RFCA Stakeholder Focus Group
August 30, 2000
Meeting Minutes

Introduction and Administrative

Reed Hodgin began the meeting with a review of the Focus Group purpose:

> Discuss the wide range of environmental clean-up actions and decisions needed to safely close Rocky Flats

- Address issues holistically
- Explore interrelationships and implications among issues
- Provide focal point for discussion of decision documents
- Provide forum for communication and information exchange.

The group discussed the role of the focus group in decision-making on clean-up at Rocky Flats. Reed emphasized that the focus group would influence the decisions that the RFCA parties will make through the discussions at these meetings. A member of the Focus Group asked if the Focus Group would replace other public involvement processes, such as CERCLA public comment. Reed answered: no, the Focus Group is an opportunity for early and continuing public involvement, and will not replace other groups or processes.

Reed led introductions of participants at the meeting. A participants attendees list is included as Appendix A to these minutes. Reed summarized the Agenda for the evening. The Agenda included the following topics:

- Introductions and agenda review,
- Summary presentation on surface water quality,
- Focus Group discussion on surface water quality,
- Topics for upcoming meetings, and

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- Radionuclide Soil Action Level (RSAL) update by the U.S. Department of Energy (DOE), U.S. Environmental Protection Agency (EPA), and the Colorado Department of Public Health and Environment (CDPHE) representatives

A request was made to review the minutes of the previous meeting at the beginning of each Focus Group meeting. A correction was made to the August 16, 2000 minutes. The minutes did not mention that Ken Korkia of the Rocky Flats Citizens Advisory Board had agreed to lead an offline discussion on the Community Acceptance criterion on the Comprehensive Environmental Liability and Compensation Act (CERCLA) list of nine criteria. It was again requested that comments and suggestions be sent to Ken. No other corrections to the August 16, 2000 Focus Group meeting minutes were submitted to AlphaTRAC, Inc.

It was also requested that the meeting minutes format be changed to model those of the RSAL Oversight Panel's.

Water Management at Rocky Flats

John Rampe made a presentation and entertained questions and comments concerning the background for water management at Rocky Flats. Topics treated included:

- Water flow synopsis
- Summary of ponds as water management system
- Regulation of surface water quality.

A copy of Mr. Rampe's presentation is included as Appendix B to these minutes.

Following is a summary of the question and answer session during and following Mr. Rampe's presentation.

Comment (C): The new National Pollutant Discharge Elimination System (NPDES) permit provides for a single point of compliance for water outflow – the outflow of the site's Sewage Treatment Plant.

Question (Q): What is the status of the evaluation of the 881 exceedance?
Answer (A): Monitoring data for May 11 through July 17, 2000 are currently being analyzed.

Q: Is that the usual turnaround time for analysis?
A: Yes.

Q: Where does surface water runoff go after leaving Rocky Flats?
A: The water flows around the drinking water reservoirs and flows along Walnut Creek and Woman Creek and eventually to the South Platte River.

Q: What is the evaluation process when there is an exceedance at a Point of Compliance (POC)?
A: An investigation is conducted. Example - Identify the cause of the exceedance and include the source in a clean-up project.

Q: How far do you go in your investigating?
A: We look at historical data and recapture important values. The source of exceedance is then dealt with.

When an episodic incident occurs in an area which exceeds small-scale water improvement relationship, Rocky Flats discusses the issue with regulators.

Q: What is the objective for a POE?
A: The objective is to make sure that key points are monitored to identify trends, identify impacts from remediation, and evaluate effectiveness of remediation.

C: Rocky Flats could have POEs after Record of Decision (ROD) / closure.

Q: What areas cause most concern for water quality?

A: GS-10 (Industrial Area)
- Northeast and East Industrial Areas
- Some unexpected locations
- 903 Pad and associated hillside

C: A Policy Question: Where, when, and how will Points of Compliance (POC) be measured after closure?

Q: Do POEs become POCs at closure of RFETS?
A: EPA: yes; CDPHE: yes. Exact locations for POCs onsite may be set at same or different locations. Ponds would be regulated as waters of the U.S.

Some Options for Protecting Water Quality

John Rampe presented possible alternatives for meeting surface water standards for plutonium and americium:

- Removal of soil is sufficient to meet standards
- Impoundment and active management, potentially with treatment
- Watershed improvement
- Passive sediment removal with contours or wetlands
- Upstream (Industrial Area) recontouring and revegetation

Mr. Rampe summarized advantages and disadvantages for each alternative (see Appendix C).

