

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE HEALTH AND SAFETY PLAN ACCIDENT PREVENTION SAFETY PROGRAM PLAN INT. OPER. UNITS	Manual No.: Section No. Page: Effective Date: Organization: Environmental Restoration Mgmt	RFP/ERM-94-00019 Table of Contents, R1 1 of 1 1/12/95
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**TABLE OF CONTENTS
HEALTH AND SAFETY PLAN
ACCIDENT PREVENTION SAFETY PROGRAM PLAN
INTEGRATED OPERABLE UNITS**

Section No.	Title	Rev. No.	Effective Date
	Detailed Table of Contents	0	11/04/94
•95-DMR-ERM-0004	Personnel and Site Condition Changes to OU9 Affects sections 2,5,6,7,8,9,10,APPC	0	1/12/95
1.0	Introduction	0	11/04/94
2.0	Health and Safety Personnel	0	11/04/94
3.0	Facility Characteristics	0	11/04/94
4.0	General Health and Safety Requirements	0	11/04/94
5.0	Hazard Evaluation	0	11/04/94
6.0	Personnel and Air Monitoring	0	11/04/94
7.0	Work Zone	0	11/04/94
8.0	Personal Protective Equipment	0	11/04/94
9.0	Decontamination Procedures	0	11/04/94
10.0	Emergency Response Plan	0	11/04/94
11.0	Logs, Reports, and Record Keeping	0	11/04/94
12.0	References	0	11/04/94
APPA	Appendix A: Personal Protective Equipment and Monitoring Requirements	0	11/04/94
APPB	Appendix B: Jacobs' Medical Surveillance Procedures	0	11/04/94
APPC	Appendix C: Jacobs Engineering Group Standard Operating Procedures	0	11/04/94

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1. Date 12/9/94	25. DMR. No. 94-DMR <i>ERM-0004</i> <i>Am 1/9/95</i>
3. New Document Number or Document Number if it is to be changed with this Revision N/A	
4. Document Title Integrated Operable Units, Health & Safety Plan	

Existing Document Number/Revision
RFP/ERM-94-00019

4. Originator's Name/Phone/Page/Location
6659 / 5472 / 080

6. Document Type Procedure Other *H&S Plan*

7. Document Modification Type (Check only one)
 New Revision Intent Change Nonintent Change Editorial Correction Cancellation

8. Item	9. Page	10. Step	11. Proposed Modifications
1	2-2	F2-1	Change names as shown on revised F2-1. OU9 Project Manager is John Zimmerman, Field Team Leader is Simon Bell, H&S Coordinator is Lisa Nelower. OU14 Project Manager is Bill Fieselman, HSS's are David Spruce, Tom Waddel.
2	Sec. 6 p.4	6.3	Delete 1st two sentences of Personal Sampling paragraph. Modify third sentence to read as follows "Personal sampling will be conducted only when Level C action Levels are reached with direct reading instruments or when otherwise noted in Appendix A."
3	Sec. 6 p.7	6.4.4	Insert new first sentence: "Personal sampling will only be performed when directed to by EG&G Radiological Engineering."
4	Sec. 6 p.8	6.4.6	Insert new first sentence: "Ambient air sampling for airborne alpha radioactivity will only be performed when directed to by EG&G Radiological Engineering or if action levels for dust are exceeded in an RCA."
5	Sec. 5 p. 42	5.5.9.1	Delete the word "strenuous" from the first sentence of "Heat Stress Monitoring and Work Cycle management." Delete "even if workers are not wearing impervious clothing." Delete "and body water loss" from 2nd paragraph under "Heat Stress Monitoring . . ." Change "oral temperature" to "oral or ear canal temperature."
6	Sec 6 p. 3	6.3	Delete paragraph 6, " The fact that contaminants are listed . . ."

12. Justification (Reason for Modification, EJO#, TP#, etc.)
 Incorporating changes to improve compliance with 29CFR1910.120, and reflect current personnel and site conditions.

If modification is for a new procedure or a revision, list concurring disciplines in Block 13, and enter N/A in Blocks 14 and 15. If modification is for any type of change or a cancellation, organizations are listed in Block 13, then Concuror prints, and signs in Block 14, and dates in Block 15.

