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RESPONSIVENESS SUMMARY

FOR
THE FINAL
INTERIM MEASURES/
INTERIM REMEDIAL ACTION
DECISION DOCUMENT FOR
THE ROCKY FLATS INDUSTRIAL AREA

U.S. DEPARTMENT OF ENERGY
Rocky Flats Plant
Golden, Colorado

ADMIN RECORD

November 1994

DOCUMENT CLASSIFICATION
REVIEW WAIVER PER
CLASSIFICATION OFFICE

ENVIRONMENTAL RESTORATION PROGRAM

A-OU10-000269

Section 1

Introduction

Section 1

Introduction

This document presents the Final Responsiveness Summary (RS) for the Interim Measures/Interim Remedial Action Decision Document (IM/IRA/DD) for the Rocky Flats Plant (RFP) Industrial Area. The IM/IRA/DD and Final RS were prepared in accordance with the Rocky Flats Plant Interagency Agreement, dated January 22, 1991, and applicable regulatory guidance documents. Comments from the U.S. Environmental Protection Agency (EPA) and Colorado Department of Health (CDH) were incorporated throughout the development of the decision document and the Final RS.

Generally, the IM/IRA/DD is based on environmental information collected, compiled, and reviewed from October 1993 through February 1994. New information and program changes that were identified after February 1994 have not been incorporated into the IM/IRA/DD; therefore, references to Rocky Flats Environmental Technology Site, Colorado Department of Public Health and Environment, and other recent changes are not reflected in the decision document nor in the responses to public comments.

The IM/IRA process is used at RFP as a means for rapidly completing remedial actions by reducing or eliminating a potential threat to human health and the environment. The term IM/IRA is a combination of the terminology used for both Resource Conservation and Recovery Act (RCRA) and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) environmental investigation and cleanup programs. The IM/IRA/DD for the Industrial Area presents the IM/IRA verification monitoring for Decontamination and Decommissioning (D&D) activities. D&D is primarily concerned with decontamination, dismantling, removal, or entombment of surplus nuclear facilities and portions of these facilities.

The objective of the IM/IRA/DD is to maintain a safety net around the Industrial Area to monitor for and respond to potential inadvertent contaminant releases until and during D&D and other nonroutine activities. The IM/IRA/DD describes verification monitoring for the primary pathways of concern during D&D activities and source investigation procedures that will be instituted in the event that a release is detected. Potential contaminant transport pathways and mechanisms were reviewed to assess the current monitoring system's capability to detect potential contamination before it is transported past the Industrial Area fenceline. Contaminants of potential concern and transport pathways were identified to evaluate the current monitoring system for spatial distribution of monitoring locations, locations relative to contaminant pathways, monitoring frequency, and adequacy of analytical testing parameters.

The purpose of this Final RS is to present comments that were made by the regulatory agencies and the public during the public comment period based on review of the IM/IRA/DD and responses to these comments. The IM/IRA/DD public review period was

August 28, 1994 through October 27, 1994. A series of presentations were made to provide information about the IM/IRA/DD to the public. These presentations included the following:

- August 23: General concept of the IM/IRA/DD presented to the Technical Review Group;

- September 21: Overview of the IM/IRA/DD presented at the Quarterly Public Information Meeting on Environmental Restoration activities;

- September 28: Overview of the IM/IRA/DD presented to the cities at the Monthly Surface Water Issues Meeting; and

- October 19: Overview of the IM/IRA/DD presented at the Rocky Flats Monthly Public Information Meeting, including accepting verbal and written comments from the public.

This Final RS presents the public's verbal and written comments and responses to public comments that were collected throughout the public comment period (August 28, 1994 to October 27, 1994).

Section 2

Response to Public Comments

Section 2

Response to Public Comments

Colorado Department of Public Health and Environment:

Comment 1

Appendix 3.8: This needs to be revised to accurately reflect which units are permitted. The Division considers the term "permitted" to refer to those regulated units which are contained in the existing state RCRA Part B Permit for Rocky Flats. This is limited to container storage areas only. There are no permitted storage tanks (PST) or permitted treatment areas (PTA). We do not consider units that have interim status to be "permitted", and the appendix must be updated accordingly. As currently shown, the appendix implies the majority of units at Rocky Flats are permitted; this is both untrue and misleading.

Response to Comment 1

The title to Appendix 3.8 will be revised from "Industrial Area IM/IRA/DD Permitted Storage Units" to "Industrial Area IM/IRA/DD RCRA-Regulated Storage and Treatment Units" to more accurately reflect the regulatory status of such units at Rocky Flats. The unit type column in the table comprising Appendix 3.8 will also be revised by removing any reference to permitted status so that any misleading information regarding the current status of specific units is eliminated.

Comment 2

Figure 4-4: All the wells in the vicinity of the solar ponds have been omitted. They were on Figure 4-4 in the preliminary document, and several showed significantly elevated contaminant levels. Is there a good reason why they were left out of this version?

Response to Comment 2

This change was made for consistency of wells shown in Figures 4-4 and 4-5. Also, the wells in the vicinity of the Solar Ponds had been eliminated from Figure 4-4 because the analytical suite for these wells was limited, compared to that for the other wells.

We agree that the figure was more complete as it appeared in the preliminary document. The wells and selected analytical results for the Solar Pond wells will be added to Figure 4-4; Table 4-8 will be changed to Table 4-8A, and an additional table presenting the complete results for the Solar Pond wells will be added as Table 4-8B.

Comment 3

Plate 4-1 is very busy and makes finding the locations of the 11 proposed new wells very difficult. A separate drawing, similar to Figure 4-6 of the preliminary document (but not included in this version), needs to be reinserted.

Response to Comment 3

A separate plate to present 11 monitoring wells is probably unnecessary, and locating the wells on an 8 1/2 by 11-inch or 11 by 17-inch figure would be imprecise. The 11 well symbols on Plate 4-1 will be changed to make them more easily visible to the reader.

Comment 4

Section 4.7.3: What is a well point? The term is never defined.

Response to Comment 4

A well point consists of a continuous-slot stainless-steel well screen that is connected to a forged-steel point, which is pushed or driven into the ground to a depth that intercepts the water table. Well points are recommended in this case because they (1) are a relatively inexpensive way to obtain groundwater samples and water-level measurements, (2) do not produce drill cuttings, and (3) are easily abandoned when no longer needed.

A paragraph will be added to Section 4.7.3 as follows: "A well point consists of a slotted stainless-steel well screen attached to a steel point on the lower end and threaded pipe shank on the upper end. The well point is pushed or driven into the ground to a depth encountering groundwater."

A sentence will be added to the first paragraph stating: "All well points will be installed according to standard operating procedure (SOP) GT.6, Revision 2 - Monitoring Well and Piezometer Installation."

Comment 5

Section 5.3.2: The OU2 surface water information is outdated. Collection of SW-61 and SW-132 were discontinued earlier this spring.

Response to Comment 5

Section 5.3.2 (page 5-17) has been changed to, "Historically, the OU2 IM/IRA surface water from SW059, SW061, and SW132 was collected for treatment. Monitoring for SW061 and SW132 have since been eliminated under OU2. SW059, which is associated with an active seep/spring in the South Walnut Creek Basin, is still a current monitoring site. SW061 was located at the outlet of a concrete culvert. SW132 was located at a buried corrugated metal culvert approximately 225 feet downgradient of SW061. The surface water sample that was collected at SW061 and SW132 (and is currently being collected at SW059) was located upstream of the B-series ponds. The purpose of the upstream location was to reduce the potential for further downstream contamination. A treatment system consisting of a chemical precipitation/cross-flow membrane filtration system was installed by OU2 to remove heavy metals, radionuclides, and VOCs from the seeps (DOE 1992a)." The last two sentences were eliminated from the text.

