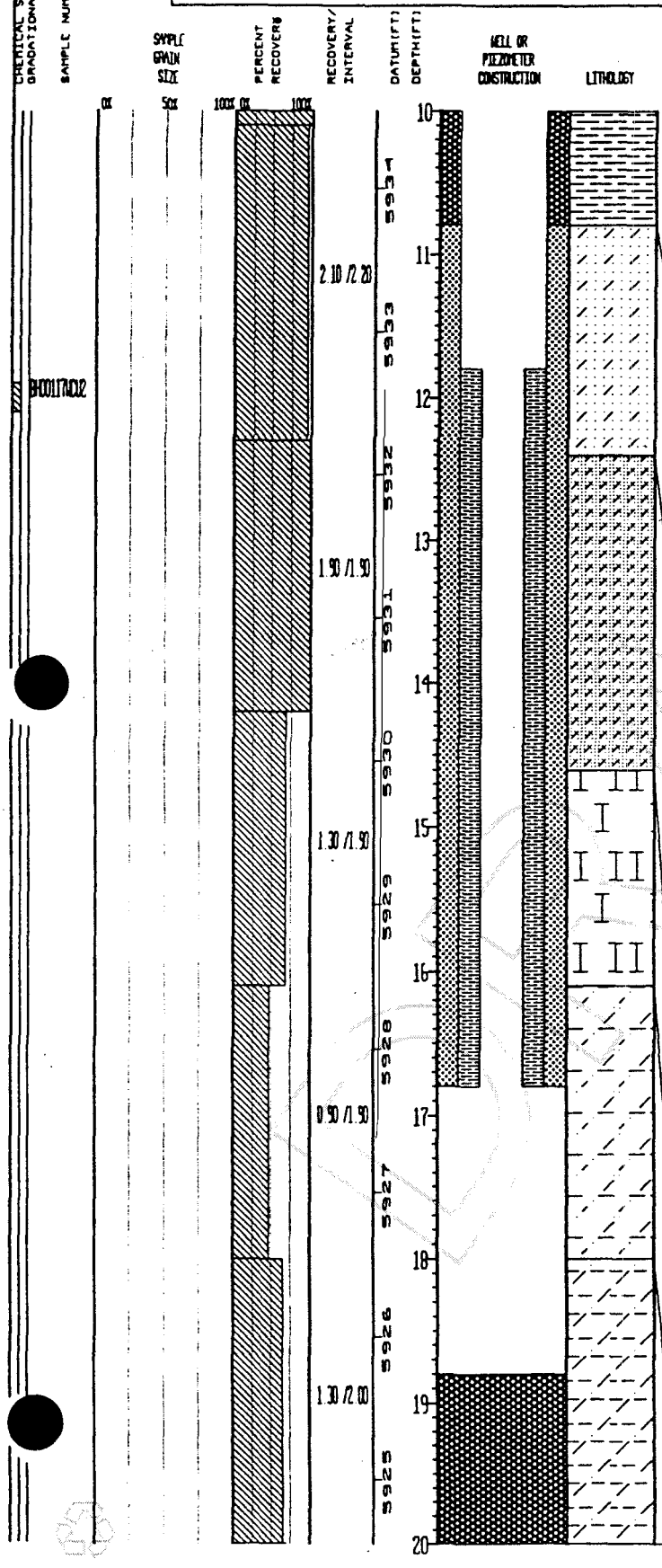
STATE PLANE COORDINATE		TOTAL DEPTH (FT) 24.2	GROUND ELEVATION (FT) 5944.54	PROJECT NUMBER	EMAD	LOG OF BORING NUMBER
NORTH	749948.52	AREA MOUND	CASING DIAMETER (IN) 2.0	GEOLOGIST	J.P. O'BRIEN	02491
EAST	2086432.04	LOCATOR NUMBER H13	BOREHOLE DIAMETER (IN) 10.0	DATE DRILLED	11/06/91	

REMARKS: HOLLOW STEM AUGER. BENTONITE SEAL 10.8 FT - 7.8 FT. BACKFILL MATERIAL: BENTONITE 24.2 FT. - 18.8 FT

CHEMICAL SAMPLE DEPTH	GRADATIONAL	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
					0.00/0.90	5944	0				Top soil, start of boring at 0.90 ft.
					0.00/1.50	5943	1			CL	Clay with some sand and silt - olive gray (5Y4/1), very fine-grained sand, poorly graded, sub-angular, medium plasticity, maximum size gravel 2" diameter, average 1/2" diameter, dominant lithology sand quartz with some dark minerals and mica, gravel primarily quartzite, some limonite throughout, trace caliche clast throughout, trace carbonaceous material at 2.9-3.0', no apparent bedding, moist, highly broken or brecciated at 2.4-5.1', bedrock like appearance, increase in competency at 5.1-5.3' 3% gravel, 5% sand, 5% silt, 87% clay
						5942	2				
					1.40/2.40	5941	3				
						5940	4				
						5939	5				
					1.40/2.00	5938	6			ML	Sandy Silt with abundant gravel - brownish black (5YR2/1), coarse- to fine-grained sand, maximum size gravel 1" diameter, average .5" diameter, well graded, angular to sub-angular, low plasticity, dominant lithology sand quartz with abundant rock fragments and trace mica and dark minerals, trace limonite throughout, some caliche clast, no apparent bedding, moist 27% gravel, 31% sand, 33% silt, 8% clay
					1.70/1.90	5937	7			CL	Clay with some sand - pale olive (10Y6/2) with some dark yellowish orange (10Y6/6) mottling, very fine-grained sand, maximum size gravel 1/2" diameter, average 1/4" diameter, poorly graded, sub-angular, medium plasticity, dominant lithology sand quartz with trace dark minerals and mica, trace iron staining on grains, gravel primarily quartzite with some kaolinized coating, trace caliche clast and coating on gravels and carbonaceous material throughout, some limonite throughout, no apparent bedding, moist, highly broken, bedrock like appearance. 2% gravel, 10% sand, 8% silt, 80% clay. Top of bedrock at 8.5 ft
						5936	8				
					1.40/1.40	5935	9			CLAYSTONE	Claystone with some sand - olive gray (5Y4/1), very fine-grained sand, well sorted, sub-angular, approximately 10%
							10				

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 24.2	GROUND ELEVATION (FT):	5944.54	PROJECT NUMBER:	EMAD	LOG OF BORING NUMBER:
NORTH:	749948.52	AREA: MOUND	CASING DIAMETER (IN):	2.0	GEOLOGIST:	J.P. O'BRIEN	02491
EAST:	2086432.04	LOCATOR NUMBER: H13	BOREHOLE DIAMETER (IN):	10.0	DATE DRILLED:	11/06/91	

REMARKS: HOLLOW STEM AUGER. BENTONITE SEAL 10.8 FT. - 7.8 FT. BACKFILL MATERIAL: BENTONITE 24.2 FT. - 18.8 FT.

