ROCKY FLATS PLANT BOREHOLE LOG

ALLUVIAL

Borehole Number: 85391
Location - North: East:
Date: 9-20-91
Geologist: J.P. O'Brien/LAG
Drilling Equip: Mobil B-57 Hollow Stem Auger

Surface Elevation:
Area:
Total Depth: 48.0
Company: EG&G
Project No.: OU2 PHASE II Alluvial Drilling
Sample Type: Continuous - Split Spoon

EG&G LOGGING SUPERVISOR

APPROVAL _____ DATE 10/1/91

TOP/BOTTOM OF CORE IN BOX	TOP/BOTTOM OF INTERVAL	FEET OF CORE IN INTERVAL IN BOX	SAMPLE NUMBER	FRACTURE ANGLE	BEDDING ANGLE	GRAIN SIZE DISTRIBUTION	USCS SYMBOL	DEPTH IN FEET	LITHOLOGIC LOG	SAMPLE DESCRIPTION * See Drilling Log Well Lith Description
										Start of Boring @ 0.9'
0.9										
Box 1 of 3	0.9 Run 1	.8'				81% Gravel 18% Sand 1% Silt	GW	1		Gravel with some sand - Grayish Black (N2) max gravel size 1½", Average size 1/4", coarse to fine-grained sand, well graded, angular, medium plasticity, Gravel primarily granitic and quartzite with an abundant caliche coating, Dom lithology sand quartz with some quartzite rock and trace K-spar, no apparent bedding, slightly moist
					LAG	70% 26% Gravel 26% Sand 2% Clay 2% Silt	GW	2		
	2.6 Run 2	.9						3		Sandy Gravel - light brown (5YR 6/4), max gravel size 1" diameter, Average ½" well graded, ~~subangular~~, coarse to fine-grained sand, subangular sand, subrounded gravel, Low plasticity, Gravel primarily quartzite with some granitic, Dom lithology sand quartz with abundant caliche frags, trace K-spar, some iron staining on grains, Caliche coating on gravel and sand, Dry, no apparent bedding
	4.3 Run 3	4'				66% Gravel 28% Sand 4% Clay 2% Silt		4		
								5		Sandy Gravel - Moderate Yellowish Brown (10YR 5/4), Max gravel size 2½" diameter, Average ½", coarse to fine-grained sand, well graded gravel subangular to subround, sand subangular, Low plasticity, ~~no apparent bedding, dry~~, Gravel primarily quartzite and granitic, some quartz and K-spar, Dom lithology of sand sand, with some ~~quartz~~ K-spar, mica and trace fibrous mineral, some iron staining on grains and trace caliche from 6.0-7.0, no apparent bedding, dry.
	6.0 Run 4	1'.					GW	6		
								7		
								8		
	8.0 Run 5	1'						9		increase in Sand and iron staining from 9.0'-9.5'
	9.7 Run 6	.9								

NOTES General USCS is modified for this log as follows
Materials amounts are estimated by % volume instead of % weight
(1) Badly broken core, accurate footage measurements not possible.
(2) Core breaks cannot be matched, accurate footage measurements not possible.

ADMIN RECORD

ROCKY FLATS PLANT BOREHOLE LOG

OU2 ALLUVIUM

Borehole Number: 05391
Location - North: East:
Date: 9-20-91
Geologist: J P. O'Brien/LAG
Drilling Equip.: Mobil B-57 Hollow Stem Auger

Surface Elevation:
Area:
Total Depth: 19.0
Company: EG&G
Sample Type: Continuous Split Spoon

OU2 ALLUVIUM
Alluvial Drilling
Project No.:

EG&G LOGGING SUPERVISOR

APPROVAL _____ DATE _____

TOP/BOTTOM OF CORE IN BOX	TOP/BOTTOM OF INTERVAL	FEET OF CORE IN INTERVAL IN BOX	SAMPLE NUMBER	FRACTURE ANGLE	BEDDING ANGLE	GRAIN SIZE DISTRIBUTION	USCS SYMBOL	DEPTH IN FEET	LITHOLOGIC LOG	SAMPLE DESCRIPTION * See Reverse for Rig Geol. Lith Description
Box 1 of 3	Run 6	9'					GW	11		Sandy Gravel increase in amount of pea size gravel from 9.7-10.6'
	11.9							12		increase in sand from 11.9 to 12.4
	Run 7	1.1'						13		
	14.1							14		
	Run 8	1.3'						15		
	16.0							16		
	Run 9	1.0'						17		increase in the size of gravel from 16.4-17.0
Box 2 of 3	18.0							18		arkosic arenite from 18.0-18.3
	Run 10.	1.1						19		
	20.0									

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ROCKY FLATS PLANT BOREHOLE LOG

OU2 ALLUVIUM

Borehole Number: 05391
Location - North:
East:
Date: 9-20-91
Geologist: J.P. O'Brien
Drilling Equip.: Mobil B-57 Hollow Stem Auger
Surface Elevation:
Area:
Total Depth:
Company: EG&G
Sample Type: Continuous Split Spoon
Project No.: Drilling

EG&G LOGGING SUPERVISOR

APPROVAL _____ DATE _____

TOP/BOTTOM OF CORE IN BOX	TOP/BOTTOM OF INTERVAL	FEET OF CORE IN INTERVAL IN BOX	SAMPLE NUMBER	FRACTURE ANGLE	BEDDING ANGLE	GRAIN SIZE DISTRIBUTION	USCS SYMBOL	DEPTH IN FEET	LITHOLOGIC LOG	SAMPLE DESCRIPTION * SEE REVERSE FOR Rig Geol. Lith Description
Box 2 of 3	20.0 Run 11	1.3'					GW	21		Sandy Gravel
	22.0							22		
	22.0 Run 12	.9'						23		increase in sand and iron staining from 22.0 to 22.8
	24.0 Run 13	4	BH00083UCU2 (Dup)					24		Large size gravel from 24.0-24.4
	26.0 Run 14	1.4	26.6 VOA VOA 27.2					26		increase in iron staining from 26.0-26.6'
								27		increase in sand & iron staining from 27.2 to 27.4'
	28.0 Run 15	1'	BH00082UCU2					28		
								29		

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ROCKY FLATS PLANT BOREHOLE LOG

OU2-ALLUVIUM

Borehole Number: DS391
Location - North: East:
Date: 9-20-91
Geologist: JP O'BRIEN / LAG
Drilling Equip.: Mobil B-57 Hollow Stem Auger

Surface Elevation:
Area:
Total Depth: 48.0
Company: EG&G
Sample Type: Continuous Split Spoon

