OU2-ALLUVIUM

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

(MW) BH # 05391 (circle one)

DATE 9-23-91

FORM #		COMPL. BY	CHECK BY
FO.8A	Verification of organic vapors	REL	MRM
FO.8B	Record of drilling fluids and cuttings	REL	MRM
FO.16A	Results of radiological measurements	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) (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-OU02-000186

U.S DEPARTMENT OF ENERGY ROCKY FLATS PLANT FORM FO.8A

VERIFICATION OF ORGANIC VAPOR MONITORING RESULTS

1 Date 9/23/91 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 32486-245

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 [signature] 9/23/91 ERCE
Print Name Signature Date Subcontractor

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

Tech Check
MRM 11-26-91

U.S. DEPARTMENT OF ENERGY ROCKY FLATS PLANT FORM FO.8B

OU2-ALLUVIUM

RECORD OF DRILLING FLUIDS AND CUTTINGS

Date of Activities 9-23-91 Field Team Leader J P O'Brien

1. Personnel Assigned to task that generated the environmental materials

Name	Assignment	Employer
D 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 ____ RCRA regulated substances ✓ Uncontaminated Area
____ high-level RAD substances ____ Mixed substances

4 Unanticipated contaminant classes found

✓ No ____ Yes (check as appropriate)

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

5 Highest environment monitoring results

Organic vapors. BACKGROUND (value) ppm (units)

instrument used OVM 580B

Radioisotopes <250 (value) cpm (units)

instrument used Ludlum 12-1A

Completed by Robert E Lahn Robert E Lahn 9-23-91
Print Name Signature Date

Subcontractor Woodward-Clyde

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

Tech Check
MRM 11-26-91

U.S. DEPARTMENT OF ENERGY ROCKY FLATS OU2-ALL FORM 1.16A

Results of Radiological Measurements In the Field

Project Location: 042 Date 9-23-91

Project Number 9006

I. Work Area Monitoring

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

NO Snow cover was present

NO Work surface was wet

Instrument Used (Check appropriate line)

✓ Ludlum Model 12-1A alpha counter with an air proportional probe Serial No 85337

____ Other (Specify manufacturer, model, serial number, and type probe) Probe # 84 1 3940

7-91 Calibration Date

Prework Monitoring Results.

N/A 0 cpm at point of intrusive activity

____ highest measured cpm

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

Robert Lamb [signature] WC 966 8022

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

Tech Check
MRM 11-26-91

(4011-454-39) (FIELDOPS.16) (02/28/91)

U.S. DEPARTMENT OF ENERGY ROCKY FLATS FORM 1.16A(continued)

II Waste Monitoring

✓ Waste 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 _____

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

_____ Calibration date

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

9-23-91

Robert LAHN Robert E Lahn Woodward Clyde 9668022

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

(4011-454-39) (FIELDOPS.16) (02/28/91)

U.S. DEPARTMENT OF ENERGY ROCKY FLATS FORM 1.16A(continued)

CU2-ALL[illegible]

III Sample Monitoring:

✓ Ludlum Model 12-1A alpha counter with an air proportional probe

_____ Smear test counter (Specify manufacturer and model): _____

_____ Calibration date

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

Interval(ft)	Highest Level(cpm) Noted	Associated Sample Numbers
0.0-0.9	250 <	N/A
0.9-2.6	250 <	
2.6-4.3	250 <	
4.3-6.0	250 <	
6.0-8.0	250 <	
8.0-9.7	250 <	
9.7-11.9	250 <	
11.9-14.1	250 <	
14.1-16.0	250 <	
16.0-18.0	250 <	

LUDLUM 3 READINGS were ALL ~~less than~~ Background

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

Sample Number	Initial Wipe Results
N/A	N/A

9-23-91

Robert LAHN [signature] W/C 966-8022

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

(4011-454-39) (FIELDOPS.16) (02/28/91)

U.S. DEPARTMENT OF ENERGY ROCKY FLATS FORM 1.16A(continued)

III Sample Monitoring:

✓ Ludlum Model 12-1A alpha counter with an air proportional probe

_____ Smear test counter (Specify manufacturer and model)._____

_____ Calibration date

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

Interval(ft)	Highest Level(cpm) Noted	Associated Sample Numbers
18.0 - 20.0	250 <	
20.0 - 22.0	250 <	
22 - 24	250 <	
24 - 26	250 <	
26 - 28	250 <	
28 - 30	250 <	
30 - 32	250 <	
32 - 34	250 <	
34 - 36	250 <	
36 - 38	250 <	

All Ludlum 3 Reading were Background

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

Sample Number	Initial Wipe Results
N/A	N/A

9-23-91

Robert Lahn Robert C Lahn WC 966-8022

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

(4011-454-39) (FIELDOPS.16) (02/28/91)