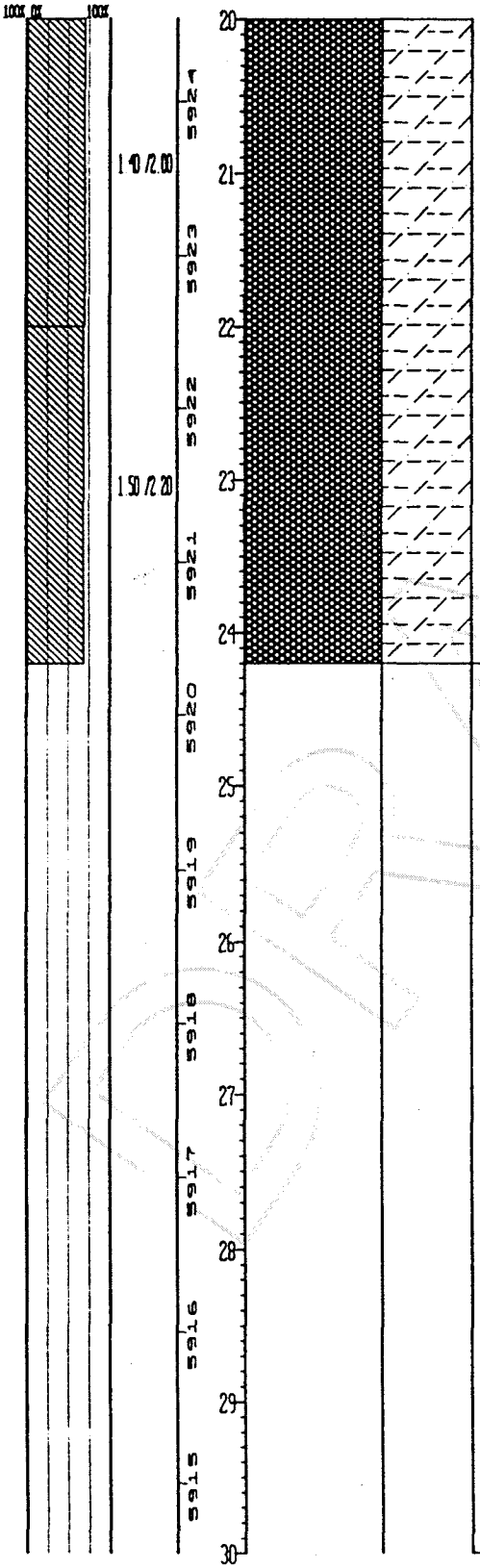


DESCRIPTION	
	porosity, argillaceous cement, non- to slightly friable, dominant lithology sand clear quartz with trace dark minerals, iron nodules and mica, trace limonite throughout, increase to some limonite at 8.8-9.2', trace clay clast throughout, abundant caliche clast at 9.4-10.1', no preferred orientation, planar features, brecciated texture controlling caliche, no apparent fractures, moist, weathered. 6% sand, 4% silt, 90% clay.
SILTY SANDSTONE:	Silty Sandstone with some clay - pale olive (10Y6/2), very fine-grained sand, well sorted, sub-angular, approximately 15% porosity, argillaceous cement, moderately friable, dominant lithology sand clear quartz with trace dark minerals, mica and iron nodules, some iron staining on grains, some caliche throughout, abundant caliche at 11.4-11.6', trace limonite throughout, some clay clast throughout, sand clast at 11.1', no apparent bedding, low angle laminated bedding at 13.8', no apparent fractures, moist, weathered. 45% sand, 33% silt, 22% clay.
SANDY SILTSTONE:	Sandy Siltstone with some clay - pale olive (10Y6/2), fine- to very fine-grained sand, moderate to well sorted, sub-angular, approximately 15% porosity, argillaceous cement, moderately friable, dominant lithology sand clear quartz with some dark minerals and trace mica, trace iron staining on grains, trace limonite throughout, some clay clast throughout, trace caliche throughout, abundant caliche at 13.6-13.8', increase to abundant limonite at 13.5-14.6', no preferred bedding orientation, horizontal healed fracture with iron at 12.7' surrounded by horizontal grooves, 0 degree healed fractures with hematite at 13.4-13.5', 0 degree healed fractures with iron at 13.5-13.8', abundant clast with hematite and some carbonaceous material at 14.1-14.6', moist, weathered, highly broken-brecciated appearance. 32% sand, 48% silt, 20% clay.
IRONSTONE:	Ironstone - dark reddish brown (10R3/4) to dark yellowish orange (10YR6/6), very fine-grained sand, sub-angular, well sorted, approximately 5% porosity, iron precipitate cement, non- to slightly friable, primarily hematite and limonite with trace clear quartz, up to 1" diameter concretion-like nodules, no apparent bedding or fractures, dry, weathered.
CLAYEY SILTSTONE:	Clayey Siltstone with some sand - dusky yellow (5Y6/4), very fine-grained sand, well sorted, sub-angular, approximately 15% porosity, argillaceous cement, moderately friable, dominant lithology sand clear quartz with some dark minerals and trace iron nodules and mica, some iron staining on grains, trace carbonaceous material and clay clast throughout, trace horizontal bedding at 16.5-17.0', no apparent fractures, moist, weathered. 19% sand, 49% silt, 32% clay.
SILTY CLAYSTONE:	Silty Claystone with some sand - pale olive (10Y6/2) to olive

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 24.2	GROUND ELEVATION (FT):	5944.54	PROJECT NUMBER:	EMAD	LOG OF BORING NUMBER:	
NORTH	749948.52	AREA: MOUND	CASING DIAMETER (IN):	2.0	GEOLOGIST:	J.P. O'BRIEN	02491	
EAST:	2086432.04	LOCATOR NUMBER: H13	BOREHOLE DIAMETER (IN):	10.0	DATE DRILLED:	11/06/91		

REMARKS: HOLLOW STEM AUGER. BENTONITE SEAL 10.8 FT. - 7.8 FT. BACKFILL MATERIAL: BENTONITE 24.2 FT. - 18.8 FT.

CHEMICAL SAT GRADATIONAL | SAMPLE NUMBER | SAMPLE GRAIN SIZE (0% 50% 100%) | PERCENT RECOVERY (0% 100%) | RECOVERY/INTERVAL | DATUM (FT) | DEPTH (FT) | WELL OR PIEZOMETER CONSTRUCTION | LITHOLOGY | UNIFIED SOILS CLASSIFICATION OR ROCK TYPE



DESCRIPTION

gray (5Y4/1), very fine-grained sand, well sorted, sub-angular, approximately 10% porosity, argillaceous cement, non- to slightly friable, dominant lithology sand clear quartz with trace dark minerals and mica, trace limonite, carbonaceous material and clay clast throughout, trace horizontal bedding 20.5-20.6', highly broken-brecciated appearance, increase in competency at 18.6-19.3', abundant healed fractures with iron at 22.0-22.1', abundant clay clast at 20.0-20.5', moist, slightly weathered.
8% sand, 32% silt, 60% clay