Project No.: OU2 Phase II Alluvial Drilling

EG&G LOGGING SUPERVISOR

APPROVAL _____ DATE _____

TOP/BOTTOM OF CORE IN BOX	TOP/BOTTOM OF INTERVAL	FEET OF CORE IN INTERVAL IN BOX	SAMPLE NUMBER	FRACTURE ANGLE	BEDDING ANGLE	GRAIN SIZE DISTRIBUTION	USCS SYMBOL	DEPTH IN FEET	LITHOLOGIC LOG	SAMPLE DESCRIPTION
										* SEE REVERSE FOR Rig Geol. Lith Description
Box 2 of 3	RUN 16	1.5'				59% sand 27% clay 11% Gravel 3% silt	SC	31		Clayey sand with some gravel, Dark Yellowish Brown (10YR 4/2), medium to fine-grained sand, fine-grained gravel, well graded, subangular to subrounded sand, subround gravel, High Plasticity, Dom lithology sand quartz with trace k-spar, mica and dark minerals, trace rock frags, Gravel primarly quartzite and granitic, trace iron staining on grains, no appearent bedding, moist
	32.0					63% Gravel 36% Sand 1% silt	GW	32		
	32.0 RUN 17	.7'	LAG BH0008WKU2 BH0008SWKU2			95% Gravel 5% Sand	GP	33		Sandy Gravel & Dark yellowish brown (10 YR 4/2) to Dark yellowish Green (10 GY 4/4) Gravel max size 1½" diameter, Average ½" diameter, coarse to fine-grained sand, well graded, low plasticity, Gravel primarly quartzite and granitic, Dom lithology sand quartz, with some rock frags of quartzite and granitic, trace coal, mica, limonite and k-spar, iron staining on grains, Coal with limonite staining around it, Green staining on core from 31.1 - 31.3, no appearent bedding moist
	34.0 RUN 18	1.3'	34.7 VOA 34.9			60% Gravel 30% Sand 10% clay	GW	34		Gravel - Brownish Gray (5YR 4/1), Max gravel size 2½" diameter, Average ¾" diameter, coarse to medium grained sand, poorly graded, angular, low plasticity, Gravel primarly quartzite sand quartz with trace k-spar and mica no appearent bedding, moist
	36.0					66% Clay 28% silt 6% Sand		35		
36.0	36.0 RUN 19	2.2'		90°	90°			36		Sandy Gravel with sand clay Moderate Yellowish Brown (10YR 4/2), max gravel size 1½" diameter, Average ¼" diameter, coarse to fine grain sand, subangular, well graded, Low plasticity, Gravel primarly quartzite with some granitic, Dom lithology sand quartz with some k-spar mica and trace dark minerals and rock frags, trace iron staining on grains, dry Top Bedrock 34.9'
Box 3 of 3	38.2 RUN 20	1.7'						38		Silty Claystone with some sand-light Olive Gray (5Y 5/2), very fine-grained sand, well sorted, subround, ~10% porosity, argillaceous cement, slightly friable, Dom lithology sand quartz with trace dark minerals and iron staining on grains, trace carbonaceous material, no appearent bedding, trace inter bedded SS, trace healed vertical fractures with limonite and purple mineral @ 38.0', moist, competency 37.1-38.5' Top Bedrock @ 34.9' weathered
	38.9							39		

ROCK

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ROCKY FLATS PLANT BOREHOLE LOG

Borehole Number: 05391
Location - North: East:
Date: 9-23-91
Geologist: J.P. O'BRIEN / LAG
Drilling Equip.: Mobil B-57 Hollow Stem Auger

Surface Elevation:
Area:
Total Depth: 48
Company: [illegible]
Sample Type: CONTINUOUS CORE

OU2 ALLUVIUM

OU2 Phase II
Project No.: [illegible] Drilling

EG&G LOGGING SUPERVISOR

APPROVAL _____ DATE _____

TOP/BOTTOM OF CORE IN BOX	TOP/BOTTOM OF INTERVAL	FEET OF CORE IN INTERVAL IN BOX	SAMPLE NUMBER	FRACTURE ANGLE	BEDDING ANGLE	GRAIN SIZE DISTRIBUTION	USCS SYMBOL	DEPTH IN FEET	LITHOLOGIC LOG	SAMPLE DESCRIPTION *SEE REVERSE FOR FLAP GEOL. LITH DESCRIPTION
Box 3 of 3	Run 21	1.2		90°		67% Sand 26% Silt 7% clay		41		Silty ~~Sta~~ Sandstone - Pale Olive (10Y 6/2) fine to very fine-grained sand, well sorted, angular to subangular, 20% porosity, argillaceous cement, Highly friable, Dom lithology sand clear quartz with trace pt rose quartz and dark mineral (coal?), trace iron staining on grains, trace carbonaceous material, trace limonite staining throughout interval, trace vertical fractures with limonite staining, no apparent bedding, decrease in competency from 39.6-42.0, wet, weathered
	42.0 Run 22	2.0		90°	0°	62% clay 21% silt 17% sand		42 43		Silty Claystone with some sand - Medium light gray (N6) to light olive gray (5Y 5/2) very fine-grained sand, well sorted, 15% porosity, slightly friable, Dom lithology sand quartz, no some carbonaceous material up to 1" long, argillaceous cement, trace horizontal bedding, trace healed vertical fracture with limonite, ~~[illegible]~~ saturated, weathered
	44.0 Run 23	2.1'		90°		66% clay 19% sand 15% silt		44 45		Sandy Claystone with some silt - light olive gray (5Y 5/2), very fine grained sand, well sorted, subangular, 15% porosity, argillaceous cement, slightly friable, Dom lithology sand ~~[illegible]~~ clear quartz trace dark minerals, trace iron staining on grains, trace carbonaceous material, trace limonite bedding in SS lense @ 46.2', Interbedded sandstone lense throughout interval, trace vertical fracture with limonite, wet, weathered
	46.0 Run 24	2.0			0°			46 47		Silty Sandstone with some clay - Moderate olive brown (5Y 4/4) very fine-grained sand, well sorted, 20% porosity, argillaceous cement, slightly friable, Dom lithology sand clear quartz with trace dark mineral, trace iron staining on grains, trace carbonaceous material, no apparent bedding, trace clay clast, no fracturing, wet, weathered
48.0						57% Sand 26% Silt 17% clay		48 49		
	48.0									TD @ 48.0'