Policy Discussion: What Does "Meeting the Water Quality Standard" Mean?

It was suggested that the discussion of alternatives for meeting water quality standards begin by examining "What does meeting the water quality standard mean?" The Focus Group discussed this question; members identified several alternatives:

- Compare a 30-day moving average at each POC to the 0.15 pCi/l standard (the current approach)
- Compare an average for some period other than 30 days at each POC to the 0.15 pCi/l standard
- Compare each individual water sample at each POC to the 0.15 pCi/l standard
- Meet 0.15 pCi/l some specified percent of the time (based on risk)
- Establish a different standard than 0.15 pCi/l, perhaps based on the soil erosion study results
- Revise or confirm the standard based on the risk analysis that leads to the standard
- Develop tailored, specific standards and remediation strategies for different areas on site

The following comments were also made during the discussion:

- Eliminating or leaving the source in place is a key issue
- A large safety factor should be included in whatever standard is developed
- The total risk, including pathways other than surface water, should be considered in setting the water quality standard
- The siting of POCs is an important consideration
- The Water Quality Commission will establish the standard. The Commission will be a key player in any discussion regarding modification of the standard.

Representatives from EPA and CDPHE were asked their position on changing the water quality standard. The representatives indicated that neither agency supports changing the water quality standard.

The Focus Group identified five key factors that must be considered in evaluating or establishing a water quality standard:

- Basis for standard (e.g., risk)
- Sampling methodology
- Averaging period to be used in sampling
- Sampling locations
- Laboratory analysis methodology and quality standards

A member of the Focus Group asked if the Erosion Transport Model's output will be sufficient to demonstrate that the site will meet water quality standards. DOE responded that the model will be a tool, which will help in deciding where to put additional monitoring stations.

The Focus Group requested the following information concerning the water quality standard:

- Surface water sampling methodology and relationship to standard (Joe Legare)
- Risk basis for 0.15 pCi/l water quality standard (Steve Gunderson)
- Laboratory analysis quality (Dave Shelton)

The group agreed to close the discussion with determination of the alternatives for standard setting, the key factors in setting a standard and the requests for additional information. The Group will defer further discussion of the water quality standard until a future meeting.

Topic for Next Meeting

The Focus Group agreed to continue it's discussion of "Alternatives for Meeting the Water Quality Standard" at it's September 13, 2000 meeting. The discussion will focus

on strategies involving the alternatives for meeting surface water standards for plutonium and americium presented earlier in this meeting.

Actions

The following actions were identified by the Focus Group:

- Confirm total and maximum americium 241 and plutonium 239/240 values for station GS03 as shown in Appendix D-3 of 8/30/00 packet (Dave Shelton)
- Derivation of 140 pCi/l PPRG (from 1996 IGD document) (now 21 pCi/l) for onsite surface water, including risk basis (Dave Shelton)
- Sampling methodology for monitoring / evaluating cumulative effects from multiple contaminants (John Rampe)
- A rough first look at water balance (Bob Nininger)
- Surface water sampling methodology and relationship to standard (Joe Legare)
- Risk basis for 0.15 pCi/l water quality standard (Steve Gunderson)
- Laboratory analysis quality (Dave Shelton)

Radioactive Soil Action Level Update

Russell McAllister, DOE, updated the group on the status of the RSALs review. Other agency updates were not given due to lack of time.

Adjournment

The meeting was adjourned at 6:30 p.m.

Appendix A
Meeting Attendees

RFCA STAKEHOLDER FOCUS GROUP
AUGUST 30, 2000
ATTENDEES

David	Abelson	RFCLOG
Christine	Bennett	AlphaTRAC, Inc.
Robert	Darr	Kaiser-Hill, Ltd
Shirley	Garcia	City of Broomfield
Joe	Goldfield	RFSALOP
Tom	Greengard	SAIC
Steve	Gunderson	CDPHE
Jennifer	Hamilton	Daily Camera
Jennifer	Hamilton	Daily Camera
Mary	Harlow	City of Westminster
Reed	Hodgin	AlphaTRAC, Inc.
Victor	Holm	
Jeremy	Karpatkin	US DOE - RFFO
Ken	Korkia	RFCAB
Joe	Legare	DOE
Ann	Lockhart	CDPHE
Russell	McCallister	DOE-RFFO
LeRoy	Moore	RMPJC
Amy	Mueller	City of Boulder
Diane	Niedzwiecki	CDPHE
Bob	Nininger	Kaiser-Hill Company, LLC
Steve	Paris	RMRS
Rex	Raimond	CDPHE
Karen	Reed	EPA
Tim	Rehder	US EPA
Kathy	Schnoor	City of Broomfield
Joan	Seeman	CCANWI
Dave	Shelton	Kaiser-Hill Company, LLC
Carl	Spreng	CDPHE
Honorable Hank	Stovall	
Steve	Tarlton	CDPHE
P.J.	Timmerman	US GAO, Denver
George	Vancil	City of Arvada
Jyoti	Wind	PMB 371

