OU2-ALLUVIUM

WOODWARD-CLYDE FEDERAL SERVICES
OU2 DAILY WELL INSTALLATION FORMS CHECK-OFF SHEET

MW/BH # 05391 (circle one)

DATE 9-20-91

FORM #		COMPL. BY	CHECK BY
FO.8A	Verification of organic vapors	REL	MRM
FO.8B	Record of drilling fluids and cuttings	JPOB	MRM
FO.16A	Results of radiological measurements	~~N/A~~ ~~REL~~ REL	MRM
FO.10A	Drum field log form	N/A	MRM
FO.10C	Contaminant characterization form	N/A	MRM
FO.14B	RFEDS sample collection form 1 / 2 / 3 (circle one)	JPOB	MRM
GT.2A	Hollow stem auger (FAR)	JPOB	MRM

DRILLING SUMMARY

Coring / Reaming / Well installation (circle one)

Footage drilled: _____

Drill time: _____

Down time: _____ Explanation: _____

ADMIN RECORD

A-OU02-000187

U.S. DEPARTMENT OF ENERGY ROCKY FLATS PLANT

FORM FO.8A

VERIFICATION OF ORGANIC VAPOR MONITORING RESULTS

1 Date 9-20-91 Activity Area 042 (Site 05391)

2. Check Historical Contaminant Classifications

✓ Radiological _____ RCRA Wastes _____ Mixed Wastes

3 Prework/Background Organic Vapor Monitoring Results

0.00 (numeric value) ppm (units, i.e ppm) OVM (Model 580B)
Instrument Used

4. Verification Measurements

Initial measurement above background N/A

Background check _____

First verification measurement _____

Background check _____

Second verification measurement _____

5 If either of the verification measurements are above the preceding background measurement the initial measurement has been verified.

Individual completing this form Robert E LAHN Robert E Lahn 9/20/91 ERCE
Print Name Signature Date/subcontractor

Tech Check
MRM 11-26-91

(4011-REV)(FO8REV 1)(7/24/91)

U.S DEPARTMENT OF ENERGY ROCKY FLATS PLANT

FORM FO.8B

OU2-ALLUVIUM

RECORD OF DRILLING FLUIDS AND CUTTINGS

Date of Activities 9-20-91 Field Team Leader J P. O'Brien

1. Personnel Assigned to task that generated the environmental materials

Name	Assignment	Employer
David Connor	Driller	GEC
B. Hosey	Driller's Helper	GEC
J.P O'Brien	Geologist	ERCE
B Lahn	Health and Safety Tech	ERCE
	Other - Specify	

2 Identification of site task was accomplished at 05391

3 Contaminant classes assumed to be present (check as appropriate)

____ low-level RAD substances
____ high-level RAD substances
____ RCRA regulated substances
____ Mixed substances
✓ Uncontaminated Area

4 Unanticipated contaminant classes found.

✓ No ____ Yes (check as appropriate)

____ low-level RAD substances
____ high-level RAD substances
____ RCRA regulated substances
____ Mixed substances

5 Highest environment monitoring results

Organic vapors Background (value) ppm (units) ____

instrument used OVM 580B

Radioisotopes Background (value) cpm (units) ____

instrument used Ludlum 12-1A

Completed by J P. O'Brien (Print Name) J P O'Brien (Signature) 9-20-91 (Date)

Subcontractor Woodward-Clyde

Tech. Check
MRM 11-26-91

(4011 REV)(FO8REV.OLD)(9/10/91)

U.S. DEPARTMENT OF ENERGY ROCKY FLATS PLANT FORM FO.16A

OU2 ALLUVIUM

Results of Radiological Measurements in the Field

Project Location OU2 Date 9-20-91

Project Number 4006

I Work Area Monitoring

Site Number (i.e., bore site, well, sediment, etc.) 05391

Snow cover present (Y/N) NO

Work surface wet (Y/N) NO

Instrument Used (Check appropriate line)

✓ Ludlum Model 12-1A alpha counter with an air proportional probe #84111971 Serial No 75937

____ Other (Specify manufacturer, model, serial number, and type probe)

Manufacturer ____

Model ____

Serial Number ____

Type ____

Calibration Date ____

Prework Monitoring Results

<250 cpm at point of intrusive activity

<250 highest measured cpm

Illustrate all measurement sites and results on the reverse side of this sheet.