U.S. DEPARTMENT OF ENERGY ROCKY FLATS FORM 1.16A(continued)

III. Sample Monitoring:

✓ Ludlum Model 12-1A alpha counter with an air proportional probe

_____ Smear test counter (Specify manufacturer and model) _____

_____ Calibration date

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

Interval(ft)	Highest Level(cpm) Noted	Associated Sample Numbers
38.2-39.9	250 <	
39.9-42.0	250 <	
42.-44.0	250 <	
44.-46.0	250 <	
46.-48.0	250 <	

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

Sample Number	Initial Wipe Results
N/A	N/A

Robert LAHW Robert C Lahm WC 966-8022

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

(4011-454-39) (FIELDOPS.16) (02/28/91)

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

OU2-ALLUVIUM

HOLLOW STEM AUGER DRILLING FIELD ACTIVITIES REPORT

PROJECT NUMBER	4006
DATE	9-23-91
PROJECT NAME	OU2 Phase II Alluvial Drilling
BOREHOLE IDENTIFICATION	05391-MW
WEATHER CONDITIONS	Partly overcast, cool
RIG TYPE	Mobil B-57
DRILLING COMPANY/DRILLER	Ground Exploration / Darrel Connor
GEOLOGIST/ENGINEER	JP O'Brien
CREW MEMBERS	Bob Lahn, Bert LeeHosey
WATER LEVEL/TIME	None - Augers Sealed off Perched Zone (Start of Day)
TOTAL DEPTH	E.O.D. Water Saturated Recovery from 34-46' / 480
DECONTAMINATION	Liquinox wash, triple DI Water rinse, all sampling equipment
WASTE TYPES, VOLUMES AND DRUMS USED	See Drum Field Log, Soil cuttings, Bedrock cuttings. 28.0-40.0' Drum 0299WC 40-48' Drum 0308WC
DIAMETER OF BORING	6¼"
TYPE AND SIZE OF AUGERS AND BIT	Hollow Stem, 3¼" (ID) carbide
SAMPLING TYPES, DEPTHS	Bedrock-Alluvium contact, 347-349 BH00086WCU2
HAMMER SIZE	
DEPTH TO BEDROCK	34.8'
END-OF-DAY STATUS	Drilled To T.D. Augers in Hole & capped w/ Drill Bonnet
CHRONOLOGICAL RECORD OF ACTIVITIES	Wait on Radio's & for Decision To Be made on which Rig will get only working Bearing Assembly & Bonnet till 0825. @ 0920 Begin Intrusive Activity @ 1002 ~32.5' Bit on Augers is worn Down & unusable pull entire string (Drill) change

~~COMMENTS~~

Bit, Resume Hole @ 1102 @ 1155 Hit Bedrock Take sample BH00086WCU2 Drill Through 4' Bedrock Sand Horizon (38.85'-42.0') @ 1345, continue Drilling Through 4' Clay Horizon, then Back into clayey Silt - silty clay @ 1530 Note Grease on Downhole Equipment, origin unknown, Egress from Site 1600.

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

Tech Check
MRM 11-26-91

RFEDS
SAMPLE COLLECTION FORM

OU2-ALLUVIUM

Project Number 4006 EMAD Name EMAD
Sample Number BH00085WCU2 Type SB
North or Y East or X.
Boring Number 05391

Collection Date 9 /23 /91 Quarter ~~NO~~ 3 SSS 10 21 91 Dry ~~NO~~ ~~Y~~ NO
Collection Time 11 55
Sample Location –
Composite (Y/N)
Composite Desc –
QC Type RNS Partner BH00086WCU2
Collection Method. POUR Distilled H2O over split spoon Sample Barrel

Sample Team Leader J P. O'BRIEN
Member: BOB LAHN
Member
Volume Collected 80 Units ml
Prapared By J P O'BRIEN - BOB LAHN

Project Number 4006 EMAD Name EMAD
Sample Number BH00085WCU2

Boring
Rad Type Iudlum 12-1A OVM Type 580 B Equipment Number Iudlum 85337 OVM 32486-245

Depth of Take

START	END	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 SSS 11-9

RFEDS
SAMPLE COLLECTION FORM

OU2-ALLUVIUM

Project Number 4006 EMAD
Sample Number BH00086WCU2
North or Y
Boring Number Ø5391

Name EMAD
Type SB
East or X

Collection Date 9/23/91
Collection Time 11 55
Sample Location 347'-34.9'
Composite (Y/N)
Composite Desc N/A
QC Type REAL
Collection Method 8 OZ S.S. Liner in splitspoon.