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RFCA Stakeholder Focus Group
08/30/00 Attendees List

David Abelson RFCLOG
Christine Bennett AlphaTRAC, Inc.
Robert Darr Kaiser-Hill, Ltd
Shirley Garcia City of Broomfield
Joe Goldfield RFSALOP
Tom Greengard SAIC
Steve Gunderson CDPHE
Jennifer Hamilton Daily Camera
Jennifer Hamilton Daily Camera
Mary Harlow City of Westminster
Reed Hodgin AlphaTRAC, Inc.
Victor Holm
Jeremy Karpatkin US DOE - RFFO
Ken Korkia RFCAB
Joe Legare DOE
Ann Lockhart CDPHE
Russell McCallister DOE-RFFO
LeRoy Moore RMPJC
Amy Mueller City of Boulder
Diane Niedzwiecki CDPHE
Bob Nininger Kaiser-Hill Company, LLC
Steve Paris RMRS
Rex Raimond CDPHE
Karen Reed EPA
Tim Rehder US EPA
Kathy Schnoor City of Broomfield
Joan Seeman CCANWI
Dave Shelton Kaiser-Hill Company, LLC
Carl Spreng CDPHE
Honorable Hank Stovall
Steve Tarlton CDPHE
P.J. Timmerman US GAO, Denver
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Appendix B
John Rampe Presentation
Water Management at Rocky Flats

Appendix C
John Rampe Presentation
Some Possible Alternatives for Meeting the Surface Water Standards for Pu and Am

Surface Water Quality at Rocky Flats: Implications for Cleanup

John J. Rampe, U.S. Department of Energy, Rocky Flats Field Office
(303) 966-6246; john.rampe@rfets.gov

Introduction: Protection of surface water quality is a central goal of the cleanup at Rocky Flats, and the Rocky Flats Cleanup Agreement (RFCA) specifies that, at closure, water quality on Site will be suitable for all uses. The presence of dispersed plutonium and americium in soils at Rocky Flats provides a source for these contaminants to enter surface water, through erosion from precipitation runoff. Any remediation of these contaminated soils, such as at the 903 Pad, needs to consider the protection of surface water as one of its goals. Protection of surface water is a major consideration in crafting the final Site condition at closure. This paper provides a brief discussion of water quality management and monitoring at Rocky Flats, and then discusses possible long-term remediation options for protection of surface water quality. This paper only considers the problems posed by actinides in soils, notwithstanding the fact that other surface water concerns exist, notably nitrates in the North Walnut Creek drainage and volatile organic compounds in South Walnut Creek.

Technical Summary: Surface water is found in several small drainages at Rocky Flats, flowing generally from west to east. The primary drainages on Site, from north to south, are Rock Creek, Walnut Creek (which has several branches), Woman Creek and the Smart Ditch Drainage. Water supply ditches (Church, Mower and McKay Ditches) also traverse the Site. Walnut Creek and Woman Creek are of most interest from a water quality standpoint, since they drain developed portions of the Site. The attached schematic shows major drainages, ponds and monitoring points.

Ponds are found in all the major drainages on Site. Most of the ponds in the Walnut and Woman Creek drainages were constructed for the purpose of capturing and holding water from an industrial release on Plantsite. When operated in a mode where they are continuously drawn down (which is not the case at present), the pond systems can hold the runoff from a 100-year storm event if need be. The ponds are currently operated in a batch and release mode wherein water is collected, tested, and then released. Often, water is released prior to the receipt of test results, due to the length of time it takes to receive the test results, and the intervening filling of the ponds. Rocky Flats has a detailed Pond Operations Plan, which outlines how the ponds are operated under various conditions. Apart from the ponds, the other major Site surface water control feature is the South Interceptor Ditch (SID), which extends 6,500 feet along the hillside south of the Industrial Area. The SID collects water that would otherwise enter Woman Creek and directs it to Pond C-2, where it is collected and analyzed for actinides prior to release to Woman Creek.