Total depth at 24.2 ft

DRAFT

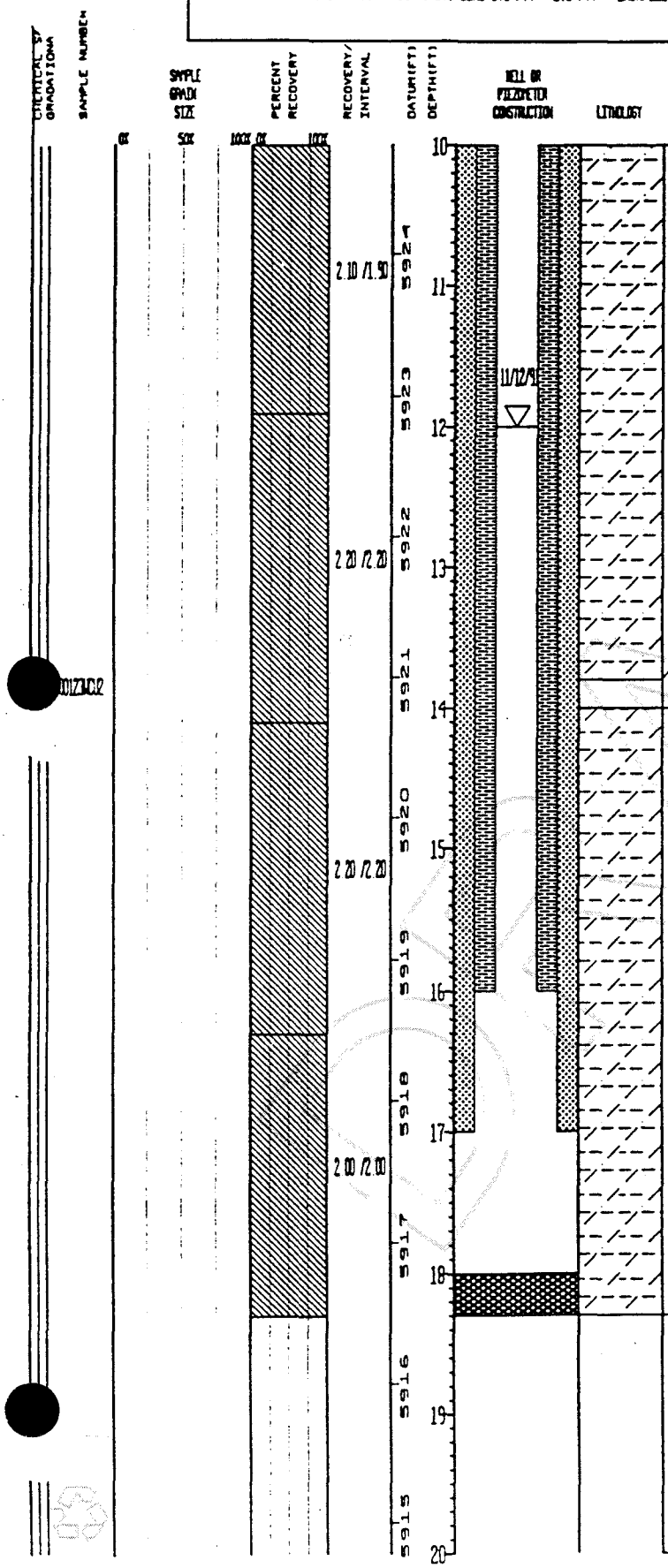
STATE PLANE COORDINATE		TOTAL DEPTH (FT) 18.3	GROUND ELEVATION (FT) 5934.78	PROJECT NUMBER 01281	LOG OF BORING NUMBER
NORTH	750576.90	AREA MOUND	CASING DIAMETER (IN) 2.0	GEOLOGIST L.A. GUST	02691
EAST	2086576.13	LOCATOR NUMBER I13	BOREHOLE DIAMETER (IN) 10.0	DATE DRILLED 11/12/91	

REMARKS HOLLOW STEM AUGER BENTONITE SEAL 5.5 FT. - 2.3 FT. BACKFILL MATERIAL: BENTONITE 18.3 FT. - 18.0 FT.

CHEMICAL SAMPLE / GRADATIONAL	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
										Top soil, start of boring at 0.90 ft.
				0.00/0.90	5934	0			GW	Sandy Gravel - dusky yellow (5Y6/4) to light olive (10Y5/4), maximum size gravel 2" diameter, very fine-grained sand, well graded, sub-angular, low plasticity, gravel quartzite, sand clear quartz with trace mica and dark minerals, trace iron staining on grains, some limonite throughout, no apparent bedding, moist, some roots present. 75% gravel, 21% sand, 3% silt, 1% clay
				1.10/1.10	5933	1				Top of bedrock at 1.1 ft
				2.00/2.00	5932	2			SANDSTONE	Sandstone with some silt - pale olive (10Y6/2) to dusky yellow (5Y6/4), medium- to very fine-grained sand, moderately sorted, sub-angular to rounded, approximately 25% porosity, argilloceous and silica cement, highly friable, dominant lithology clear quartz with trace dark minerals, iron nodules and mica, abundant iron staining on grains, some limonite and trace carbonaceous material throughout, trace horizontal bedding at 1.5-1.9' and 3.5-3.7', interbedded clay layers at 2.3' and 2.9', 85 degree healed fracture with hematite surrounded by a 1/4" caliche band at 1.2-1.7', moist, trace caliche inclusions, wood fragments at 3.0', weathered, trace roots 80% sand, 18% silt, 2% clay
					5931	3				
					5930	4				
										VOA sample obtained from this interval
				2.00/2.00	5929	5			SANDSTONE	Sandstone with some silt - pale olive (10Y6/2) to dusky yellow (5Y6/4), as described above
					5928	6	01/07/92			
				2.10/2.10	5927	7			SILTY SANDSTONE	Silty Sandstone - dark yellowish orange (10YR6/6), fine- to very fine-grained sand with trace medium grained sand, moderate to well sorted, sub-angular to sub-round, approximately 20% porosity, argilloceous cement, highly friable, dominant lithology sand clear quartz with some dark minerals and trace mica, some iron staining on grains, abundant limonite throughout, some iron nodules at 7.6-8.5', low angle bedding with trace manganese at 7.2-7.5', no apparent fractures, moist, weathered 58% sand, 38% silt, 4% clay
					5926	8				
				0.70/1.90	5925	9			IRONSTONE	Ironstone - dark reddish brown (10R2/4), heavily oxidized, iron precipitated cement, non-friable, iron oxidizes, concretion-like appearance, no apparent bedding or fractures, dry to moist
					5924	10				No recovery for this interval

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 18.3	GROUND ELEVATION (FT):	5934.78	PROJECT NUMBER	OU2RI	LOG OF BORING NUMBER
NORTH	750576.90	AREA MOUND	CASING DIAMETER (IN):	2.0	GEOLOGIST	L.A. GUST	02691
EAST	2086576.43	LOCATOR NUMBER: I13	BOREHOLE DIAMETER (IN):	10.0	DATE DRILLED	11/12/91	

REMARKS: HOLLOW STEM AUGER. BENTONITE SEAL 5.5 FT. - 2.3 FT. BACKFILL MATERIAL: BENTONITE 18.3 FT. - 18.0 FT.



SILTY CLAYSTONE: Silty Claystone with some sand - medium dark gray (N4), very fine-grained sand, well sorted, sub-angular, approximately 10% porosity, argillaceous cement, slightly friable, dominant lithology sand clear quartz with trace dark minerals, trace limonite and iron nodules throughout, trace carbonaceous material throughout, cylindrical fossil at 10.7', trace vertical healed fracture with manganese and iron at 10.5-11.0', vertical healed fracture with iron stain at 12.1-15.6' with approximately 1/2" zone of alteration surrounding fracture, no preferred bedding orientation, moist to saturated, carbonaceous material at 11.4-11.8'.
5% sand, 35% silt, 60% clay.

VOA sample obtained from this interval.

SILTY CLAYSTONE: Silty Claystone with some sand - medium dark gray (N4), as described above, 45-90 degree healed fractures with manganese and iron at 15.3-15.6', 45-90 degree healed fractures with iron at 16.0-18.3'

Total depth at 18.3 ft.