Comment 6

Sections 5.5.1 and 5.5.2: The data needs identified for base flow and storm conditions are missing the establishment of a mass balance for pollutant loading. Again, these data needs were identified in the preliminary draft but omitted here.

Response to Comment 6

Warning limits that will be used by the surface water verification monitoring program will be based on chemical concentrations and not on chemical mass loadings. The perimeter outfall and subbasin locations will have equipment necessary to determine mass loadings (automatic sampler interfaced with a flow meter). However, it is not known if historical water quality data, which could be used to establish baseline and warning limit conditions, have appropriate and corresponding stream flow data. It is anticipated that much of the Industrial Area outfall data will lack the needed stream flow information because regulatory standards and requirements are based primarily upon chemical concentrations and not mass. Chemical mass balance evaluations (chemical mass inputs versus mass outputs) do not meet the monitoring objectives of this Industrial Area IM/IRA.

Comment 7

Section 5.7: The proposed actions for surface water differ significantly from those found in the preliminary document. The primary focus of the preliminary program was to install new surface water sampling locations at the boundary of the 28 drainage sub-basins. The approach put forth in this document falls far short of that goal. Section 5.7.1 presents a stormwater monitoring program at 6 outfalls that are already being, or already have been monitored as part of the NPDES stormwater requirements; this wasn't even in the original proposal. Additionally, the analytical requirements have been pared down from the entire

RFP analyte list to only the NPDES analyte list, which is likely to be too limited to detect COPCs of interest. Section 5.7.2 contains the sub-basin approach, but is scaled down from the original version. The language in Section 5.7.3 is so weak that implementation is not enforceable ("confirmation monitoring *may* be performed....a seep monitoring program *may* be implemented"). We spent much time eliminating language of this nature from the preliminary document.

Response to Comment 7

The subbasin concept presented in the Draft Final IM/IRA/DD has not changed since the development of the preliminary draft and is consistent with the verification monitoring objectives. The proposed actions in the draft final version, which are put into a different text format than the preliminary draft, go into detail about the subbasin monitoring approach. The subbasin monitoring approach is critical to monitoring surface water because it will be much closer to the potential source area during D&D.

Perhaps the point of confusion lies with when the subbasins will be monitored. There are 28 subbasins within the seven main drainage basins that make up the Industrial Area. The specific subbasin monitoring activity to establish baseline conditions will occur only when a D&D activity has been scheduled that could affect a specific subbasin. It was never the intent to establish baseline conditions for all 28 subbasins at the same time.

The use of the previous National Pollutant Discharge Elimination System (NPDES) stormwater outfalls will provide an additional layer of surface water monitoring. This monitoring was not conceptualized during the development of the preliminary draft. By using historical data and data collected for baseline establishment, the former NPDES outfall sampling locations and several culverts will have warning and control limits developed before D&D. As with the subbasin approach, observed concentrations of COPCs will be compared with preestablished warning limits to detect potential releases from D&D operations and initiate appropriate response actions.

For subbasin monitoring, the analytical requirements have been refined to develop a cost-effective monitoring program that uses indicator chemical/physical parameters (pH, electrical conductivity, and flow) in conjunction with COPCs associated with that particular area or building undergoing D&D. This information is presented in Section 5.7.2, beginning on page 5-61. At the drainage basin outfall locations (the previous NPDES stormwater sampling locations) and in selected culverts, the analyte list will include the NPDES stormwater listing of chemicals (Table 5-4). In addition, other potential analytes that could be released from the nonroutine/D&D activities will be included in this list (page 5-60). The NPDES stormwater list of analytes will be expanded on a site-by-site basis, based on (1) COPCs historically released, (2) process knowledge, (3) COPCs identified during building characterization, and (4) other available information.

The proposed actions for the seeps, detailed in Section 5.7.3, represent a phased approach. The terminology "may be" was used to indicate activities that will be conducted, if necessary. It is possible that after performing the data review of the seeps/springs, described

in the first bullet in this section, and investigating the potential sources of the seeps, it will be concluded that confirmation monitoring of seeps is needed.

Section 1.0 (first paragraph) will be changed to include the following: "The U.S. Department of Energy's Environmental Restoration Division Rocky Flats will be responsible for the implementation of the proposed actions detailed in this decision document. An annual Industrial Area IM/IRA program status report will be developed by DOE, followed by a technical meeting with CDH and EPA to discuss program performance and future monitoring activities." The status report will be due on the anniversary of the approval of the Final IM/IRA/DD.

Comment 8

Section 7.3.3: The CDIW analyte list (Appendix 7.2) is too limited. Chart B (Figure 7-5) is a step in the right direction, because it at least considers determining if the water is a hazardous waste.

Response to Comment 8

The CDIW analyte list addresses the analysis of incidental waters. Incidental waters are waters that accumulate in valve vaults, utility vaults, building sumps, or above-ground tank containment areas from precipitation. The current analyte list for the CDIW is very basic and is used in areas where the incidental water quality conditions have been well characterized. This characterization includes the following analyses: metals, volatiles, semivolatiles, and radionuclides. For foundation drains and uncharacterized incidental waters, the analyte list is much more extensive than the CDIW listing (see Table 7-8). This extensive list of chemical parameters was created by referencing acceptance criteria for three disposition options in the Industrial Area: (1) direct surface water discharge, (2) wastewater treatment discharge, or (3) onsite treatment systems. Figures 7-12 and 7-13 detail the water disposition logic and acceptance criteria.

Initial chemical information can be gained from field monitoring instrumentation. An organic vapor analyzer (OVA) or HNu monitor, normally used for health and safety screening, will be used for gross indications of volatile organics in many incidental water locations if volatile organics are expected. This field data will be referenced, when available, in assessing initial concentrations of volatile chemicals at incidental water locations.

Comment 9

Section 7.4: The discussion of the existing water process capabilities is satisfactory. However, one point that jumps out at the reader is the lack of any facility's ability to treat water containing significant levels of the most common chlorinated VOCs found at RFETS: carbon tetrachloride, chloroform, vinyl chloride, TCE, etc. If the OU1 UV/peroxide system, a treatment technology designed specifically to destroy such compounds, is unable

in its current configuration to treat more than 5 parts per billion of influent carbon tetrachloride (which is below the current *effluent* levels), then it should be obvious that the system needs to be upgraded. Tailoring the UV system with different lamps is a simple and inexpensive fix.

Response to Comment 9

We agree that onsite treatment systems need to be upgraded. Rocky Flats is currently investigating upgrades for each treatment facility. A discussion of these investigations was not included in the scope of this project.

Comment 10

Section 7.6.2: Along the theme of comment #9 above, the dispositional strategy presented in Figures 7-12 and 7-13 is worrisome. It suggests routing contaminated incidental waters to the sewage treatment plant first. There is a basic flaw in this logic: why is a plant that is designed to treat primarily sewage more effective in handling hazardous constituents than other facilities that were designed especially for them? The Division understands that the OU1, OU2 and 374 facilities were designed for known contaminants at known levels and may not be currently capable of handling the wide range of potential contaminants in incidental waters. Nevertheless, we feel it would be more appropriate to consolidate the treatment capabilities (as DOE is considering) and spend the money to retrofit existing hardware to achieve better hazardous waste treatment capability. It appears to the Division a given that modification to existing water treatment facilities is needed.

We recognize that updating the existing treatment capabilities may be viewed as being outside the scope of this document. Arguments have been forwarded that the OU1 and OU2 facilities have specific missions. However, these missions are changing as the agencies authorize discontinuing treatment of certain influent sources, freeing up significant capacities. Ownership and responsibilities for these newly available facilities can be shaped as needed. As the vehicle to disposition incidental waters across the plantsite, this IM/IRA has the ability to define a new charter for these facilities. DOE should take the opportunity to do so.