Robert E. Lahn [signature] 9/20/91

(Printed Name and Signature/Date)

(Subcontractor) Woodward-Clyde (Phone) 966-8022

Tech Check
MRM 11-26-91

(4011-600-0019) (FO16REV 1) (09/10/91)

OU2-ALLUVIUM

II. Environmental Materials Monitoring

✓ Environmental materials monitoring not required. Work area was characterized as uncontaminated and field radiological screening as work progressed did not indicate the presence of potential contamination.

Instrument Used (check appropriate line)

N/A Ludlum Model 12-1A alpha counter with an air proportional probe Serial No _____

N/A Other (Specify manufacturer, model, serial number and type probe)

Manufacturer _____

Model _____

Serial Number _____

Type _____

Calibration date _____

N/A (Y/N) PPE screening resulted in a verified positive reading

N/A Background reading

N/A PPE verified positive reading

Drums Monitored By A Ludlum Model 12-1A And Large Area Swipes at the Work Site

Drum ID No.	Surface Smeared	Results (cpm)
N/A	N/A	N/A

Robert E LAND / Robert E Land 9-20-91 Woodward-Clyde 966-8022

(Printed Name and Signature/Date) (Subcontractor) (Phone)

III Sample Monitoring

✓ Ludlum Model 12-1A alpha counter with an air proportional probe #84111971 Serial No. 75937

____ Smear test counter (Specify manufacturer and model)

Manufacturer Ludlum 3 #84784 Pr# 077986

Model _____

Calibration date 6-13-91 Due 6-13-92

Drilling core intervals monitored and associated sample numbers that the results were assigned to

Interval(ft)	Highest Level(cpm) Noted	Associated Sample Numbers
See Data	for 9-23-91	All data on sample
monitoring	is included	on that date.

Sample containers checked with small area smears and results (cpm)

Sample Number	Initial Wipe Results
N/A	N/A

Robert E Lund [signature] 9-20-91 Woodward-Clyde 966-8022

(Printed Name and Signature/Date) (Subcontractor) (Phone)

U.S DEPARTMENT OF ENERGY ROCKY FLATS PLANT FORM GT.2A

HOLLOW STEM AUGER DRILLING FIELD ACTIVITIES REPORT

PROJECT NUMBER	4006
DATE	9-20-91
PROJECT NAME	OU2 PHASE II Alluvial Drilling
BOREHOLE IDENTIFICATION	05391-MW
WEATHER CONDITIONS	Partly cloudy, cool ~40°F
RIG TYPE	Mobil B-57
DRILLING COMPANY/DRILLER	Ground Exploration / Darrel Connor
GEOLOGIST/ENGINEER	J.P. O'Brien
CREW MEMBERS	Bob Lahn, Bert Leehosey
WATER LEVEL/TIME	~26.0' / 1540
TOTAL DEPTH	28.0
DECONTAMINATION	Liquinox wash, triple DI rinse, all sampling equipment.
WASTE TYPES, VOLUMES AND DRUMS USED	See Drum Field Log, Soil cuttings 0.0'-16.0' Drum 0296WC 16.0'-28.0' Drum 0289WC
DIAMETER OF BORING	6¼"
TYPE AND SIZE OF AUGERS AND BIT	Hollow Stem 3¼" (ID) carbide
SAMPLING TYPES, DEPTHS	Soil, water table (perched) 26.6-27.2' BH00082WCU2 (Dup)
HAMMER SIZE	
DEPTH TO BEDROCK	N/A
END-OF-DAY STATUS	Auger in Hole w/ Bonnet Still in Alluvium
CHRONOLOGICAL RECORD OF ACTIVITIES	Staff meeting till 0830, wait on Fiddler Survey till 0935 then start intrusive activities, have trouble w/ slider & Bonnet assembly, ~~changing~~ adding flights is taking too long, @ 1015 blow out bearing assembly, pull entire drill string to avoid contamination. @ 1140 reenter hole w/ clean augers, use Bonnet & assembly from Rig#1 works much better, recovery increased to ~1.25' per run @ 1540 take sample @ first show of water ~26.0'. @ 1610 Egress from site.