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 10.1	GROUND ELEVATION (FT):	5801.19	PROJECT NUMBER:	SITEWIDE	LOG OF BORING NUMBER:
NORTH:	752163	AREA: SITEWIDE	CASING DIAMETER (IN):	2.0 I.D.	GEOLOGIST:	G. GRIGSBY	40991
EAST:	2086298	LOCATOR NUMBER: 012	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED:	11/11/91	

REMARKS: Hollow Stem Auger, Rotary Core. ASI Geologist, F. Grigsby, EBASCO Geologist, R.T. Canon.

CHEMICAL SAM / GRADATIONAL	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	BH00121EB			1.00/2.00	5801	0			SC	Clayey Sand with some Gravel and Silt. Yellowish brown (10 YR 4/2) to dusky yellowish brown (10 YR 2/2) with some mod. yellowish brown (10 YR 5/4) mottling. Med. plasticity, poorly graded. Gravel small, pred. angular to sub-angular quartzite. Sand pred. sub-angular quartz, some quartzite and feldspar. Dry, weathered, slightly calcareous. Good root development. 8% gravel, 54% sand, 11% silt, 27% clay.
	BH00122EB				5800	1				
					5799	2			CL	Silty Clay with some Sand. Dark yellowish brown (10 YR 4/2). Med. plasticity, poorly graded. Slightly calcareous. One 2-1/2 in. granodiorite pebble in sample. Assumed atypical for this interval. Dry, weathered. 17% sand, 34% silt, 49% clay.
	BH00123EB				5798	3			NO SAMPLE	No recovery, lost core.
									CL	Silty Clay with some Sand. Same as above (reference interval 0.5' to 1.0').
				1.20/4.00	5797	4			GW	Sandy Gravel with trace Silt and Clay. Grayish orange (10 YR 7/4) to pale yellowish brown (10 YR 6/2). Matrix slightly calcareous, low plasticity. Gravel pred. quartzite and quartz, angular to sub-angular, max. pebble size 2.0 in., well graded. Sand pred. quartz and quartzite in coarser fractions, sub-angular. Finer fraction pred. quartz, sub-angular to sub-rounded. Interval dry, weathered. 60% gravel, 35% sand, 3% silt, 2% clay.
					5796	5				
									NO SAMPLE	No recovery, lost core.
					5795	6			GW	Sandy Gravel with trace Silt and Clay. Same as above (reference interval 2.6' to 3.2'). Entire interval sieved. 60% gravel, 35% sand, 3% silt, 2% clay.
					5794	7			SILTY CLAYSTONE	Top of Bedrock at 7.4' (unconsol. sample). Silty Claystone with some Sand. Grayish orange (10 YR 7/4) to light olive gray (5 Y 5/2) with some dark yellowish orange (mottling (Fe staining). Some silty to sandy intervals/gradational contacts. Core mod. indurated, mod. friable, slightly damp. Sand v.f.g., sub-angular quartz. 13% sand, 20% silt, 67% clay.
				3.20/3.50						
	BH00125EB				5793	8				
	BH00126EB									
					5792	9			CLAYEY SILTSTONE	Clayey Siltstone with some Sand. Same as above (reference interval 7.0' to 8.8') with more sand and dom. Siltstone. Max. porosity estimated at 20% plus. Very friable, no bedding. 21% sand, 48% silt, 31% clay.
	BH00124EB									
				0.80/0.60		10			NO SAMPLE	No recovery, lost core.

STATE PLANE COORDINATE		TOTAL DEPTH (FT) 10.1	GROUND ELEVATION (FT) 5801.19	PROJECT NUMBER SITEWIDE	LOG OF BORING NUMBER
NORTH:	752163	AREA SITEWIDE	CASING DIAMETER (IN) 2.0 I.D.	GEOLOGIST G. GRIGSBY	40991
EAST:	2086298	LOCATOR NUMBER 012	BOREHOLE DIAMETER (IN) 7.25	DATE DRILLED 11/11/91	

REMARKS: Hollow Stem Auger, Rotary Core. ASI Geologist, F. Grigsby, EBASCO Geologist, R.T. Canon

CHEMICAL SAMPLE DEPTH / GRADATIONAL SAMPLE DEPTH	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/ INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%		5791	10			CLAYEY SILTSTONE	Clayey Siltstone with some Sand. Same as above (reference interval 8.8' to 9.2') 21% sand, 48% silt, 31% clay. NOTE: 0.2' extra core recovery.
					5790	11				Total Drilled Depth = 10.1'. NOTE: Total Depth of Casing = 9.73'. Bottom Depth of Filter Pack = 10.1'. Top of 16-40 sand Backfill = 10.1'.
					5789	12				
					5788	13				
					5787	14				
					5786	15				
					5785	16				
					5784	17				
					5783	18				
					5782	19				
						20				

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 13.0	GROUND ELEVATION (FT): 5719.56	PROJECT NUMBER: SITEWIDE	LOG OF BORING NUMBER
NORTH:	753241	AREA: SITEWIDE	CASING DIAMETER (IN): 2.0	GEOLOGIST: F.G.	41091
EAST:	2089994	LOCATOR NUMBER: 013	BOREHOLE DIAMETER (IN): 7.25	DATE DRILLED: 11/11/91	

REMARKS: Hollow Stem Auger and Rotary Core Drill. ASI Geologist Fred Grigsby, EBASCO Geologist, R.T. Canon. ASI Log.

CHEMICAL SAMP / GRADATIONAL S	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/ INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%			0			SC	Clayey Sand to Silty Sand with some Gravel. Dark yellowish brown (10 YR 4/2). Well graded. Good root development, non-calcareous, med plasticity. Dry, weathered. (sc-sm). 20% gravel, 30% sand, 25% silt, 25% clay
	BH00113EB			1.20 /2.00	5719	1			ML	Sandy Silt with some Clay. Dark yellowish brown (10 YR 4/2). Non-calcareous, med plasticity. Sand f.g., sub-angular, pred. quartz, some feldspar. Dry, weathered, some roots. 35% sand, 40% silt, 25% clay
					5718	2			NO SAMPLE	No recovery, lost core
	BH00115EB								CL	Silty Clay with some Sand and trace Gravel. Dusky yellowish Brown (10 YR 2/2). Gravel pebbles sparse but large (max. size 2.0 in.), poorly graded, quartzite, sub-rounded. Core dense, med plasticity, some carbon. Non-calcareous, non-friable. Interval damp, slightly weathered. <5% gravel, 15% sand, 25% silt, 55% clay
	BH00117EB				5717	3				
				2.70 /4.00	5716	4				
	BH00114EB				5715	5			GC	Clayey Gravel with some Sand and trace Silt (poor sample). Poorly graded, one (1) large pebble (2.25 in.). Matrix grayish brown (5 YR 3/2), some pale yellowish brown mottling (10 YR 6/2). Sample dry, weathered, non-friable, well cemented. 55% gravel, 10% sand, 5% silt, 30% clay
					5714	6			NO SAMPLE	No recovery, lost core
					5713	7			SC	Clayey Sand with some Gravel and Silt. Dark yellowish brown (10 YR 4/2). Some very clayey intervals. Core dense, damp, well cemented (argillaceous). Mod friable, med plasticity. Gravel fraction pred. quartzite, some granite fragments, sub-rounded to sub-angular. Sand pred. f.g., sub-angular, some sub-rounded, pred. quartz. Poorly graded. Slightly weathered. +/-12% gravel, 62% sand, +/-6% silt, 20% clay
				4.50 /4.00	5712	8				
	BH00118EB				5711	9			SC	Clayey Sand with some Silt. Dark yellowish brown (10 YR 4/2). Sand f.g., sub-angular to sub-rounded, pred. quartz. Poorly graded. Gravel at top and bottom of interval. Interval appears permeable. Damp, mod friable, low to med plasticity, non-weathered (?). 52% sand, 12% silt, 36% clay
	BH00116EB				5710	10				