Response to Comment 10

Figures 7-12 and 7-13 are incidental/foundation water treatment decision flow diagrams. The logic flow of these diagrams is described below and in Tables 7-9 and 7-10. The first step of these decision flow diagrams is to determine if the incidental/foundation water, after being characterized, meets surface water discharge standards. If the incidental/foundation waters do meet surface discharge standards, then the waters can be discharged to the storm drainage. If the incidental/foundation waters do not meet surface discharge standards, the next step is to move to the next decision block, the WWTP. If the incidental/foundation waters do meet the acceptance criteria for the WWTP, water can be routed to the WWTP for treatment. If the incidental/foundation waters do not meet the acceptance criteria for the WWTP, the next step is to move to the next decision block, OU1 treatment facility. These

steps will be followed through the flow diagram. As stated in the acceptance criteria for the WWTP in Section 7.4, the WWTP will not accept hazardous material.

We agree that it might be more appropriate to consolidate the treatment capabilities and spend the money to retrofit existing hardware to achieve better hazardous waste treatment capability. Rocky Flats is moving in this direction as addressed in the response to comment 9.

The purpose of Figures 7-12 and 7-13 is to provide a treatment decision flow diagram for treatment of incidental/foundation waters. The development of these treatment decision flow diagrams was based on current onsite treatment facility capabilities and not on treatment facility capacity, ownership, and responsibility. We believe that this document does provide a new charter for the onsite treatment facilities, where waste will be accepted based on volume and acceptance criteria and not on the point of origin.

Comment 11

Section 9.4: Establishment of baseline conditions using control chart statistics is sound for normally distributed data. However, environmental data at or near analytical detection limits is rarely normally distributed. The text does not recommend a method of calculating warning limits for non-normally distributed data.

Response to Comment 11

As noted in the paragraph titled Distribution on pages 9-34 and 9-35, appropriate formulas will be used to calculate warning limits if the data are distributed nonnormally. If the data are distributed lognormally, logarithms of the data will be used in the standard formulas (Gilbert 1987). If the data appear to be drawn from some other distribution, the appropriate data transformations or modifications to the formulas will be made.

In the paragraph titled Nondetect Concentrations on page 9-35, the text states that the baseline data set and toxicity of the COPCs will be evaluated to determine the most appropriate method to address nondetections. If a COPC is detected occasionally in the baseline data, but is most often below the detection level, the baseline distribution will be tested for lognormality, replacing nondetected values by one-half the detection level. If a COPC is particularly toxic, any detection may constitute above-warning limit conditions.

Comment 12

Section 9.5.2: The concept of using grab samples to support the limited real-time parameters is good; the text should define the frequency with which the grab samples will be collected during a D&D activity.

Response to Comment 12

On page 9-42, second paragraph, the text indicates that surface water samples will be collected when subbasin flow is available. Because subbasin flow may only be available during precipitation events, it is difficult to be more specific. Attempts will be made to collect at least two such samples during shorter (two months or less in duration) D&D activities and at least monthly during longer D&D activities. However, the actual frequency will depend on the timing of D&D activities and the occurrence of flow within subbasins. The text of Section 9.5.2 (and Section 5.7.2) has been revised to clarify the expected frequency of sampling and to eliminate the inference that sampling will be conducted randomly with respect to time.

Comment 13

Section 11.1, Groundwater implementation plan:

- Should it really take one and a half years to install eleven wells?

- "If required....if installed....as necessary": what is the criteria to determine which activities and locations require monitoring? It is up to this decision document to *define* these activities and ensure they happen.

Response to Comment 13

- DOE requires sufficient time to develop a statement of work, select subcontractors to construct the wells, prepare a Health and Safety Plan, clear the well locations for underground utilities, and complete other activities associated with constructing monitoring wells, such as obtaining permits. There must also be sufficient time in the schedule to allow for unforeseen circumstances, such as weather and mechanical failure. The specified time for installing the 11 monitoring wells is 18 months from approval of the decision document. This duration allows sufficient time for selecting subcontractor(s); preparing and obtaining the necessary approvals for the Health and Safety Plan and Readiness Review; scheduling and conducting required ecological and wetland surveys; obtaining secure area clearances; and implementing the proposed field activities including, but not limited to, borehole drilling, well installation, and utilities clearance. Additional time has been reserved for unforeseen contingencies that may affect the schedule. Based on experience at Rocky Flats, this appears to be a reasonable schedule for installation of the 11 monitoring wells.

- We concur that the scope of this decision document is to define the activities and provide the appropriate controls to ensure that verification monitoring is in place, *if* required for a specific D&D activity. On page ES-4 in the Executive Summary, the text states, "The type and extent of verification monitoring will depend on the type of D&D activity being performed...." The language included in Section 11.0 represents a phased approach to verification monitoring. Depending on the type of

D&D activity performed, groundwater verification monitoring may not be required. "If required...if installed...as necessary" refer to whether the D&D activity will require groundwater verification monitoring. If, during evaluation of the D&D activity, it is determined that engineering controls will not completely protect a transport pathway, verification monitoring for that pathway *will* be instituted. This concept is stated on page 11-4 in the first bullet. The words "as necessary" have been deleted from the last sentence in the first paragraph on page 11-5.

- To ensure that the proposed actions stated in the Industrial Area IM/IRA/DD will be carried out, the Department of Energy's Environmental Restoration Division will be responsible for program implementation. To clarify this responsibility issue, the Executive Summary and Section 1.0, "Introduction," have been changed to: "The U.S. Department of Energy's Environmental Restoration organization at Rocky Flats will be responsible for the implementation of the proposed actions detailed in this decision document. An annual Industrial Area IM/IRA program status report will be developed by DOE, followed by a technical meeting with CDH and EPA to discuss program performance and future monitoring activities."

Comment 14

Section 11.2, Surface water implementation plan:

- "....implementation *may* include the following....". How many times do we have to point out that infirm language has no place in a decision document?

- The implementation schedule contains conflicting statements. The first bullet says outfalls will be *identified* within 18 months; the third bullet says automated sampling stations will be *installed* within 18 months.

- The schedule for installation of the sub-basin stations should be on the same clock as the rest of the monitoring programs this document has identified as needed to fill a gap: within 18 months of the document's approval.

- The assumption that the point of concern for surface water is at the Industrial Area fenceline is supported by the existence of this IM/IRA. It is a little late to be questioning this assumption.

Response to Comment 14

- "...may" has been replaced by "will" in the first sentence in the third paragraph on page 11-6.

- The statements in the implementation schedule are not meant to be conflicting but to reflect concurrent activities. Eighteen months seemed to be a sufficient time period to both identify outfalls and install specified equipment within the seven major drainage pathways.

- The first sentence in the first bullet in the fourth paragraph on page 11-7 has been changed to state: "Within 18 months following identification of a D&D activity, subbasins that will be affected by the D&D activity will be identified..."

- The third assumption identified on page 11-10 has been deleted.

Comment 15

Section 11.3, Air implementation plan:

- Should it really take one and a half years to establish a COPC list for a D&D site?

Response to Comment 15

- As stated in Question 14, second bullet, this statement is not meant to stand alone. It is intended to complement other subtasks and show concurrence with the third and fourth subtasks. Identification of COPCs is expected to depend on the identification of D&D activities.

Comment 16

Section 11.4, Incidental waters implementation plan:

- Foundation drains should be sampled in the entire Industrial area. OU8 encompasses only the 700 area.

- The disposition tasks should also include an evaluation of and upgrades to the existing on-site water treatment facilities (see also comments 9 and 10).

Response to Comment 16

- The OU8 Technical Memorandum referenced in this section encompasses the entire Industrial Area, although OU8 includes the 700 area.

- See response to comments 9 and 10.