~~COMMENTS~~

(4011 REV)(GT2REV 1)(08/22/91)

Tech Check
MRM 11-26-91

RFEDS
SAMPLE COLLECTION FORM

ORIGINAL

Project Number 4006 EMAD
Sample Number BH00082WCU2
North or Y
Boring Number 05391

Name EMAD
Type SB
East or X

Collection Date 9 12 91
Collection Time 15 40
Sample Location 26.6'-27.2'
Composite (Y/N)
Composite Desc –
QC Type REGR

Quarter ~~NO~~ 3 SCS 10-21-91 Dry ~~NO~~ NO Y

Partner BH00082WCU2

Collection Method SPLIT SPOON CONTINUOUS CORE 8OZ S.S. LINER

Sample Team Leader JP O'BRIEN
Member BOB LAHN
Member

Volume Collected 2, 8 Units OZ, OZ
Prapared By JP O'BRIEN BOB LAHN

Project Number 4006 EMAD
Sample Number BH00082WCU2

Name EMAD

Boring 05391
Rad Type Iodium 12A OVM Type 580B

Equipment Number Iodium 75937 OVM 33299-244

START	END	Depth of Take RECOVERY	OVM	RAD	USCS SOIL/ROCK TYPE
26.6' FT	26.9' FT		0 PPM	0 CPM	SC
FT	FT		PPM	CPM	
FT	FT		PPM	CPM	
FT	FT		PPM	CPM	
FT	FT		PPM	CPM	

Gen OVM 0 Gen Rad 0

Comments

Checked MDM 10-23-91

RFEDS
SAMPLE COLLECTION FORM

OU2-ALLUVIUM

Project Number 4006 EMAD Name EMAD
Sample Number BH00083WCU2 Type SB
North or Y East or X
Boring Number 05391

Collection Date 9/20/91 Quarter ~~NO~~ 3 SSS 10/21/91 Dry ~~NO~~ NO X
Collection Time 15 40
Sample Location 26.6'-27.2'
Composite (Y/N)
Composite Desc –
QC Type DUP Partner BH00082WCU2
Collection Method SS liner in split spoon sample barrel

Sample Team Leader JP O'BRIEN
Member BOB LAHW
Member SS 10/21/91
Volume Collected ~~2~~ 8 OZ Units OZ
Prapared By JP O'BRIEN, BOB LAHW

Project Number 4006 EMAD Name EMAD
Sample Number BH00083WCU2

Boring 05391
Rad Type Iodium 12-14 OVM Type 580B Equipment Number Iodium 70937 OVM 33299-244

START		END		Depth of Take RECOVERY	OVM	RAD	USCS SOIL/ROCK TYPE
26.9'	FT	27.2'	FT		Ø PPM	Ø CPM	SC
	FT		FT		PPM	CPM	
	FT		FT		PPM	CPM	
	FT		FT		PPM	CPM	
	FT		FT		PPM	CPM	

Gen OVM 0 Gen Rad 2

Comments

Checked Input SSS 11-9-91

RFEDS

SAMPLE COLLECTION FORM

OU2-ALLUVIUM

Project Number 4006 EMAD — Name EMAD
Sample Number BH00084WCU2 — Type SB
North or Y — East or X.
Boring Number 05391