13. Organization	14. Print and Sign (if applicable)	15. Date (if applicable)
EOM	K. D. Anderson <i>[Signature]</i>	12/22/94
RE	D. Hyder <i>[Signature]</i>	12/22/94
IH	M. D. Schreckengast <i>[Signature]</i>	12/22/94
IA OU	B. D. Peterman <i>[Signature]</i>	12/22/94
OH	R. S. LUKER <i>[Signature]</i>	1/9/95

16. Originator's Supervisor (print, sign, date)
 Bruce D. Peterman *[Signature]* B.D. Peterman 12/22/94

17. Assigned SME/Phone/Page/Location
 Craig Cowdery/6953/5466/080 *[Signature]*

18. Cost Center 3113

19. Charge Number 96903600

20. Requested Completion Date 1/9/95

21. Effective Date 1/12/95

22. Accelerated Review? Yes No

23. ORC Review *N/A*

4. Responsible Manager (print, sign, date)
 Craig Cowdery *[Signature]* 12/22/94

Received for Dist. at 3:40 1/9/95

REVIEWED FOR CLASSIFICATION/UCN/ BY _____ NA
 DATE _____ NA

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25. 95-DMR-ERM-000
DMR. No. ~~94 DMR~~

Jan 1/9/95

2. or 3. Document Number/Revision RFP/ERM-94-00019		3. Document Title Integrated Operable Units, Health & Safety Plan	
8. Item	9. Page	10. Step	11. Proposed Modifications
7	Sec. 9 p.2	9.1.1	Change "dispose of glove" to "dispose of outer gloves" Add bullet after "Remove respirator bullet" to read "Remove and dispose of inner gloves."
8	Sec. 8 p.2	8.1.1	Change first paragraph to read "For activities to be conducted under this plan, personnel will wear Level D as defined in Section 8.1.3." Delete paragraphs 2 and 3
9	Sec. 8 p.5	8.1.3	Add bullet after dosimeter badge bullet to read "nitrile gloves if hand contact with potentially contaminated materials is likely."
10	Sec. 5 p.14	5.2.2	Integrate new chemicals as shown into Section 5.2.2 alphabetically.
11	Sec. 5 p.2	5.2 Table 5-1	Integrate new chemicals as shown into Table 5-1 chemical Exposure Hazard Summary alphabetically.
12	Sec. 5 p.38	5.5.3	Change "Utility clearance will be completed before work begins..." to "Utility clearance will be completed by the client before work begins..."
13	Sec. 5 p.38	5.5.3	Change (SOP 7.7) to read SOP 7.7a
14	Sec. 5 p.38	5.5.3	Delete "which uses hand-augering to confirm the absence of buried utilities." Change the last sentence to read "A copy of Jacobs' SOP 7.7a is provided in Appendix C"
15	Appendix C	SOP 7.7	Delete SOP 7.7, add new SOP 7.7a Utility Clearance at Rocky Flats Plan (7 pages).
16	Sec. 7 p.4	7.1.5	The fourth bullet will read as follows: "All visitors will receive a site specific safety briefing, and will be escorted at all times. Visitors in areas requiring Level A, B or C PPE must have the equivalent training and PPE as the onsite worker to gain entry."
17	Sec. 7 p.4	7.1.5	Add bullet after above statement that reads, "Visitors in areas requiring Level D PPE must have Level D PPE, receive a site specific safety briefing, and will be escorted at all times."
18	Sec. 7 p.4	7.1.5	Add paragraph/sentence after "All site visitor access must be clearly documented..." bullet to read "If visitor does not supply current documentation but insists that he/she enters area, the following actions are to be taken:"
19	Sec. 7 p.4	7.1.5	Add bullet after above new statement to read, "On site HSS or HSST will shut down activities, secure area by monitoring with instrumentation, and contact HSO/HSS or Site Manager."
20	Sec. 7 pg.5	7.2	Is first sentence delete "heavy equipment or"
21	Sec. 6 p.4	6.3	Add new text to end of <u>Action Levels</u> paragraph: <u>When</u> action levels are reached which, according to Appendix A, require "evacuation and reevaluation," site workers must move to an area where direct reading instrumentation shows airborne concentrations are below the action levels of concern. The HSS/HSST must contact the Health & Safety Coordinator to determine further action.