Gale Biggs, Environmental Information Network

General Comment

Several years ago DOE and the state of Colorado signed an agreement establishing the Health Advisory Panel. The Panel recently announced (10/21/93), after spending millions of dollars to assess the problem, that the most dangerous pathway for health effects was the air pathway. Using this as a basis for measurement of the IM/IRA/DD I reviewed the document for its applicability to air pathways analyses; it did not even pay lip service to air pathways analyses.

The document appeared to be primarily oriented towards addressing regulatory requirements from RCRA, CERCLA, CAA, CWA, etc. None of these requirements are capable of addressing the problems at Rocky Flats. These laws were passed for criteria pollutants and other toxic and hazardous substances regulated by EPA. The real problem chemicals at Rocky Flats are exempt by law (AEC act) from these regulations. Thus using these regulatory requirements to address the problems at Rocky Flats completely misses the point; those regulations were not designed, nor are capable of, coping with the health problems at Rocky Flats. Since there are no regulatory requirements for addressing the magnitude of airborne plutonium from the Rocky Flats Facility, this presents itself as a potential problem that needs to be addressed. The IM/IRA/DD has apparently ignored this aspect of the problem.

The only agency legally authorized to control plutonium is DOE. This document again shows the DOE's lack of will to control it's most dangerous emission.

I have been asked many times how DOE could improve its credibility with the public; a sure-fire way would be to stop trying to address inadequate regulatory requirements and instead start addressing health effects. This would require a complete reworking of the way it handles plutonium and would also require addressing the air pathways aspects of the Rocky Flats clean up.

In this regard, the air monitoring programs at the facility are inadequate, yet no mention in the document is made regarding this problem. The Plan for Prevention of Contaminant Dispersion is discussed as a solution, but this plan was produced when the plant was an operational facility and ignored the real problems; as such, this is somewhat out of date.

For these reasons, the IM/IRA/DD is inadequate in that it does not address the monitoring requirements necessary for clean up at the facility.

The use of water as a dust suppressant is continually stated as a solution. Yet the EPA document AP-42 allows for only a 50% control for water application. The control of

plutonium-laden dust should be in the range of 99.9% of better. Water applications will not come close to achieving this type of control.

Response to General Comment

The IM/IRA for the Industrial Area is one component of the environmental monitoring programs that are ongoing at Rocky Flats. This IM/IRA is designed to complement these existing programs. The basis of the IM/IRA/DD is to outline a verification monitoring plan to detect low-level chronic or acute, unplanned releases from D&D and other nonroutine activities. The separate site-specific decontamination and decommissioning (D&D) program is tasked with assessing potential contaminant pathways and providing the appropriate engineering controls to minimize potential releases. D&D will also provide a monitoring network around the D&D site to detect both catastrophic releases requiring emergency response and unplanned releases to detect pathway protection failure. The purpose of the verification monitoring program described in the IM/IRA/DD is to provide an additional monitoring network at the Industrial Area fenceline to detect unplanned releases from pathway protection failure. The IM/IRA will monitor D&D activities; however, the primary pathway protection controls will be identified, designed, and maintained by D&D personnel. The D&D monitoring program and the IM/IRA verification monitoring program will be adequate and appropriate to detect releases from D&D activities.

Although the IM/IRA/DD is required by the IAG and thus, is in itself a fulfillment of a regulatory requirement, the monitoring it entails is not intended to address regulatory requirements. The verification monitoring program instead builds on the existing monitoring systems that are currently in place to fulfill regulatory requirements. Statistical evaluation of contaminant concentrations will be used to evaluate release potential in lieu of regulatory requirements because statistical tests are better suited to evaluating subtle changes in concentrations of contaminants in environmental media. The basis of the verification monitoring program is not to meet or clean up to a regulatory standard but to identify changes in conditions that could indicate pathway protection failure. Air emissions of plutonium are not exempt from the National Emission Standards of Hazardous Pollutants (NESHAPS) regulations.

One objective of designing a verification monitoring program is to complement the existing programs and minimize unnecessary expenditures for equipment and supporting systems that are already available. This IM/IRA/DD is unique in that it was not written to address problems at the site, but to address a monitoring program for future activities. The document does not identify any cleanup activities; it addresses an additional monitoring program for those activities. The document also does not address health effects, because health effects are addressed by those programs initiating investigation and cleanup activities.

As stated on page 6-4, radionuclide air effluent emissions are monitored as required by DOE (Order 5400.1) and EPA (40 CFR 61 Subpart H, "Radionuclide National Emission Standards of Hazardous Air Pollutants"). These regulations require DOE facilities to determine all radionuclide emissions (other than radon) from all sources (point and diffuse) to demonstrate

compliance with the 10 millirem per year dose standard. D&D personnel will provide pathway protection controls for any activity that has the potential to affect the air pathway. The Radiological Ambient Air Monitoring Program (RAAMP) is currently being updated with new PM-10/high-volume samplers, as discussed on page 6-17. All RAAMP sample filters are analyzed for plutonium 239/240. The revisions and updates to the ambient air monitoring program were evaluated for their applicability to the proposed verification monitoring program and found to be more than adequate to meet the objectives of this specific D&D verification monitoring program. D&D will institute whatever controls are necessary to protect the air pathway from potential releases. In addition to the pathway protection controls, verification monitoring at the Industrial Area fenceline and emergency response procedures will be in place to detect and mitigate releases of potential releases of plutonium and other contaminants to the air, groundwater, and surface water pathways. Because control and warning limit concentrations for plutonium and other contaminants will be statistically derived, regulatory requirements are not applicable to the verification monitoring program. If personnel become aware that regulatory limits are exceeded at any point during the monitoring program, the appropriate steps will be taken to address regulatory concerns; however, the verification monitoring program itself is not based on these concentrations.

The *Plan for Prevention of Contaminant Dispersion* does not address production at an operational facility, rather it was an IAG deliverable to address remediation at Rocky Flats. The document addressed minimization of the potential for wind dispersion of dust during remedial activities. The information in the document is not out of date and is applicable to the air pathway analysis.

The IM/IRA verification monitoring program does not by itself address OU site cleanup or associated monitoring requirements at the facility. The OU investigation and other nonroutine programs are responsible for addressing facility cleanup monitoring. The verification monitoring program will provide a check of the success of the cleanup monitoring networks. It is designed to be a "safety net" in the event the D&D monitoring and pathway protection network fail.

The use of water as a dust suppressant is not mentioned as a solution, rather it is listed as a possible example of a pathway protection method during D&D. The text has been revised to clarify that all pathway protection methods will be assessed and selected by D&D personnel based on the type of D&D activity that will be conducted.

Specific Comment 1

Pages 2-43 and 2-44 of the document discuss the complex wind patterns at Rocky Flats. Nevertheless, the current meteorological program was not designed to address the unique micrometeorological conditions that exist at the facility. Recent studies conducted by EG&G, ASCOT, and NOAA have shown the air patterns at and around Rocky Flats to be very complex. The existing meteorological monitoring program is inadequate for describing the conditions at the facility. Without this level of detail within the description, the air pathways cannot be evaluated.

Response to Specific Comment 1

The meteorological data from the existing 61-meter tower located in the northwest Buffer Zone are adequate for emergency response purposes because the data are representative of regional weather patterns; however, the existing meteorological monitoring program is not designed to address micrometeorological conditions in the Industrial Area. A Memorandum of Understanding has been signed between CDPHE and DOE to allow DOE access to the meteorological data collected at each of the CDPHE monitoring sites. These data include information from equipment in both the Walnut and Woman Creek drainages. When the system is complete, the smaller meteorological stations will surround the Site.

In addition, a 150-meter meteorological tower located in the Woman Creek drainage area is planned, as discussed in Section 6.0 of the IM/IRA/DD. This tower will not specifically address microscale conditions; however, the height would nearly match elevation from the western side of the site and will represent transport and dispersion within the Woman Creek drainage area. DOE is currently investigating alternative approaches for characterizing local wind fields that could yield important information during future D&D activities.