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 13.0	GROUND ELEVATION (FT): 5719.56	PROJECT NUMBER: SITEWIDE	LOG OF BORING NUMBER
NORTH:	753241	AREA: SITEWIDE	CASING DIAMETER (IN): 2.0	GEOLOGIST: F.G.	41091
EAST:	2089994	LOCATOR NUMBER: 013	BOREHOLE DIAMETER (IN): 7.25	DATE DRILLED: 11/11/91	

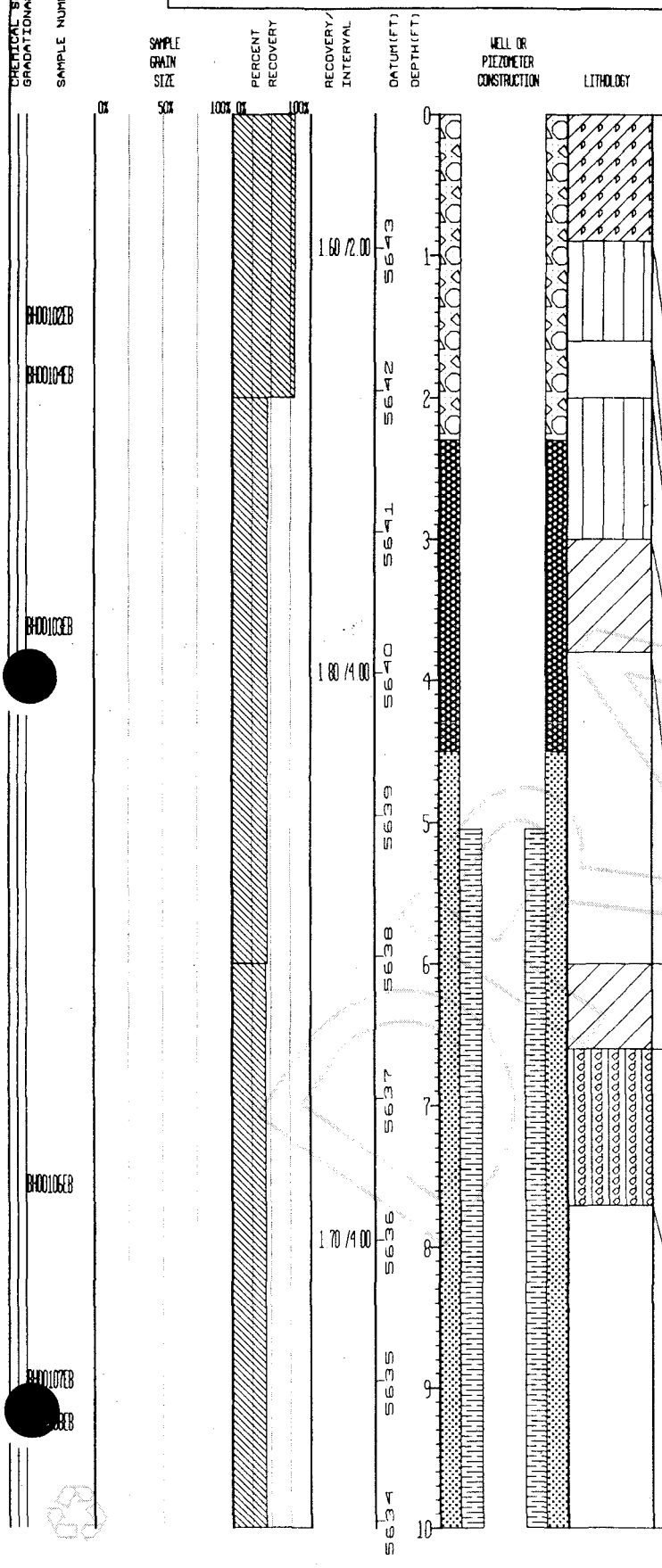
REMARKS: Hollow Stem Auger and Rotary Core Drill. ASI Geologist Fred Grigsby; EBASCO Geologist, R.T. Canon. ASI Log.

CHEMICAL SAM / GRADATIONAL	SAMPLE NUMBER	SAMPLE GRAIN SIZE	PERCENT RECOVERY	RECOVERY/ INTERVAL	DATUM (FT)	DEPTH (FT)	WELL OR PIEZOMETER CONSTRUCTION	LITHOLOGY	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
		0% 50% 100%	0% 100%	0.80 /2.00	5709	10			CLAYSTONE	Top of Bedrock at 10.0' Claystone with some Silt and trace Sand. Pred. yellowish gray (5 Y 7/2), damp, mod. friable. Badly broken (drilling induced), mod. indurated. Trace sand, +/-15% silt, +/-85% clay
					5708	11			NO SAMPLE	No recovery, lost core
				0.10 /1.00	5707	12			CLAYSTONE	Claystone with some Silt. Same as above (reference interval 10.0' to 10.8') Trace of sand, +/-15% silt, +/-85% clay
									NO SAMPLE	No recovery, lost core
					5706	13				Total Drilled Depth = 13.0' NOTE: Total Depth of Casing = 12.3' Bottom Depth of Filter Pack = 10.3' Top of bentonite Backfill = 10.3'
					5705	14				
					5704	15				
					5703	16				
					5702	17				
					5701	18				
					5700	19				
						20				

DRAFT

STATE PLANE COORDINATE:		TOTAL DEPTH (FT): 17.40	GROUND ELEVATION (FT):	5643.95	PROJECT NUMBER:	SITEWIDE	LOG OF BORING NUMBER:
NORTH:	753470	AREA: SITEWIDE	CASING DIAMETER (IN):	2.0	GEOLOGIST:	F.G.	41691
EAST:	2093851	LOCATOR NUMBER: U13	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED:	11/08/91	

REMARKS: Drilling Equipment: Hollow Stem Auger, Rotary Core. ASI Geologist: Fred Grigsby; EBASCO Geologist: R.T. Canon



UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
SC	Clayey Sand with some Silt and Gravel. Pred. dark yellowish brown (10 YR 4/2), slightly calcareous. Topsoil, good root development. Gravel pred. quartzite, max. pebble size 1.5 in., sub-rounded to sub-angular. Sand well graded, c.g. fraction sub-angular quartz, quartzite, feldspar, and misc. rock fragments. Finer fraction sub-angular to sub-rounded quartz, some feldspar, trace mica. Sample dry, weathered, med. to low plasticity. 18% gravel, 34% sand, 22% silt, 26% clay.
ML	Sandy Silt with some Clay. Pale yellowish brown (10 YR 6/2). Poorly graded, calcareous. Trace Fe staining. Sand pred. sub-angular to sub-rounded quartz, some feldspar. Low plasticity, sample dry, weathered. 36% sand, 38% silt, 26% clay.
NO SAMPLE	No recovery
ML	Sandy Silt with some Clay. Same as above (reference interval 0.9' to 1.6').
CL	Silty Clay with some Sand. Grayish brown (5 YR 3/2) to dark yellowish brown (10 YR 4/2). Poorly graded, med. plasticity. Sand pred. f.g., sub-angular quartz. Some feldspar and dark mineralization. Sample dry, weathered, slightly calcareous. Trace Fe. Trace carbon. 23% sand, 38% silt, 39% clay.
NO SAMPLE	No recovery, lost core.
CL	Silty Clay with some Sand. Same as above (reference interval 3.0' to 3.8').
SM	Gravelly Sand with some Silt and Clay. Mod. yellowish brown (10 YR 5/4) to dark yellowish brown (10 YR 4/2). Poorly graded. Med. to low plasticity. Gravel pred. quartzite, pebble at 2.25 in., avg. size approx. 1 in., sub-rounded to sub-angular. Sand f.g., sub-angular to sub-rounded, pred. quartz. Interval appears to have mod. to high permeability. Damp, slightly weathered, non-calcareous. (sm-sc) 20% gravel, 60% sand, 10% silt, 10% clay.
NO SAMPLE	No recovery, lost core