Refer to 1-A01-PPG-001 for Processing Instructions.
 Print or Type All Information (Except Signatures)

25. 95-DMR-ERM-0004
 DMR. No. ~~94-DMR~~ June 1/9/94

2. Document Number/Revision
 RFP/ERM-94-00019

3. Document Title
 Integrated Operable Units. Health & Safety Plan

8. Item	9. Page	10. Step	11. Proposed Modifications
22	Sec. 6 p.2	6.3	Add to end of 1st paragraph: "All monitoring will be in the breathing zone unless otherwise specified in Appendix A."
23	Sec. 10 p. 2	10.2.1	Add EG&G Operations Manager Representative. Change "Kent Mahana" to "Lisa Nelowet."
24	Sec. 10 p. 3	10.2.1	Add EG&G Operations Manager Representative.
25	Sec. 10 p. 8	10.3.1	Add Operations Manager Representative, as listed in Tables 10-1, 10-2, must be notified of any unplanned releases.
26	Sec. 10 p. 9	10.3.2	Change "Kent Mahana" to "Lisa Nelowet"
27	Sec. 5 p. 5-31	T5-4	Modify as shown.
28	Sec. 6 p. 3	6.3	Replace "every 15 minutes" to "whenever site conditions change" in first paragraph.
29		F7-1	Delete figure
30	Sec. 7 p. 5	7.2.1	Delete 1st sentence.

12. Justification (Reason for Modification, EIO#, TP#, etc.)

TABLE OF CONTENTS

(Continued)

	Page
10.4.4 First-Aid Register	10-11
10.4.5 Vehicle Accident Reporting Procedure	10-11
10.5 ROCKY FLATS PLANT REPORTING PROCEDURE	10-11
11.0 LOGS, REPORTS, AND RECORD KEEPING	11-1
11.1 HEALTH AND SAFETY LOGBOOK	11-1
11.2 CALIBRATION LOGS	11-1
12.0 REFERENCES	12-1

List of Figures

Figure 2-1	Integrated OU Project Organization Chart Rocky Flats Plant	2-2
Figure 3-1	Rocky Flats Plant - Location Map	3-2
Figure 3-2	Rocky Flats Plant - General Map	3-3
Figure 3-3	Rocky Flats Plant Building Location Map	3-5
Figure 7-1	Typical Site Control Layout	7-6

List of Tables

Table 3-1	Summary of Nonintrusive Activities by Integrated Operable Units and Individual Hazardous Substance Sites	3-10
Table 5-1	Chemical Exposure Hazard Summary	5-2
Table 5-2	Integrated Operable Unit Location and Hazard Summary by Individual Hazardous Substance Site	5-4
Table 5-3	Radionuclides	5-12
Table 5-4	Asphalt and Concrete Removal and Sampling	5-31
Table 5-5	Polychlorinated Biphenyl Sampling	5-32

TABLE OF CONTENTS

(Continued)

	Page
Table 5-6 Polychlorinated Biphenyl Sampling	5-33
Table 5-7 Soil-Gas Survey	5-35
Table 5-8 Surface Water and Sediment Sampling	5-36
Table 6-1 Survey Instrumentation	6-6
Table 9-1 Radioactive Contamination Limits	9-3
Table 10-1 Emergency Telephone Numbers - Fieldwork	10-2
Table 10-2 Pager Numbers	10-3

List of Appendices

APPENDIX A Personal Protective Equipment and Monitoring Requirements

APPENDIX B Jacobs' Medical Surveillance Procedures

APPENDIX C Jacobs Engineering Group Standard Operating Procedures

LIST OF EFFECTIVE PAGES

<u>Pages</u>	<u>Effective Pages</u>	<u>Change Number</u>
TOC: viii	1/12/95	95-DMR-ERM-0004
Section 5: 1-59	1/12/95	95-DMR-ERM-0004
Section 6: 2-4, 7-8	1/12/95	95-DMR-ERM-0004
Section 7: 4-5	1/12/95	95-DMR-ERM-0004
Section 8: 2, 5	1/12/95	95-DMR-ERM-0004
Section 9: 2	1/12/95	95-DMR-ERM-0004
Section 10: 2-3, 8-9	1/12/95	95-DMR-ERM-0004
Appendix C: SOP 7.7a	1/12/95	95-DMR-ERM-0004

recorded includes type of instrument, manufacturer and serial number, calibration standard used and lot number or other unique identifier, initial readings, adjustments made, and final reading. A copy of Jacobs' instrument calibration form is included in Appendix C.