Collection Date 9 / 20 / 91 — Quarter ~~NO~~ 3 SSS 10-21-91 — Dry ~~NO~~ ✓ NO
Collection Time 15 40
Sample Location —
Composite (Y/N)
Composite Desc —
QC Type RNS — Partner BH00082WCU2
Collection Method Pour Distilled H2O over Sample Barrel

Sample Team Leader JP O'BRIEN
Member BOB LAHN
Member
Volume Collected 80 ml — Units ml
Prepared By JP O'BRIEN - BOB LAHN

Project Number. 4006 EMAD — Name EMAD
Sample Number BH00084WCU2

Boring 05391
Rad Type Iodium 12-1A OVM Type SBOB — Equipment Number Iodium 75937 — OVM 33299-244

START	END	Depth of Take RECOVERY	OVM	RAD	USCS SOIL/ROCK TYPE
FT	FT		PPM	CPM	
FT	FT		PPM	CPM	
FT	FT		PPM	CPM	
FT	FT		PPM	CPM	
FT	FT		PPM	CPM	

N/A JPOB

Gen OVM — Gen Rad

Comments

Checked input SES .91

CONTRACTOR Woodward-Clyde Fed Services SAMPLERS JPO / KEL PROJECT # 4006

Kent Tombach (303) 966-5874

SITE CONTACT/PHONE

LAB/LOCATION IT Export

C-O-C NUMBER WCU2-IE0012

EG&G ROCKY FLATS, CHAIN OF CUSTODY

Didn't have a copy

Change to BH00082WCU2

Change to BH00083WCU2

Corrected copy

DATE/TIME		SAMPLE NUMBER	LOCATION	CONTAINER TYPE	NUMBER OF CONTAINERS	MEDIA SOIL(S) WATER (W)	FILTERED=F POT DISS=P	TURN AROUND RUSH=R	OUT OF SPEC REPORTS	COOLED TO 4°C	Zn(C2H3O2)2	NAOH	HNO3	H2SO4	VOA - CLP	VOA - 502 2	BNA - CLP	PCB s/PEST - CLP	CLP TOTAL METALS(1)	CLP DISS METALS(1)	WATER QUALITY-127	NO3/NO2 as N	Tot Phosphorus NH4	OIL & GREASE	Ortho-Phosphate	NO2	CYANIDE	TOC	DOC	H2S	Cr IV			
BOTTLE CODES															V	V	B	P	M	M	W	W	W	W	W	W	W	W	W	W	W			
																D	A			*	A	B	B	C	D	D	E	H	I	J	K			
PRESERVATIVE																C	R					C			A	B								
9-20-91	1548	BH00083WCU2	45391	8 OZ LINER	1	S				Y					X																			
9-20-91	1548	BH00084WCU2	45391	8 oz liner	1	S				Y					X																			

RELINQUISHED BY	DATE/TIME		RECEIVED BY	DATE/TIME	
Robert E Lahn	9-20-91	1444	[illegible]	9-20-91	1444
[illegible]	9-23-91	1700			

LABORATORY USE ONLY	Y	N
PCKG REC D/CUSTODY SEALS INTACT		
SAMPLE LABELS/COCs AGREE		
TEMPERATURE WITHIN SPECIFICATION ____ C		
CORRECTED COPY ATTACHED		
PROBLEMS OR DISCREPANCIES		

REMARKS (1) INCLUDES Cs,Li,Sr,Mo,Si,Sn
(2) TSS,TDS,Cl,F,SO4,CO3,HCO3

FED EX

SHIPMENT METHOD

Cat 1 (BH00084WCU2 using BH00082WCU2 Rad Screen)
83

CONTRACTOR Woodward-Clyde Fed Services SAMPLERS JPO / REL PROJECT # 4006-163 (KDT)