STATE PLANE COORDINATE		TOTAL DEPTH (FT): 17.40	GROUND ELEVATION (FT):	5643.95	PROJECT NUMBER:	SITEWIDE	LOG OF BORING NUMBER:
NORTH:	753470	AREA: SITEWIDE	CASING DIAMETER (IN):	2.0	GEOLOGIST:	F.G.	41691
EAST:	2093851	LOCATOR NUMBER: U13	BOREHOLE DIAMETER (IN):	7.25	DATE DRILLED:	11/08/91	

REMARKS: Drilling Equipment: Hollow Stem Auger, Rotary Core. ASI Geologist: Fred Grigsby; EBASCO Geologist: R.T. Canon

SAMPLE NUMBER	RECOVERY/INTERVAL	DATUM (FT)	DEPTH (FT)	UNIFIED SOILS CLASSIFICATION OR ROCK TYPE	DESCRIPTION
	2.90/2.00	5633	10–11	GC	Clayey Gravel. Matrix dark yellowish brown (10 YR 4/2) with some mod. yellowish brown (10 YR 5/4) mottling. Poorly graded. Gravel pred. quartzites, max. pebble size to 2.0+ in. Some scattered hematite nodules. Some dark gray (N3) staining and mottling. Sample damp, weathered, med. plasticity (very sticky). 55% gravel, 45% clay.
	1.50/2.00	5631	13	GC	Sandy Gravel with some Clay and trace Silt. Mod. yellowish brown (10 YR 5/4), with dark yellowish orange (10 YR 6/6) and dark gray (N3) mottling. Gravel pred. quartzite, one pebble to 2.25 in., avg. size approx. 1.0 in., sub-angular. Sand f.-g., pred. quartz, sub-angular to sub-rounded. Upper half of interval moist, lower half damp. Med. to low plasticity, sample weathered. 55% gravel, 23% sand, 4% silt, 18% clay.
			14	NO SAMPLE	No recovery, lost core.
		5629	15	GC	Sandy Gravel with some Clay and trace Silt. Same as above (reference interval 12.7' to 13.5')
	4.40/2.60	5628	16	CLAYSTONE	Top of Bedrock at 14.7'. Claystone with some Silt. Grayish orange (10 YR 7/4) and very pale orange (10 YR 8/2) grading to yellowish gray (5 Y 7/2). Interbedded claystones with some silt. Gradational - no sharp contacts. Core damp, mod. indurated to sticky in very clayey intervals. Slightly friable. No apparent bedding of fracture. Entire interval badly broken (drilling induced). <15% silt, >85% clay. NOTE: 1.5' of excess core recovery in interval from 14.0' to 17.4'
	1.50/0.80	5627	17		
		5626	18		Total Drilled Depth = 17.4'. NOTE: Total Depth of Casing = 17.1'. Bottom Depth of Filter Pack = 17.4'. Backfill = None
		5625	19		
		5624	20		

CHEMICAL SAMP GRADATIONAL t

DEPTH

pnL0109EB

BH00110EB

BEST AVAILABLE COPY

U.S. DEPARTMENT OF ENERGY ROCKY FLATS PLANT FORM GT.6A

141

GROUNDWATER MONITORING WELL AND PIEZOMETER REPORT

PROJECT EMAD - Geological Characterization

Page 1 of 1

LOCATION 41691

Well No. 41691

Date Completed 11-12-91 Original Depth 17.4 ft.