2. Calibration standards will be traceable to a National Institute of Standards and Technology primary standard or be a recognized primary standard. Copies of calibration standard certificates will be maintained at the project site.

6.3 AMBIENT AIR AND PERSONAL MONITORING

Ambient air monitoring and personal sampling will be conducted during activities covered by the HSP. This monitoring will be used to document employee exposure and provide a reference for future activities. All monitoring will be in the breathing zone unless otherwise specified in Appendix A.

Ambient Monitoring Methods. Ambient air monitoring for nonradioactive contaminants will be conducted for activities covered by this plan using calorimetric tubes, a photoionization detector (PID), and a real-time dust monitor.

A PID using an 11.7 electron volt (eV) lamp in the total response mode will be used to monitor sites as presented in Appendix A. Upon arrival at a work site, the PID will be zeroed relative to ultra zero air. After the PID has been zeroed, a background reading will be taken upwind of the work site. Additional measurements will be taken at the work site with each soil or soil-gas sample collected. If an action level, as defined in Appendix A, is reached, readings will be monitored continuously. Background readings will be repeated whenever weather or wind direction changes. A sustained reading in the breathing zone is defined here as a reading measured using the PID where air is being inhaled over a five-minute interval.

95-DMR-2-ERM-0004

95-DMR-ERM-0004
Colorimetric tubes will be used at each IHSS, as outlined in Appendix A, after an action level is reached with real-time instrumentation or if free liquids are observed. When colorimetric tubes are required, an upwind sample will be collected for each contaminant and be recorded as the background. Additional measurements will be obtained at the work site with each soil sample collected. If an action level is reached, additional measurements will be taken whenever site conditions change. Background measurements will be repeated if weather conditions or wind direction change. If no compounds are detected by photoionization, and personal sampling results provide no indication of overexposure, colorimetric tubes will not be used.

Real-time dust monitoring will be conducted at all work sites to determine background particulate levels and monitor particulate resuspension as work is conducted. Readings will be measured at the worker breathing zone. Many particulate contaminants at individual IHSSs are designated to be monitored by a real-time aerosol monitor (MIE Mini-ram) in Appendix A. Action levels for dust monitoring are based on a nuisance dust standard of 10 mg/m³. For Level D activities, concentrations of 25 percent of the standard (2.5 mg/m³) are allowed, up to 50 percent (less than 5 mg/m³) for Level C, and for concentrations in excess of 50 percent (>5 mg/m³) Level B will be used. Action levels are based on the average concentration obtained during a five-minute sampling period. Upon arrival at a site, a background reading will be obtained from an upwind location. Additional measurements will be collected upon arrival at the work site and with each sample taken during sampling activities. If an action level is reached, readings will be measured continuously.

Action Levels for Suspect Contaminants. Action levels for nonradioactive contaminants are established by individual IHSS and documented in Appendix A. In setting the levels for which contaminants are known and for which specific monitoring methods are available, the PEL or ACGIH threshold limit value (TLV) for a contaminant was used as the action level for Level C protection. Maximum use concentrations for Level C work were determined by multiplying the action level by a respiratory protection factor. A conservative factor of 10 was used for full-face respirators. Additional considerations include availability and service limits of air-purifying cartridges for a given contaminant. Where cartridges are unavailable or contaminant levels exceed service limits, demobilization or transition from Level D modified to Level B will be required.

95-DMR-ERM-0004
When action levels are reached which, according to Appendix A, require "evacuation and reevaluation," site workers must move to an area where direct reading instrumentation shows airborne concentrations are below the action levels of concern. The HSS/HSST must contact the Health & Safety Coordinator to determine further action.

95-DMR-ERM-0004
Documentation. All monitoring results and other pertinent actions will be recorded in the Health and Safety Officer's field logbook. In addition, each instrument's name, model, serial number, and site conditions will be recorded once before the first entry of monitoring results.