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OU2-ALLUVIUM

RFEDS
WELL INSTALLATION FORM

Well Number: 05391 Project Number 4006 EMAD
Old Well No.:

Area: NE Trenches North or Y: East or X .
Purpose. GW Plume Characterization
Formation. Alluvial Well Status. Active
Contractor: WCFS, ~~ERCC, Ground Exploration~~ SSS 11-7-91 Drilling Method: Hollow-Stem Auger
Geologist: J.P. O'BRIEN Locator: I 15
Date Drilled: ~~9-20-91~~ / 9-24-91 SSS 11-7-91 Ground Elev: ft.

Total Depth: 48.0 ft. Stick Up: -2.0 ft.
Depth to Bedrock. 34.8 ft. Completed Depth: 37.1 ft.
Casing Diameter: 2 in Borehole Diam.: ~~9 1/4~~ in 10 MRM 11-25-91

Monitoring Interval. 35.1 ft. to 25.1 ft.
Initial Water Level. 26.0 ft. Date. 9-20-91
Completed Water Level: ~~27.53~~ 33.50 JTB 11/27/91 ft. Date: 11/01/91

Item	From	To	I.D.	Type
Surface Seal:	3.1 ft	0 ft.		Concrete
Protective Casing.	2.8 ft	~~-2.3~~ -2.2 ft	6 in.	Steel
Surface Casing:	37.1 ft.	-2.0 ft.	2 in.	~~Steel~~ SSS 11-6-91 PVC Sch. 40
Secondary Casing:	N/A ft	N/A ft.	~~N/A~~ in.	~~N/A~~
Centralizer:	N/A ft.	N/A ft.	N/A in	N/A
Bentonite Seal	22.0 ft	18.9 ft		Bentonite
Filter Pack:	35.1 ft	22.0 ft		16-40 Sand
Volume: ≅ 7.1 cu ft		22.0 JTB 11/27/91		
Screen: 10 Slot	35.1 ft	~~25.1~~ ft	2.0 in	PVC Sch 40
Slot Size: 0.010 in				
Sump	37.1 ft	35.1 ft.	2.0 in	PVC Sch 40
Backfill Seal	37.1 ~~48.0~~ JT ft	35.1 ~~37.1~~ JT ft		Bentonite
Backfill	48.0 ft	37.1 ft		~~Grout~~ Bentonite SSS 11-6-91
Volume: ≅ 5.9 cu ft				

Well Number: 05391 Interval ft
Core Box Number
Lithology Word
Comments

input 11-7-91 GT

U.S. DEPARTMENT OF ENERGY ROCKY FLATS PLANT

FORM GT.6A

OU2-ALLUVIUM

GROUNDWATER MONITORING WELL AND PIEZOMETER REPORT

PROJECT 4606 OU2 PHASE II Alluvial Drilling

LOCATION Buffer 2

Date Completed 9-25-91 Original Depth 48.0'