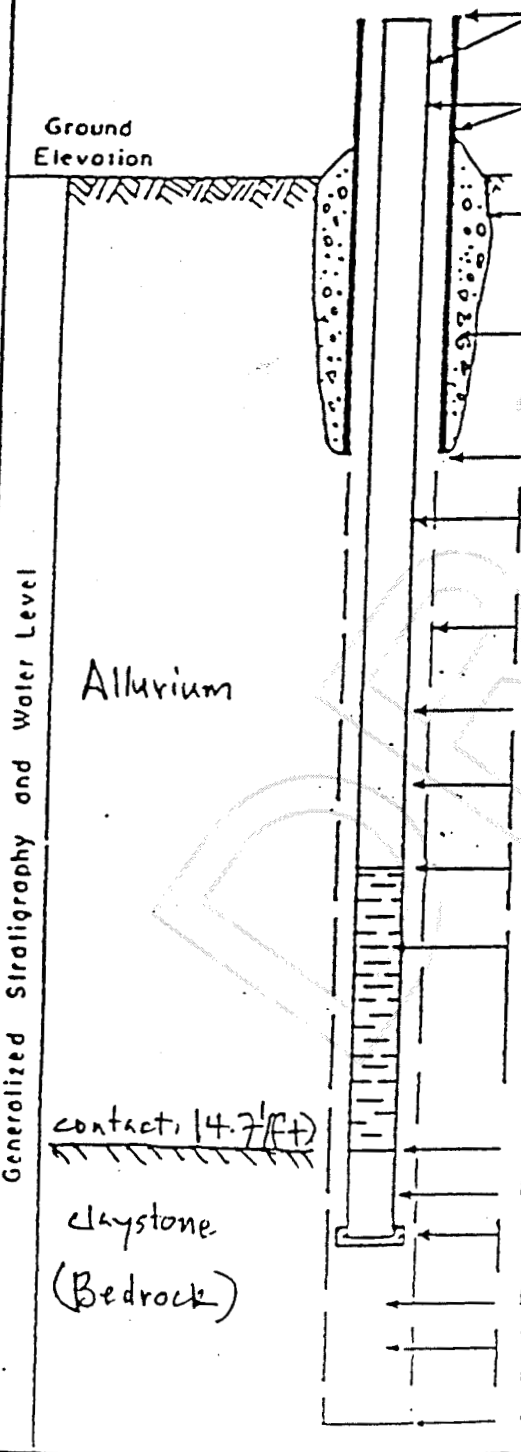
Aquifer Alluvium

Inspected By _____ Date _____

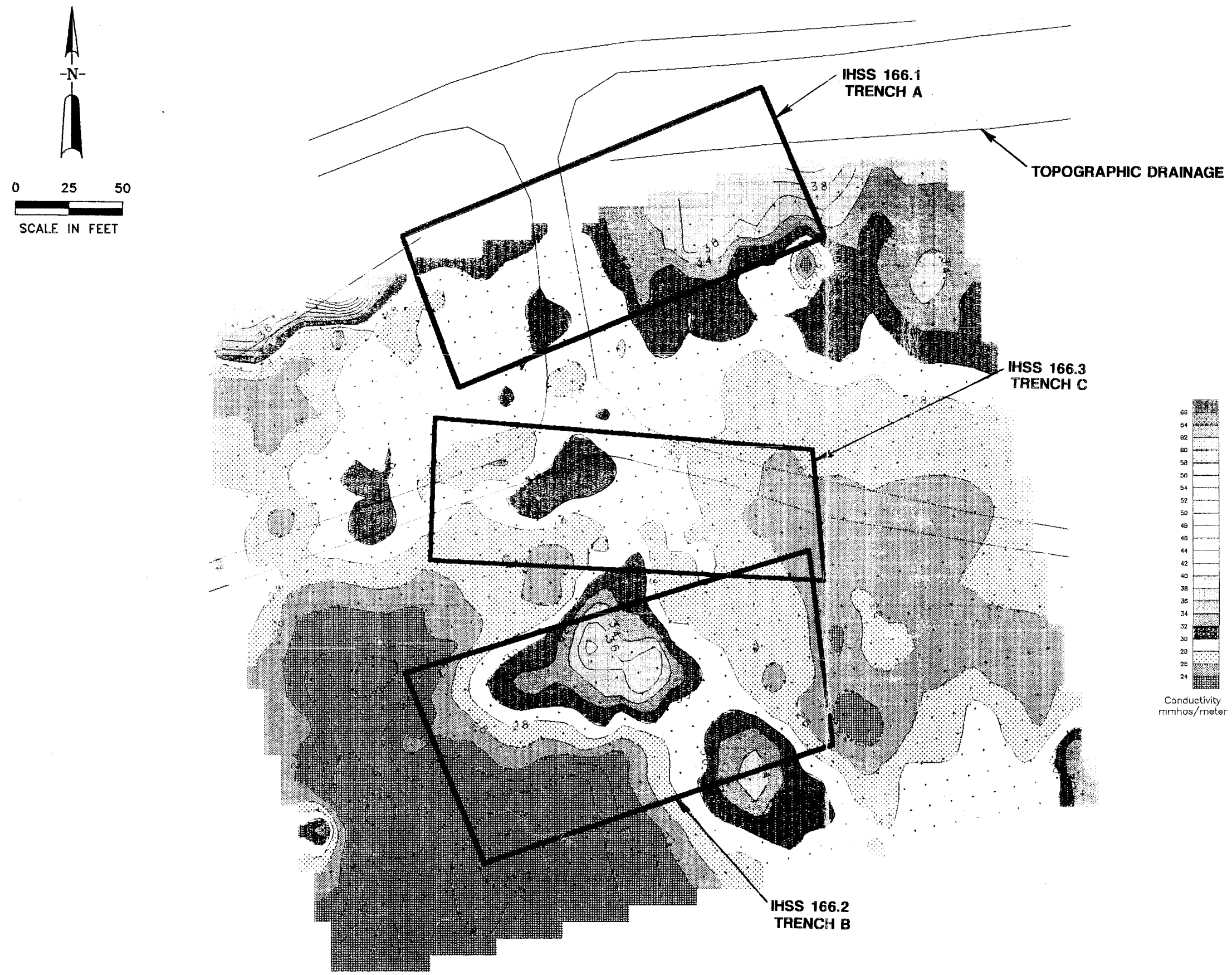
Checked By _____ Date _____

Depth Interval 17.4 ft

NOTE CENTRALIZER DEPTHS



Elevation of top of surface casing / riser pipe.	3.0 ft
Height of top of surface casing / riser pipe above ground surface	2.0 ft / ~~2.70 ft~~ DCR; ~~3.25 ft.~~ / ~~3.8~~ DCR
Depth of surface seal below ground surface	2.3 ft.
Type of surface seal: Portland Cement	
I.D. of surface casing.	6 inches
Type of surface casing: Steel	
Depth of surface casing below ground	2.0 ft ~~2.3 ft.~~ DCR
I.D. of riser pipe.	2 inches
Type of riser pipe: 2 PVC Sch 40	
Diameter of borehole	7.25 inch
Depth of borehole	17.4 ft.
Type of backfill: NA	
Elev./depth top of seal.	2.30 ft.
Type of seal: bentonite	
Elev./depth bottom of seal.	4.50 ft.
Type of filter pack. 16-40 sand	
Depth of top of filter pack.	4.50 ft
Elev./depth top of screened section.	5.05 ft
Type of screened section: 0.10 slot	
Screen openings 0.10	
I.D. of screened section.	
Elev./depth bottom of screened section.	14.70 ft.
Length of blank section.	2.41 ft
Elev./depth bottom of plugged blank section	17.11 ft.
Elev./depth bottom of sand column	17.4 ft.
Type of backfill below observation pipe. bedrock @ 17.4 ft.	
Elev./depth of hole	17.4 ft.



EXPLANATION

DIRT ROADS

INDIVIDUAL HAZARDOUS SUBSTANCE SITE (IHSS)

+ ELECTROMAGNETIC (EM) STATION

CONTOUR INTERVAL (CI) = 2 MILLIMHOS/METER (MMHOS/METER)

U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

OPERABLE UNIT NO.6
PHASE I RFI/RI REPORT

ELECTROMAGNETICS CONDUCTIVITY
CONTOUR MAP
HORIZONTAL DIPOLE DATA
GRID A

FIGURE B4-1

APRIL 1995

EXPLANATION

DIRT ROADS

INDIVIDUAL HAZARDOUS SUBSTANCE SITE (IHSS)

+ ELECTROMAGNETIC (EM) STATION

CONTOUR INTERVAL (CI) =
2 MILLIMHOS/METER (MMHOS/METER)