95-DMR-ERM-0004
Personal Sampling. Personal sampling will be conducted only when Level C action levels are reached with direct reading instruments or when otherwise noted in Appendix A. Sampling results will be used to determine personnel exposure and revise monitoring requirements. Where mixtures of chemicals are detected, the computational formula for mixed contaminants will be used to assess exposure. Where results indicate no detected overexposure, sampling will be discontinued for that contaminant. An action level of 50 percent of the TWA

Table 6-1
Survey Instrumentation

Instrument	Target Radiation
Ludlum 12-1A with Air Proportional Probe	Alpha Contamination
Ludlum 31 or 12 Count Rate Meter with Pancake Detector, 44-9 Probe	Beta/Gamma

As covered by the EMRG, the front and back, feet, and boots of personnel will be monitored by moving the detectors over outer clothing and exposed skin areas at a rate not to exceed 2 inches per second. Clothing contaminated with radioactivity exceeding 300 disintegrations per minute (dpm)/100 cm² alpha (detected by Ludlum 12-1A) or 100 cpm/beta gamma above background (detected by Ludlum 31/12) will be considered contaminated.

In the event that personnel contamination is detected, field decontamination will be attempted as outlined in Section 9.1, Personnel Decontamination. If contamination is detected, Jacobs' personnel will maintain the site zone boundaries and notify the ERHSO, EG&G Radiological Engineering, and EG&G Contractor's Technical Representative. All radiological occurrences will be documented in accordance with EMRG 10.1, Radiological Deficiency Reporting Program.

6.4.4 Personal Sampling for Airborne Activity

Personal sampling will only be performed when directed to by EG&G Radiological Engineering. Representative personal sampling from each field team working in radiologically contaminated areas (greater than or equal to 25 percent of personnel) will be conducted for airborne alpha radioactivity using Jacobs' Radiological Operations Procedure (ROP) 10.02, Personal Air Particulate Sampling. A type A-E, glass fiber filter will be used to collect airborne particulates. At the end of the shift, the filter will be removed and counted in accordance with Jacobs ROP 10.03, Performance Check and Operation of Alpha Smear/Filter Counting Instrumentation. The

95-DMK-ERM-0004

resulting data will be compared with the derived air concentration that is the most conservative for the contaminants suspected of being present to gauge employee exposure. Derived air concentrations for suspect contaminants are given in DOE 5480.11. Sampling results equal to or greater than 10 percent of the Derived Air Concentration (DAC) will be reported to the ERHSO. After the first five samples are analyzed, a review of the data will be conducted to make a determination whether to continue to monitor for airborne alpha radioactivity. If the levels are below the guidelines stated in Jacobs' ROP 10.02, the monitoring will be discontinued.

6.4.5 External Dosimetry

Jacobs' employees and subcontractors will participate in the EG&G Rocky Flats External Dosimetry Program as outlined in HSP 18.07, External Radiation Dosimetry. Jacobs' personnel will wear EG&G-supplied thermoluminescent dosimeters while in the field to assess beta, gamma, neutron, and X-ray exposure while working at Rocky Flats. When not in use, they will be kept on a board within the support trailers. Dosimeters will be exchanged quarterly.

6.4.6 Ambient Air Monitoring for Radionuclides

Ambient air sampling for airborne alpha radioactivity will only be performed when directed to by EG&G Radiological Engineering, or if dust action levels are exceeded in an RCA. Ambient air sampling for airborne alpha radioactivity will be conducted when required with high-volume air samplers using Jacobs' ROP 10.01, High Volume Air Particulate Sampling. Samples will be counted in accordance with Jacobs' ROP 10.03. Grab samples will be collected in the immediate vicinity of work being performed during each shift to determine 1) whether the area is an airborne radioactivity area requiring additional work controls and 2) if personal breathing-zone air sampling is necessary to assess the worker's intake of airborne radioactive materials. In accordance with the protocol for personal sampling in Section 6.4.4, high-volume sample results will be compared with the most conservative derived air concentrations given in DOE 5480.11, and results greater than 10 percent DAC will be reported to the ERHSO. Depending on adjacent IHSS logistics, radionuclide air monitoring locations may be chosen to represent more than one IHSS.

95-DMA-ERM-0004