Water at Rocky Flats comes from several sources. There is natural base flow that occurs regardless of Site activities; the Lindsay Ranch Pond in the Rock Creek drainage is a good example of such a feature. Leakage from upstream water supply structures, such as the South Boulder Diversion Canal and Rocky Flats Lake, are thought to contribute to Site surface water. Water moves across the Site in several water supply ditches. Runoff from precipitation, both from the developed and undeveloped areas of the Site, has a marked effect on the amount of water in streams and ponds. Finally, the Site uses and subsequently discharges (relatively) large quantities of water, purchased from the Denver Water Board. The Rocky Flats Sewage Treatment Plant discharges about 55 million gallons of wastewater per year into Pond B-3 in the South Walnut Creek drainage. An unknown amount of water escapes into shallow groundwater in the Industrial Area through leaks in water supply pipes, sanitary sewers, etc., and surfaces in the major drainages. The Walnut Creek drainage in particular receives much of this unquantified inflow, making it difficult to predict the amount of water and the flow regimes that will remain after Rocky Flats is closed. The Site Water Balance Study, which is scheduled for completion in early 2002, will help determine the impacts of the Plant on local hydrology, and predict what flows will remain following cleanup.

The Site and other organizations monitor water at and near Rocky Flats under a number of different programs; these are summarized in the attached narrative and table. Conformance with the standards established pursuant to the Rocky Flats Cleanup Agreement (RFCA) for plutonium and americium (0.15 pCi/l) is measured at a number of locations prescribed in the RFCA Action Level Framework and the Integrated Monitoring Plan. RFCA Points of Compliance (POC's) have been established at the Site boundary and at the outfalls of the Site's terminal ponds, downstream of any control structures. RFCA

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Points of Evaluation (POE's) have been established at several points of interest higher in the Site's drainages, upstream of the pond systems. Recently, a new POE was established at the outfall of the Sewage Treatment Plant. Per RFCA, conformance with actinide standards is judged using a thirty-day moving average. That is, all sample results in the latest thirty day timeframe are averaged and compared to the standard; an individual result in excess of 0.15 pCi/l does not necessarily result in an exceedance of the standard. RFCA requires that DOE do a source evaluation for exceedances at POE's. If an exceedance is detected at a POC, mitigation is required in addition to the source evaluation, and monetary penalties may be imposed.

The attached data summary table shows water quality results for plutonium and americium at POC's and POE's at various Rocky Flats locations since 1990 (note that the sampling at these locations in many cases predates their designation as POE's and POC's). Per a request from the RFCA Stakeholder Focus Group, these results are compared with the previous Colorado water quality standard of 0.05 pCi/l, a standard based upon what at the time was believed to be the ambient level of plutonium in local waters. These data show that actinide levels in and downstream of the ponds have been uniformly low, even when compared to the previous standard. Points upstream of the pond system (see the results for GS-10, which drains much of the Industrial Area) show higher actinide concentrations on an average basis, and much higher maximum concentrations, usually in response to high runoff events. The progressive reduction in plutonium and americium concentrations likely reflects both the effects of the ponds in lowering actinide levels, and the increasing vegetative cover in the watershed in the eastern portions of the Site.

Policy issues: Several options exist for meeting the water quality standard for plutonium and americium at Site closure. Experience demonstrates that actively managed control structures (that is, the ponds) have performed well in protecting downstream water quality, even without remediation. Recent erosion modeling for the Site's Actinide Migration Evaluation suggests that removal of soil contamination down to very low levels (10 pCi/g) would still not be sufficient to result in plutonium concentrations less than 0.15 pCi/g in the SID. Thus, some type of water control structures may be needed to ensure water quality at Rocky Flats following closure, and will be integrated into remedial actions such as the 903 Pad.

While actively managed systems such as the ones now in place are effective, they also require constant operation and maintenance, which will increase DOE's long term stewardship obligations. Large, constantly fluctuating impoundments such as Ponds A-3 and A-4 also provide little in the way of useful habitat for wildlife. As cleanup proceeds, passive control alternatives will be examined. A potential example of such a control measure would be an expansion of the SID to capture more runoff from the 903 Pad area, along with incorporation of swales and wetlands along its length to help trap sediments. This approach could be expanded to the Walnut Creek Drainage, replacing actively managed ponds with vegetated, flow-through systems relying on wetlands and contours to provide sediment removal.