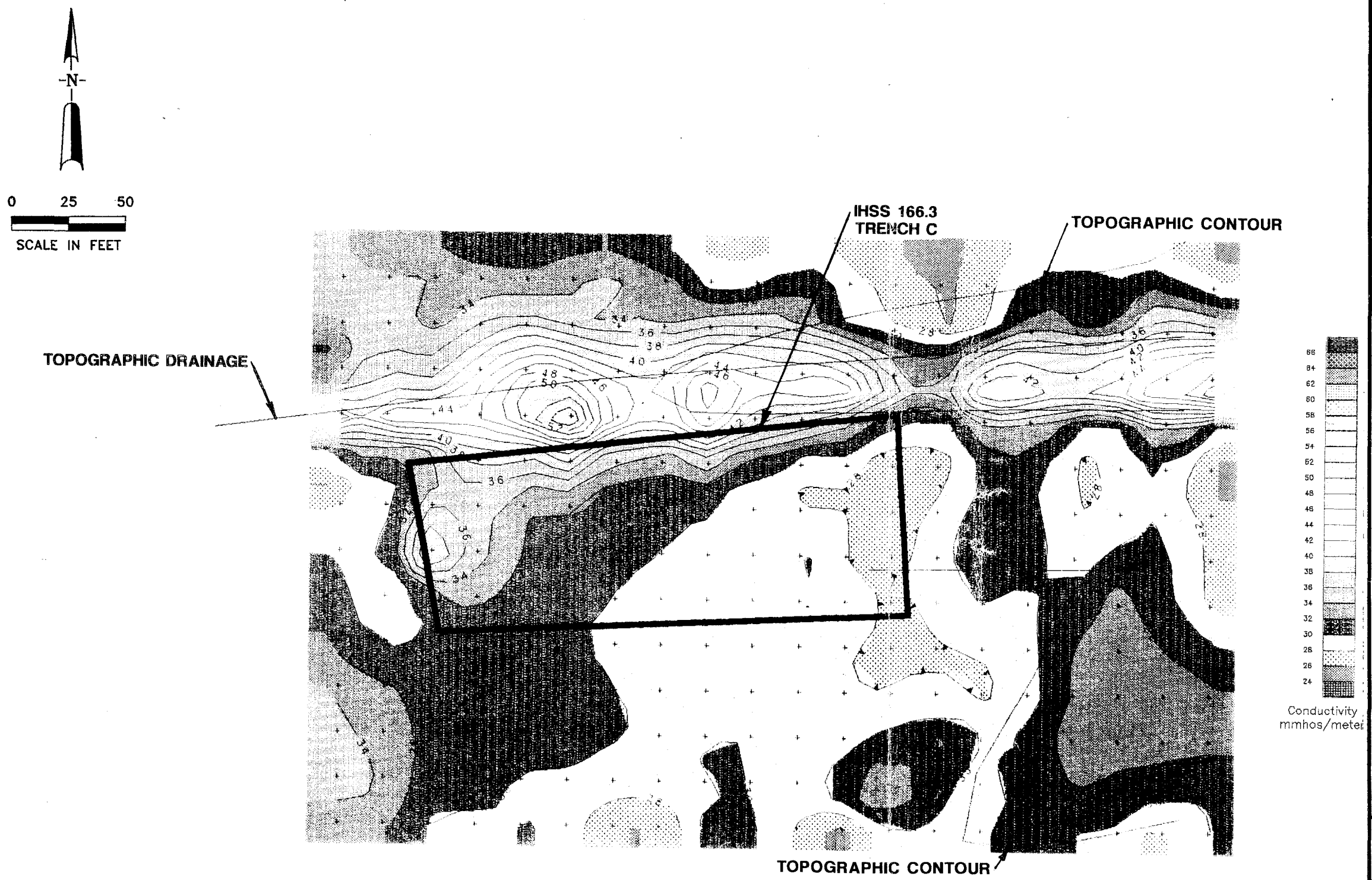
U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

OPERABLE UNIT NO.6
PHASE I RFI/RI REPORT

ELECTROMAGNETICS CONDUCTIVITY
CONTOUR MAP
VERTICAL DIPOLE DATA
GRID A

FIGURE B4-2

APRIL 1995



EXPLANATION

INDIVIDUAL HAZARDOUS SUBSTANCE SITE (IHSS)

ELECTROMAGNETIC (EM) STATION

CONTOUR INTERVAL (CI) = 2 MILLIMHOS/METER (MMHOS/METER)

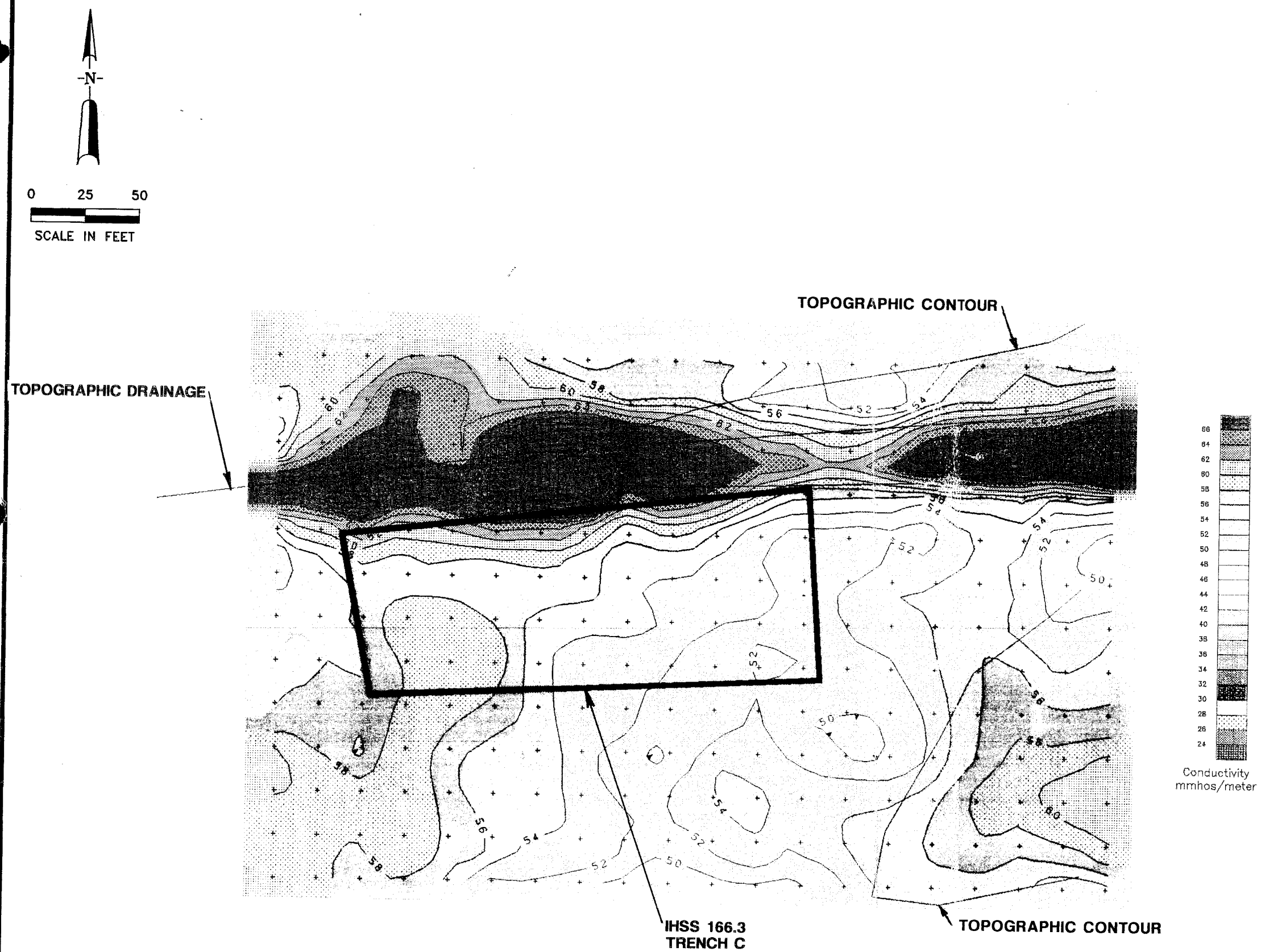
U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

OPERABLE UNIT NO.6
PHASE I RFI/RI REPORT

ELECTROMAGNETICS CONDUCTIVITY
CONTOUR MAP
HORIZONTAL DIPOLE DATA
GRID B

FIGURE B4-3

APRIL 1995



EXPLANATION

INDIVIDUAL HAZARDOUS SUBSTANCE SITE (IHSS)

ELECTROMAGNETIC (EM) STATION

CONTOUR INTERVAL (CI) =
2 MILLIMHOS/METER (MMHOS/METER)

U.S. DEPARTMENT OF ENERGY
Rocky Flats Environmental Technology Site
Golden, Colorado

OPERABLE UNIT NO.6
PHASE I RFI/RI REPORT

ELECTROMAGNETICS CONDUCTIVITY
CONTOUR MAP
VERTICAL DIPOLE DATA
GRID B

FIGURE B4-4

APRIL 1995