Quarter ~~NO~~ 3 SSS 10 21 91
Dry ~~NO~~ ~~Y~~ NO
Partner BH00086WCU2 5 SSS 10-21-91

Sample Team Leader J P O'BRIEN
Member BOB LAHN
Member
Volume Collected ~~2~~ 8, 2 SSS 10-21-91
Units OZ, OZ
Prapared By J P O'BRIEN

Project Number 4006 EMAD
Sample Number BH00086WCU2

Name EMAD

Boring Ø5391
Rad Type 1 volum 12-1A OVM Type 580B
Equipment Number 1 volum 85337 OVM 32486-245

START		END		Depth of Take RECOVERY	OVM	RAD	USCS SOIL/ROCK TYPE
347'	FT	349	FT		Ø PPM	Ø CPM	GM/CL
	FT		FT		PPM	CPM	
	FT		FT		PPM	CPM	
	FT		FT		PPM	CPM	
	FT		FT		PPM	CPM	

Gen OVM 0
Gen Rad 0

Comments

Checked input SSS 10-21-91

CONTRACTOR Woodward-Clyde Fed Services SAMPLERS J.P. OBRIEN (RE-CHAIN) PROJECT 4006

SITE CONTACT/PHONE Kent Tombach (303) 966-5874 LAB/LOCATION IT Expert

C-O-C NUMBER WC02-II-E0011

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	PCB s/PEST - CLP	CLP TOTAL METALS(1)	CLP DISS METALS(1)	WATER QUALITY(2)	NO3/NO2 as N	Tot Phosphorus NH4	OIL & GREASE	Ortho-Phosphate	NO2	CYANIDE	TOC	DOC	H2S	Cr IV			
														VOA	VOA	BNA	PCB	CLP	CLP	WQ	NO3	TP	O&G	OP	NO2	CN	TOC	DOC	H2S	Cr			
														D	A					A	B	B	C	D	D	E	H		J	K			
														C	R						C			A	B								
9/27/91	1155	RMOORB WC02	0597		S				Y					X																			
			8 OZ LINER	1																													

RELINQUISHED BY	DATE/TIME		RECEIVED BY	DATE/TIME	
[illegible]	9/27/91	1305	[illegible]	9-27-91	1305
[illegible]	9-24-91	1700			

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

FED EX

SHIPMENT METHOD Cat 1

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		

PAGE

WOODWARD-CLYDE FEDERAL SERVICES

CONTRACTOR _____ SAMPLERS JP EPSIEN / RE LAHN PROJECT # 4006-163

SITE CONTACT/PHONE Kent Trimbach (303) 966-8874 LAB/LOCATION IT Rich

C-O-C NUMBER WCU2-IR008

EG&G ROCKY FLATS PLANT
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 REQUIRED	PRESERVATIVE: COOLED TO 4 C Y/N	Zn(C2H3O2)2	NAOH	HNO3	H2SO4	Na2S2O3																				
[illegible]	[illegible]	[illegible]	[illegible]	2 OZ AG	1	5					1																								
				2 OZ AG	1	5					1																								

RELINQUISHED BY	DATE/TIME		RECEIVED BY	DATE/TIME	
[illegible]	9/23/91	1265	[illegible]	9-23-91	1265
[illegible]	9-23-91	1700			

REMARKS This [illegible] all other samples

SHIPMENT METHOD PERSONAL DELIVERY

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

CONTRACTOR Woodward-Clyde Fed Services SAMPLERS T.P. OBIEN / RE LAHN PROJECT 4006

Kent Trimbach (303) 966-5874

SITE CONTACT/PHONE

LAB/LOCATION IT Export

C-O-C NUMBER WCUZ-IE0011

EG&G ROCKY FLATS, CHAIN OF CUSTODY

DATE/TIME		SAMPLE NUMBER	LOCATION	CONTAINER TYPE	NUMBER OF CONTAINERS	MEDIA SOIL(S) WATER(W)	FILTERED-E POT DISS P	TURN AROUND RUSH R	OUT OF SPEC REPORTS	COOLED TO 4°C	Zn(C2H3O2)2	NAOH	HNO3	H2SO4	VOA - CLP	VOA - SO2 2	BNA - CLP	PCBs/PEST - CLP	CLP TOTAL METALS(1)	CLP DISS. METALS(1)	WATER QUALITY (2)	NO3/NO2 as N	Tot. Phosphorus NH4	OIL & GREASE	Ortho-Phosphate	NO2	CYANIDE	TOC	DOC	H2S	Cr IV			
1/23/91	1155	BH00085WCUZ	0539 1	40 ML AG	2	W				Y					X																			

BOTTLE CODES / PRESERVATIVE

RELINQUISHED BY	DATE/TIME		RECEIVED BY	DATE/TIME	
[illegible]	1/23/91	1305	[illegible]	9-23-91	1305
[illegible]	9-24-91	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. I (Rinsate for BH00086WCUZ)