Specific Comment 2

In spite of this early warning on pages 2-43 and 2-44, on page 6-27 statements are made that regulatory models would be used to assess air concentrations as a result of emissions from the facility. I would like to know specifically what models will be used. In addition, I would request a written technical justification for their applicability to the problems at Rocky Flats. The problem here is that regulatory models were not designed to cope with the unique meteorological conditions that exist at Rocky Flats.

Response to Specific Comment 2

The text on page 6-27 states that "[data from meteorological equipment]...will support regulatory modeling and emergency response...." In Section 6.3, beginning on page 6-31, the document describes the computer models that have been and are currently being used to assess air dispersion of potential contaminants. Because the IM/IRA/DD describes verification monitoring for *future* activities, it is not known at this time what air dispersion models will be necessary, if any, as part of the verification monitoring. However, if air dispersion models are necessary, it is expected that current models will be adequate to address those needs.

Specific Comment 3

On page 6-26 the "potential" construction of a 150 m meteorological tower will assist in understanding the meteorology at the facility. This tower has been "potential" for several years now - it should not be mentioned unless it is operational. Statements such as these only dilute the credibility of the document!

Response to Specific Comment 3

The tower construction has been delayed; however, because the IM/IRA/DD presents a verification monitoring program for future activities, all future technologies were included in the assessment of the current monitoring programs. The 150-foot meteorological tower has been included in the current budget. Installation is scheduled for 1997.

Martin Transue, Area Citizen

Comment 1

My name is Martin Transue. I would like to comment on this program, and I didn't know I was going to do so, so my remarks are maybe somewhat unformulated.

I'm very pleased to see this. I think that we have an example here of environmental technology development which utilizes skills already in existence at the Flats. It utilizes a synthesis of these skills, and most importantly, it looks toward the future. I think that is something that I, as an employee out there, and as a citizen of the City of Arvada, want to see. I think that we have an enormous opportunity to use the Flats, which is an enormous resource in people, land, materials. And this is the kind of thing that we should be doing. This is a salable product, something that the government could do technology transfer with, and I think we should encourage this type of development whenever possible. I'm very much in favor of it. Thank you.

Response to Comment 1

We appreciate your support of the project. We agree that this project is futuristic in its approach and can be a vehicle for positive application of technology transfer. There are a large number of monitoring programs within the Industrial Area. The intent of the IM/IRA project was not to create an independent monitoring program that would require additional manpower and financial resources but rather use existing programs and personnel and integrate them toward a focused monitoring objective. By using the information transfer network, we also hope that this type of monitoring approach will be considered at other DOE sites.

Greg Marsh, Area Citizen

Comment 1

My name is Greg Marsh, and I'm the president of the Rocky Flats Cleanup Commission. I'm speaking tonight on behalf of myself, just very briefly. We did not have the opportunity to discuss this in our last meeting. The question that I have about the Industrial Area and so forth is a continuation of a question asked earlier tonight by Jim Stone, who originally provided this question five or six years ago and has yet to be answered, to my knowledge. And that is, is anybody looking seriously at dewatering the Rocky Flats Plant area upstream of the plant area, dewatering the water before it gets contaminated? And if they're not looking seriously at this very logical step, why not? Thank you.

Response to Comment 1

The objective of the Industrial Area IM/IRA is to develop a "safety net" around the Industrial Area during nonroutine activities such as decontamination and decommissioning (D&D) of buildings. To achieve this objective, a verification monitoring program will be established for environmental media (surface water, groundwater, air) that could be affected by a contaminant release during D&D activities. The verification monitoring program assesses whether pathway protection procedures instituted directly at the D&D site are successful, and if not, the monitoring systems that can detect potential contamination before leaving the Industrial Area.

Alternatives for dewatering the Industrial Area have been evaluated and were presented in EG&G's May 1991 report entitled, *Feasibility of Groundwater Cutoff/Diversion Study, Rocky Flats Plant, Task 26 of the Zero-Offsite Water-Discharge Study*. The report addressed four groundwater cutoff/diversion scenarios. Two of the scenarios were upstream designs. The upstream dewatering alternatives were rated the least feasible. The most feasible alternative evaluated in the report was pumping wells at individual contaminant plumes. Please refer to this report for details of the evaluation.

Paula Elofson-Gardine, Environmental Information Network

Verbal Comment 1

Outfall sampling, I had some questions about the frequency of the sampling and what the lower levels of detection are planned to be for those tests. Also, with the Ambient Air VOC monitors, how are they going to establish the baselines for that? What are they going to use as background? And with the PM-10 monitor upgrades, I want to know that they're going to do some particle-sized distribution studies and make sure that they're adjusted accordingly. And also, with the foundation [d]rain monitoring of flow rates, it seems that quarterly is not sufficient when we have some seasons that fluctuate drastically with the flows. And I have more comments that I'll put in writing. Thanks.

Response to Verbal Comment 1

The verbal comments have all been repeated in the written comments. Please see responses to written comments.

Written Comment 1

Concerns from the Industrial Area presentation by Ms. Regina Sarter (DOE) on October 19, 1994:

a) Ms. Sarter's presentation left questions about the frequency of sampling, level of sensitivity of monitoring, particularly regarding outfall samples. Please clarify and justify sampling frequency, and the Lower Limits of Detection (LLD) utilized.

b) The Ambient Air Volatile Organic Compounds (VOC) Monitors; How will "baselines" be established? What spectrum of VOC's will be "captured" by these monitors, and to what level of sensitivity? Will they be calibrated to capture "expected" contaminants based upon process and sampling knowledge?

c) PM-10 (parts per million, 10 micron size) monitor upgrades were mentioned, but were not sufficiently specific. Please describe these upgrades. Will this include particle sizing heads, repositioning, and corrections for capturing the dominant (and respirable) particle sizes?

Please Refer to the RFP study "Soil Decontamination At Rocky Flats" by Olsen, Hayden, Alford, Kochen, and Stovens, which stated: "Besides the particulate form

of the plutonium in the soil, there exists also a dispersed form. The dispersed form of the plutonium will pass through a 0.01 micron pore filter. Up to 50% of the total contamination may have been in this form."

Illustrations in this report demonstrated that the sampling range of the high volume samplers captured a very small percentage of the existing particle sizes, between 0.01 and 25 microns in size. The dispersed plutonium particle size ranges were cited as between 0.001 and 0.01 microns in size, with the attached plutonium particle size ranges being cited as between 25 and 100 microns in size. Respirable sizes of particulates - those that fall in to the 1 to 5 micron size range, and can be taken up directly in alveolar tissue of the lung. With this information being taken into consideration, how is the monitoring set forth in this plan going to address the RESPIRABLE sizes of contaminated dust at the Rocky Flats Plant, and how exactly is this protective of human health (worker or community)?

d) The foundation drain monitoring of flow rates were described as quarterly. This seems to be an arbitrary and capricious frequency that will not be adequate. This monitoring should be done monthly, with low flow rate months noted.

The extreme meteorological conditions observed at Rocky Flats should be clearly documented, since this facility is at a unique topographical location. For example, the Chinook Winds that occur seasonally have reached or exceeded 120 miles per hour! When this is averaged with annual flows, it does not appear to be significant. The idiosyncracies and fluctuations of site specific conditions makes it difficult to predict year-by-year which months will fit the "ALWAYS low-flow month" assumptions. Even with reasonable predictions, this may include only a few months out of the year, which is also changeable. These low-flow months should NOT be averaged with the flow rates for months that have higher flow rates, as it obscures seasonal highs and lows.