Inspected By _____ Date _____

Checked By _____ Date _____

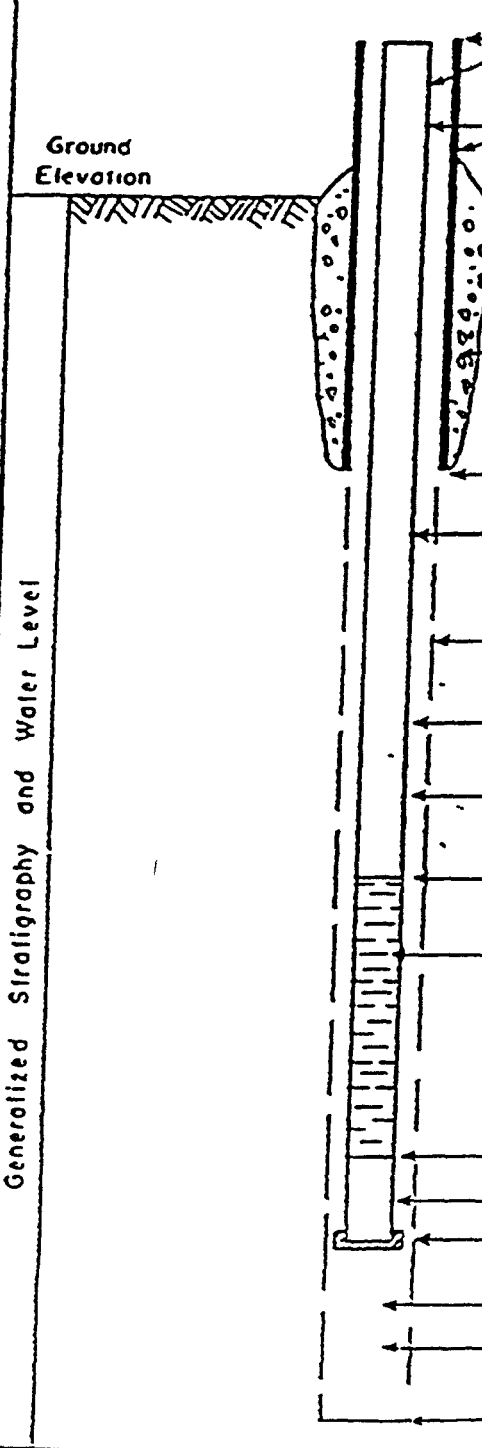
Page 1 of 1

Well No. 05391

Aquifer _____

Depth Interval _____

NOTE CENTRALIZER DEPTHS



Elevation of top of surface casing / riser pipe.	
Height of top of surface casing / riser pipe above ground surface	-2.2' ~~2.3~~ / -2.0' MRM 11-25-91
Depth of surface seal below ground surface	3.1'
Type of surface seal: Concrete	
I.D. of surface casing	6 ~~5/8~~ in SSS 11-6-91
Type of surface casing: Steel 6" 0.152 Wall	
Depth of surface casing below ground	2.8'
I.D. of riser pipe.	2 in
Type of riser pipe: Sch. 40 PVC Pipe	
Diameter of borehole	10 in ~~9 1/2 in~~ MRM
Depth of borehole	48.0 ft
Type of backfill: Bentonite Grout	
Elev./depth top of seal.	18.9'
Type of seal: Bentonite Pellets	
Elev./depth bottom of seal.	22.0
Type of filter pack: 16-40 Silica Sand	
Depth of top of filter pack.	22.0'
Elev./depth top of screened section.	25.1
Type of screened section: PVC SCH. 40	
Screen openings: 0.010" 10 Slot	
I.D. of screened section	2"
Elev./depth bottom of screened section	35.1'
Length of blank section	2.0
Elev./depth bottom of plugged blank section	37.1'
Elev./depth bottom of sand column	~~AHA~~ 35.1' SSS 11-6-91
Type of backfill below observation pipe: Bentonite pellets	
Elev./depth of hole	48.0'