Kent Trimbach (303) 966-5874

SITE CONTACT/PHONE LAB/LOCATION IT / Richland, WA

C-O-C NUMBER WCU2-IR0078

OUD ALLUVIUM

EG&G ROCKY FLATS, CHAIN OF CUSTODY

DATE/TIME		SAMPLE NUMBER	LOCATION	CONTAINER TYPE	NUMBER OF CONTAINERS	MEDIA SOIL(S) WATER (W)	FILTERED-F. POT DISS-P	TURN AROUND RUSH -R	OUT OF SPEC REPORTS	HCl	HNO3				GROSS ALPHA / BETA	Pu 239/240 AM241	U 233/234,235 238	Sr89/90 Cs137 (1)	Th230/232 CM244 NP237	DISS GROSS ALPHA/BETA	DISS - Pu 239/240 - Am 241	DISS U233/234 235 238	DISS Sr 89/90 Cs 137 (1)	DISS Th230/2 CM244 NP237	TRITIUM (H3)	RAD SCREEN								
															R A	R B	R C	R D	R F	R A	R B	R C *	R D *	R F *	R G	R H								
7/20/91	1540	PHCC082(W)(W)	05391 WCU2	2 OZ AG	1	5																				X								
			9-20-91																															

RELINQUISHED BY	DATE/TIME		RECEIVED BY	DATE/TIME	
[signature]	9/21/91	1144	[signature]	9-20-91	1644
[signature]	9-20-91	1730			

LABORATORY USE ONLY	Y	N
PCKG REC'D/CUSTODY SEALS INTACT		
SAMPLE LABELS/COCs AGREE		
TEMPERATURE WITHIN SPECIFICATION ____ C		
CORRECTED COPY ATTACHED		
PROBLEMS OR DISCREPANCIES		

REMARKS * INDICATES FILTERED SAMPLE (1) + Cs 134 WHEN BY GAMMA

FED EX

SHIPMENT METHOD

CONTRACTOR Woodward-Clyde Fed Services SAMPLERS JPO/REL PROJECT 4006

SITE CONTACT/PHONE Kent Trimbach (303) 966-5874 LAB/LOCATION IT Export

C-O-C NUMBER WCU2-IE00012

EG&G ROCKY FLATS, CHAIN OF CUSTODY

DATE/TIME		SAMPLE NUMBER	LOCATION	CONTAINER TYPE	NUMBER OF CONTAINERS	MEDIA SOIL(S) WATER(W)	FILTERED=F POT DISS=P	TURN AROUND RUSH=R	OUT OF SPEC REPORTS	COOLED TO 4 C	Zn(C2H3O2)2	NAOH	HNO3	H2SO4	VOA - CLP	VOA - 502.2	BNA - CLP	PCBs/PEST - CLP	CLP TOTAL METALS(T)	CLP DISS METALS(1)	WATER QUALITY(2)	NO3/NO2 as N	Tot Phosphorus	OIL & GREASE	Ortho-Phosphate	NO2	CYANIDE	TOC	DOC	H2S	Cr IV			
BOTTLE CODES															V	V	B	P	M	M	W	W	W	W	W	W	W	W	W	W	W			
																D	A			*	A	B	B	C	D	D	E	H	I	J	K			
PRESERVATIVE																						C			A	B								
9-21-91	1540	BH00083WCU2	05391	40 ML AG	2	W				Y					X																			

Changed to BH00084WCU2

Corrected copy KBT

RELINQUISHED BY	DATE/TIME		RECEIVED BY	DATE/TIME	
Robert E Lohn	9-21-91	1644	Kent Trimbach	9-21-91	1644
Kent Trimbach	9-23-91	1700			

LABORATORY USE ONLY	Y	N
PCKG REC D/CUSTODY SEALS INTACT		
SAMPLE LABELS/COCs AGREE		
TEMPERATURE WITHIN SPECIFICATION ____ C		
CORRECTED COPY ATTACHED		
PROBLEMS OR DISCREPANCIES		

REMARKS (1) INCLUDES Cs,Li,Sr,Mo,Si,Sn
(2) TSS,TDS,Cl,F,SO4,CO3,HCO3

SHIPMENT METHOD FED EX

Cat. 1 (RNS for Sample # BH00082WCU2)