Response to Written Comment 1

(a) The presentation provided by Ms. Regina Sarter on October 19, 1994 was very general in nature and was intended to facilitate public comments. She discussed the objectives and goals for the IM/IRA project and a brief history of how the project evolved between DOE and EPA/CDH. A formal presentation was given at the Technical Review Group meeting held on August 23, 1994.

Mr. Mark Buddy (EG&G Project Manager) presented a technical overview of the IM/IRA project. He discussed the specific goals for the project, the existing monitoring programs within the Industrial Area, and a summary of the proposed actions. These proposed actions (see Section 11.0 of the IM/IRA/DD) will be performed to enhance and integrate existing monitoring programs for future D&D and other nonroutine activities in the Industrial Area.

As Mr. Buddy presented, the purpose of the IM/IRA project is to use existing environmental monitoring programs within the Industrial Area, insofar as possible. Currently, the monitoring or sampling frequencies for environmental media (surface water, groundwater, air) at Rocky Flats are based on regulatory requirements such as the Clean Water Act (CWA), the Clean Air Act (CAA), Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), in addition to DOE directives and policies. Further information regarding the implementation of these regulatory programs is found in the Annual Environmental Summary Reports. These reports provide an overview of the programs and findings.

The verification monitoring is dependent on site-specific characteristics and the type of D&D activities that will be performed at a given building location. The following table generally summarizes the sampling frequencies. Please refer to the appropriate document sections for sampling rationales (Sections 4.0, 5.0, 6.0, and 7.0).

Media	Monitoring Program	Frequency	Section
Groundwater	Current Program (RCRA, CERCLA)	Quarterly	4.3.2
	Future Verification	Quarterly/Monthly	9.5.1
Surface Water	Current Program (NPDES)	Daily	5.2
	Current Program (NPDES Stormwater)	Per Storm Event	5.2
	Future Verification	Continuous/Monthly	9.5.2
Air	Current Program (RAAMP/Effluent Sampling)	Monthly	6.2
	Current Program (CAA)	Weekly/Bi-monthly	6.2
	Verification	Same as Current	9.5.3
Incidental Water	Current	As Needed	7.3.2
	Future	As Needed	7.6.1
Footing Drain Water	Current	Quarterly	7.3.2
	Future	Quarterly	7.3.2

The verification outfall sampling will be performed as part of the Surface Water Division's Event-Related Monitoring Program (as discussed in Section 5.2.2). This Event-Related Monitoring Program will be reactivated as per the proposed actions detailed in this decision document. The monitoring frequency of this program is directly related to the frequency of storm events. The outfall locations (Industrial Area perimeter) represent a third tier of surface water monitoring during D&D. The second tier consists of the subbasin monitoring that represents a location closer to the potential source area(s) and provides continuous monitoring. The first tier of monitoring, which involves onsite media monitoring and pathway protection procedures and inspections, will be conducted at the actual D&D building location in the Industrial Area.

For the current monitoring systems in the Industrial Area, the lists of potential contaminants for analytical testing are based primarily on the myriad of regulatory requirements. The number of samples and analytical parameters is large for the numerous environmental programs in the Industrial Area (see Figure 1-1). Further information regarding the implementation of these regulatory programs is found in the annual Rocky Flats Site Environmental Reports. These reports provide an overview of the programs and their findings.

The lower limits of detection (assumed to mean analytical method detection limits) for all the verification monitoring activities cannot be known until all of the constituents of potential concern (COPCs) are determined (Section 9.3, Basic Methodology for Identifying Constituents of Potential Concern). For future verification monitoring, analytical method detection limits for COPCs will be selected that are lower (whenever technically feasible) than the Preliminary Remediation Goals (PRGs) that have been established using EPA guidance.

Figure 1-1 of the decision document illustrates the number and type of environmental monitoring programs that currently exist in the Industrial Area. For current monitoring practices, method detection limits are based either on regulatory and DOE monitoring requirements or on data quality objectives developed for that particular program (such as OU investigations).

(b) As discussed in Section 11.3, a baseline data set will be collected for VOCs in ambient air for at least one year before the D&D activity begins. These data will be used to establish warning and control limits using the methodology presented in Section 9.4. As discussed in Section 9.3, a list of COPCs, including VOCs, will be compiled for each D&D activity. The COPC list will depend on several factors, such as the types of contaminants historically associated with the building and subbasin in which the building is located. Summa® canisters do not monitor for or "capture" VOCs, rather they collect a sample of air. Summa® canisters do not limit the "spectrum" or "sensitivity" of VOC analysis. The Summa® canister air samples will be analyzed by a laboratory for VOCs, as opposed to real-time monitoring instrumentation, and the limiting factors are the analytical method and the detection limits achieved by the laboratory for a particular analysis. Calibration of the canister is based on air flow and time and not on particular VOCs.

(c) The RAAMP PM-10 and other monitoring and equipment upgrades are described in the *Assessment and Integration of Radioactive Ambient Air Monitoring at Rocky Flats Plant* (EG&G 1993). PM-10 samplers are designed to collect respirable particulate matter. The IM/IRA/DD includes an assessment of the current and future monitoring and sampling technologies to determine which components will meet the objectives of the IM/IRA in the Industrial Area. The new equipment and upgrades described in the *Assessment and Integration of Radioactive Ambient Air Monitoring* are more than adequate to meet the objectives of this IM/IRA. The IM/IRA is primarily concerned with detecting low-level changes in environmental conditions that may indicate a failure of pathway protection controls at and near a D&D site. Please refer to the response to Gale Biggs' General Comment for an explanation of the relationship of health effects to the IM/IRA for the Industrial Area. As they become available, new monitoring and sampling technologies will be evaluated for possible improvements to existing programs.

(d) Under current practices in the Industrial Area, foundation drains are being monitored for water quality and flow on a periodic basis. This Industrial Area IM/IRA/DD proposes that additional foundation drains be sampled and characterized to assess treatment and disposition options. To characterize the foundation drain systems, quarterly sampling and flow measurements will be performed. In addition, previous and current monitoring data will be reviewed, assessed, and compared to the potential discharge options and their associated acceptance criteria (see Figures 7-12 and 7-13 for water disposition flow chart). The quarterly flow and water quality information will be useful engineering information to design and build future onsite water treatment systems or to better direct foundation water to an appropriate existing onsite treatment system, if necessary.

To characterize each foundation drain location of interest, quarterly monitoring of flow and water quality will be sufficient to address seasonal fluctuations in the Industrial Area. On a site-specific basis, foundation drain flow and water quality may need to be monitored more frequently than on a quarterly basis. Increased monitoring frequency will be based on the water quality characteristics, temporal flow, and chemical concentration fluctuations.

Response to last paragraph of comment: Based on the information about Chinook Winds and meteorological conditions presented in this paragraph, we have assumed that the references to "flow" are applicable to the air pathway. The monitoring program recommended in the IM/IRA/DD is designed to account for the complex and variable meteorology found at Rocky Flats. Radiological particulate samplers are in continuous operation and will be analyzed for use in the IM/IRA verification monitoring program. Samples are collected on a monthly basis, regardless of the month of the year.

Written Comment 2

Although this plan excludes the buffer zone, we feel that the following comments should be offered regarding monitoring and resuspension:

It has been globally recognized that the clean up of industrially contaminated sites can be "dirtier" than the original processes and accidents that originally deposited the contamination in and around the facility in question. It should likewise be recognized that the cleanup of Rocky Flats may be the most hazardous, extremely dangerous period in the history of this facility for the workers and the communities in close proximity to the RFP. Because both hazardous wastes and radioactive substances have contaminated the uncontrolled environment beyond RFP boundaries and the buildings themselves, extreme prejudice should be exercised in being protective with adequate monitoring, as well as containment of each building or clean up site as decommissioning commences.

Since many of the Directors of EIN first became involved with Rocky Flats issues (eg: 1987 Fluidized Bed Incinerator problems), we have had concerns about the RESUSPENSION & REDISTRIBUTION of contaminants from the RFP to the local environs and nearby communities. RFP Research and Development reports we were finding during our document research trips to the DOE microfiche repository indicated that for many years, the RFP had full knowledge that they had a very serious plutonium dust resuspension problem at (and around) the facility. The resuspension problem was not acknowledged by RFP personnel when we initiated discussion regarding this problem in the monthly Exchange of Information meetings. The RFP representatives refused to discuss the matter, acted mystified about our concerns, as if we did not know what we were talking about. Several years later, when we were Directors on the Board of the Rocky Flats Cleanup Commission, we reviewed a draft Plan for the Prevention of Contaminant Dispersion, which for the first time publicly admitted that the RFP was having a problem with control of contaminated dust.

These concerns were also brought forward to the proceedings of the CDPHE RFP Dose Reconstruction Project since it's inception. It was finally acknowledged and admitted a year ago (10/93), that the INHALATION of radioactive or hazardous materials was found to be the most dangerous exposure pathway of concern associated with releases from the RFP.

Adequate monitoring practices: In October of 1991, EIN petitioned the Colorado Department of Health (CDH), now a/k/a the Colorado Department of "Public Health and the Environment" (CDPHE) Executive Board of Directors to provide sufficient funding so that the Radiation Control Division could reinstate it's monitoring program cutbacks in the area of community monitoring, and frequency of sampling. To date, the previous sampling schedule and locations have not been reinstated, despite the acquisition of half of the $18.5 million fine from the USA v. Rockwell case, and other DOE funds enhancing the Radiation Division laboratory needs. A 20 year database has had significant gaps in it for a few years now. We are reiterating our request for reinstatement of a more aggressive oversight and monitoring program to be in place, especially around active cleanup sites, as well as the community monitoring programs that included remote area PM-10 monitors. This concern includes sites in the Industrial Area that are disrupted for clean up.

In evaluating the "newer, more improved" quickie cleanup of hot spots found at the 881 Hillside, some EIN Directors have asked the following: Was this based upon real time monitoring, High Purity Germanium Detectors (HPGe), visual monitoring, etc. Were the employees used as human guinea pigs to clean up these hot spots? Were any precautions taken with regard to monitoring during this activity? This 881 Hillside hot spot clean up

could be considered to be real success story, that the RFP plans to repeat at different sites to save millions of dollars, but was it done appropriately? Was there any disruption or spread of contaminants or significant exposures that occurred during this activity? How do you know? Is there any monitoring data from specially placed monitors at 90 degree angles to the activity in question? What monitoring and/or safety precautions were taken? Please elaborate.

Who (what agency) made sure that these procedures were implemented? CDH, EPA, or the DOE? Which agency will be allowed to oversee these quickie cleanups? If this is the way of the future, let's make sure that it's done in an acceptable manner. We applaud the RFP's progress in this area, and would like to see further streamlining of the process to enhance "real activity" happening in clean up, rather than just paperwork shuffles.

Concerns about regulatory oversight by the USEPA or CDPHE may only be answered when the Atomic Energy Act is amended to allow jurisdiction and control of Special Nuclear Materials to fall outside of the purview of the Department of Energy, to allow each State to have full access and ability to monitor these materials. How will DOE/RFP meet the "spirit and meaning" of all of the regulatory requirements, when they know that the application of the "applicable and relevant regulatory requirements" cannot include certain materials?

Response to Written Comment 2

Response to first, second, and third paragraphs of comment: We agree with the statements in the first paragraph and acknowledge the validity of the concerns of the commenter. The inhalation pathway has the potential to cause the most significant health effects. After a D&D site is scheduled, D&D personnel will address pathway protection for workers, the environment, and the community. The procedures that will be used to minimize exposure will be described in D&D Health and Safety Plans and Environmental Monitoring Plans. These D&D plans will be specific to the activity and/or site that is undergoing D&D. Because the *Plan for the Prevention of Contaminant Dispersion (PPCD)* was developed to monitor windblown constituents that might be released during activities at Rocky Flats, it was evaluated for its applicability to the verification monitoring program and proposed actions for air verification monitoring. The PPCD acknowledged that there was a need to prevent contaminant dispersion during remedial activities. The PPCD does not acknowledge prior contaminant dispersion. The proposed actions and information and document evaluation are described in Section 6.0.

Response to fourth paragraph of comment: Community monitoring is not an objective of the IM/IRA for the Industrial Area. The Industrial Area fenceline is the point of concern for the verification monitoring program. The D&D program will address pathway protection controls and environmental and worker monitoring programs at and near the specific D&D activity. The verification monitoring program will provide a secondary check to ensure that site-specific controls and monitoring are effective. The combination of D&D monitoring and verification monitoring does reflect an aggressive oversight and monitoring program.

Response to fifth and sixth paragraphs of comment: The objective of the Industrial Area IM/IRA is to develop a "safety net" around the Industrial Area during nonroutine activities, such as building decontamination and decommissioning (D&D). To achieve this objective, a verification monitoring program is established for environmental media (surface water, groundwater, air) that could be affected by a contaminant release during D&D activities. The verification monitoring ensures that pathway protection procedures instituted directly at the D&D site are working. The monitoring can detect potential contaminant releases before leaving the Industrial Area.

It is not an objective of the Industrial Area IM/IRA project to address the remedial investigations or cleanup activities associated with the 881 Hillside (or other OU locations). These cleanup actions were taken in accordance with the proposed action memorandum that was reviewed by the public. For more information about the 881 Hillside program, please contact Mr. Scott Grace (DOE).

The concerns about the regulatory oversight by the EPA or CDPHE, and Special Nuclear Materials jurisdiction and control (seventh paragraph of comment) can only be addressed by those specific regulatory agencies and not by this Industrial Area IM/IRA/DD.

Response to seventh paragraph of comment: Concentrations identified in regulatory requirements and guidance will not be used to determine whether pathway protection controls and monitoring equipment have failed. In Section 9.4, statistical tests are described that will be used to evaluate the results of the monitoring data. All constituents of potential concern (COPCs) will be evaluated. Because regulatory requirements and guidance are not relevant to evaluating the concentrations detected by the verification monitoring program, *no COPCs are exempt from evaluation*. Applicable or relevant and appropriate requirements (ARARs) do not apply to the IM/IRA for the Industrial Area, because they do not encompass all COPCs at Rocky Flats. Please see also response to Gale Biggs' General Comment. COPCs for verification monitoring are discussed in Section 3.0. Special Nuclear Materials COPCs are listed in Appendix 3.9.

Written Comment 3

Comments regarding printed materials on this IM/IRA/DD plan:

Utilizing the proactive approach to see the "Industrial Area (IA)" as a global concern, rather than little pieces of Operable Units has some utility and positive aspects. There is some concern that the identification process may be somewhat myopic in calling the "IA" a single source of "potential" contamination. Those areas that have been subject to specific contamination activities warrants special attention to details that should include consideration of "containment", meaning use of temporary containment buildings to control resuspension and spread of contaminants. This has been discussed since the first 881 IM/IRA hearing in November of 1988. It is a common industry practice that should no longer be ignored.

Groundwater migration pathways need to be assessed by creating potentiometric maps for high flow years, rather than being based on 1992 spring and winter seasons. Perhaps

utilizing 5-year flow rates, making sure that the years in question include high flow years for this data would be more appropriate.

Establishing baseline conditions for surface water quality and hydraulic flows based on current Industrial Area conditions is not protective, and does not represent true "baseline". Annual site conditions and man-made topographical changes that have occurred since the siting of the RFP must be evaluated to understand real "baseline" conditions and the changes that have affected these hydraulic flows. Tunnel seepage in the IA is of concern here. With respect to volatile organic compound monitoring, can site specific criteria be established to identify what fraction of volatilizing organics will be detected by these VOC monitors? Can this approach be utilized to better characterize "past monthly or annual typical releases" of commonly used chemicals such as carbon tetrachloride, trichloroethane, trichloroethylene, etc. during high production years, based on volatilization fractions, inventory usage and recovered spent solvents (eg: mass balance)? Recent statements by DOE representatives has created concerns regarding discarding of data acquired prior to 1991. Recognizing that there are some concerns about the quality of some data, those problems should be evaluated and compensated for, rather than by discarding what may be valuable data sets. Please be aware of using data for low or non-production periods of the RFP, or environmental data from low-flow periods. If this process is to be "protective", then worse-case scenarios are to be utilized, rather than those that downplay the impacts of the RFP.

Regarding the descriptions of data reviewed for establishing Contaminants of Concern: The use of the ChemRisk Task 3/4 Report may be a problem, since it was a flawed draft report that did not undergo the editing revisions that had been promised. Were the following contaminants - asbestos (has the facility-wide abatement occurred yet?), dioxin or furan-like compounds from the incineration and thermal processes that included chlorinated hydrocarbon (solvent) contaminated materials, or plastics identified by this evaluation process as Contaminants of Concern?

It should be noted that incineration, combustion and thermal operations at the RFP should be evaluated for contaminant (including congeners formed) releases. This must include ALL combustion sources such as the Fluidized Bed, document incinerator, 776 incinerator, open pit burning of depleted uranium chips - potentiated by various fuels and/or solvents being applied, PCB burns, etc. This consideration should include the wide temperature fluctuations and spikes as described by the operators, rather than by the engineering parameters outlined.

Response to Written Comment 3

Response to first paragraph of comment: As discussed previously, the IM/IRA for the Industrial Area describes verification monitoring for D&D and other nonroutine activities. Containment and cleanup as part of the D&D process are considerations for pathway protection that will be developed on a D&D site-specific basis.

Response to second paragraph of comment: Plate 4-1 was constructed using Industrial Area groundwater elevation data from spring 1992 because (1) it was representative of high water table or "high flow" conditions, (2) the water-level measurements were obtained over a

relatively short period of time (producing a "snapshot" in time of the groundwater conditions), and (3) this was the first sampling and water-level effort for groundwater wells in the Industrial Area since the change in mission. The potentiometric maps for Spring 1992 (Plate 4-1) and Fall 1992 (Plate 4-2) are representative of higher and lower groundwater elevations, respectively. Groundwater flow paths and flow rates inferred from these maps will be representative of typical high and low water-level conditions, rather than more extreme conditions, and thus are most appropriate for purposes of this IM/IRA/DD.

Response to third paragraph of comment: Baseline conditions will be established for the main surface water outfalls (Industrial Area perimeter/fenceline) and for each individual subbasin location undergoing D&D activities. To establish surface water control limits for COPCs and indicator parameters (pH and electrical conductivity) baseline conditions for that particular subbasin will be established. For the purposes of the verification monitoring program, ambient water quality conditions must be the baseline reference to establish actual warning or control limits during D&D (see Section 9.4).

If the baseline concentrations were set to conditions that were not characteristic of current conditions, results greater than the warning limit would not be representative of potential releases. Warning limits based on pre-Rocky Flats conditions would be set so low that ambient water quality conditions could already exceed these statistically established warning limits. In referencing the pre-programmed response actions (Section 9.5.2), exceeding pre-established warning limits would result in a source investigation. Calculating the baseline and warning limits using pre-Rocky Flats data could cause unnecessary source investigations based on false-positive indication of release.

Hydraulic baseline conditions have not been established for all the Industrial Area subbasins. The subbasin monitoring systems will be equipped with flow measuring devices to establish baseline conditions and to estimate chemical mass loading. This information will also be valuable to the Surface Water Division because it will provide new and more site-specific hydrologic information that will help with the overall understanding of the hydrology of the Industrial Area.

This IM/IRA focuses on monitoring activities in the Industrial Area and references baseline concentrations based on actual and current conditions in the Industrial Area. Referencing "baseline" conditions or conditions that occurred before the siting of Rocky Flat is more appropriate for CERCLA/RCRA remedial investigations and risk management projects.

As discussed in the response to Comment I, there will be no real-time VOC monitoring, per se; rather, air samples will be collected for VOC analysis. The VOCs identified as COPCs can be included in the analytical methods selected for the air samples. As discussed previously, the objective of the verification monitoring program is to provide a "safety net" for D&D monitoring.

Characterizing "past monthly and annual typical releases" is not within the scope of this IM/IRA. Only current conditions, including baseline and verification monitoring data, will be compared during this program.

If the appropriate data, based on a specific D&D activity, are available to establish a baseline data set before a D&D activity begins, then the data will be used for the verification monitoring program. If data are not available, a baseline data set will be collected for the COPCs that have not been included in previous monitoring programs. Only existing data that are found through data validation to be usable will be included in a baseline data set.

The only previous data that will be used for the verification monitoring are data for the 18 months immediately preceding the D&D activity, if available and of acceptable quality and quantity. If a COPC is identified for a particular D&D activity and data are not available for 18 months before a specific activity begins, data will be collected for that COPC for up to 18 months before the activity begins. If data are available for the previous 18 months, they will be used to establish a baseline data set. Statistical procedures will be applied to these data to calculate warning and control limits for concentrations of COPCs that may be detected during verification monitoring. If "worst-case" (production period) data sets are used exclusively to establish baseline for COPCs associated with a specific D&D activity, short-term fluctuations in the concentrations detected during verification monitoring may be obscured when compared to the statistically based concentrations that would constitute the baseline warning and control limits. If, as proposed, data from the (non-production) period immediately preceding D&D activities are used to establish the warning and control limits, short-term fluctuations will have much greater significance. This approach ensures that changes that may indicate pathway protection failure will be detected, investigated, and mitigated at a much earlier stage in D&D activity.

Response to fourth paragraph of the comment: *The Reconstruction of Historical Rocky Flats Operations & Identification of Release Points, Project Tasks 3 & 4* report (CDH 1992) was one of several resources used to supplement the comprehensive list of analytes included as Appendix 3.1. The comprehensive analyte list was used for preliminary identification of COPCs for purposes of the Industrial Area IM/IRA. The Task 3 & 4 report (CDH 1992) was examined to augment the list of preliminary COPCs. The Task 3 & 4 report identified 12 materials of concern (MOCs) for further evaluation in the report based on the reasonable potential for offsite release (CDH 1992). The second paragraph on page 3-8 of the IM/IRA states that "...these 12 materials were compared with the list of preliminary COPCs on the comprehensive analyte list, and only one, thorium-232, is not included on the analyte list." After some discussion in the text on potential areas where thorium-232 may be present, the last sentence of that paragraph states, "Thorium-232 will be considered for inclusion as a COPC for monitoring conducted at or near these buildings."

The cited Task 3 & 4 report (CDH 1992) is considered a reliable resource for preliminary identification of COPCs. Any new MOCs that may be identified during Phase II work being performed by Radiological Assessments Corporation (RAC) for CDH, such as dioxins and furans currently under evaluation by RAC, will be evaluated for inclusion as potential new COPCs.

The text on page 3-15 (last sentence of the second paragraph) will be changed to read, "In addition, as information on new constituents is discovered during the RFI/RI or during building characterization, the constituents will be considered for inclusion as COPCs."

Facility-wide abatement of asbestos is not part of D&D or the Industrial Area IM/IRA process; however, if asbestos is a COPC associated with a specific D&D activity, it will be included in the verification monitoring program.

Response to fifth paragraph of the comment: Each building or structure that is scheduled for D&D will be evaluated to determine COPCs that may be released during the D&D activity. This evaluation may include previous incineration, combustion, and thermal operations associated with past activities at a specific building or other structure.