If such passive systems are to be successful, they will need to be combined with other efforts. First, source removal must take place to some degree. Second, recontouring and revegetation of the watershed will be essential. Unvegetated or developed areas of the Site, such as above GS-10, produce the highest actinide concentrations in runoff; during the May 1995 storms, the highest plutonium concentrations were seen in runoff from bare areas such as roadside ditches. Revegetation of the Industrial Area may allow for infiltration of precipitation that now runs off, reducing the flow peaks that quickly fill detention ponds and carry with them high loads of sediment and associated contaminants. For protection of surface water, a combination of available options, including removal, watershed improvements, passive controls and ongoing management may be needed in the long run.

Finally, the RFCA parties and the public may wish to examine the way in which compliance with water quality standards is determined. Because the current actinide standards are based on a one-in-one million excess cancer risk from drinking the water (2 liters/day for 30 years), it may be reasonable and protective to assess compliance against a yearly moving average rather than a thirty day average (such an approach has recently been proposed by EPA for arsenic in drinking water). DOE also assumes that water quality standards will apply to the streams themselves (Woman and Walnut Creeks), and not to water that may collect in upstream control structures like the SID, to which water quality standards do not currently apply. Should this understanding change, the needed remedial approach could also change.

Water Management at Rocky Flats

Presented to the RFCA Focus Group

August 30, 2000

John J. Rampe

U.S. DOE Rocky Flats Filed Office

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Water Management at Rocky Flats: Some Background

Several creeks and water supply ditches flow across Rocky Flats, generally from west to east

Two of these creeks (Walnut and Woman Creek) receive drainage from the Rocky Flats Industrial Area, and Woman Creek drains the 903 Pad area

There are two major reservoirs downstream (east) of Rocky Flats: Great Western Reservoir in the Walnut Creek drainage and Standley Lake in the Woman Creek drainage

RFETS constructed series of ponds along Walnut and Woman Creeks to provide holding capacity in case of an industrial release; the pond system was completed in the late 1970's

RFETS also constructed the South Interceptor Ditch to capture runoff from the southern Industrial Area

In the early 1990's DOE provided funding (roughly $80 million) to local cities to replace Great Western Reservoir as a drinking water supply, and construct Woman Creek Reservoir, which isolates Standley Lake from RFETS; runoff from RFETS no longer flows into drinking water supplies

Also in the 1990's, RFETS upgraded its sewage treatment plant, adding storage capacity and additional instrumentation

RFETS purchases 135 million gallons per year from the Denver Water Board, and discharges about 55 million gallons per year through the Sewage Treatment Plant; the Site has a drinking water plant, a sewage treatment plant, and an industrial wastewater treatment facility (B374)

Water Management at Rocky Flats: Pond Management

Ponds are the primary means of controlling water at RFETS; most ponds are (or were) connected to one another through pipes, pumps, etc.

The A-ponds receive runoff from the northern Industrial Area, including the Solar Ponds treatment project (A-3 holds 12.4 MG; A-4 holds 32.5 MG)

The B-ponds receive runoff from the central Industrial Area and discharges from the Sewage Treatment Plant (B-5 holds 24.0 MG)

Pond C-2 (22.6 MG) receives inflow from the South Interceptor Ditch

Originally constructed for emergency detention, the ponds are now operated in batch, test and release mode, when possible, providing greater information on water quality but less reserve capacity

Pond operations are detailed in the RFETS Pond Operations Plan

In general, ponds are discharged on the basis of water quality and dam safety, with dam safety (i.e., pond capacity) being the overriding factor

Water Management at Rocky Flats: Regulation of Surface Water Quality

Regulation of surface water quality at RFETS is a complex intersection of State regulations and Federal statutes, including the Clean Water Act, CERCLA and the Atomic Energy Act

State regulations establish stream standards and regulated portions of stream (known as stream segments) at RFETS; the Colorado Water Quality Control Commission established standards for Pu and Am

The Clean Water Act mandates that dischargers to surface water, such as RFETS, operate under permits (known as NPDES permits); RFETS recently received a new permit from EPA

The Rocky Flats Cleanup Agreement, using authority derived from CERCLA, does regulate Pu and Am (along with other constituents) in surface water at Rocky Flats

The RFCA (via the Action Level Framework and Integrated Monitoring Plan) establishes Points of Compliance (POC's) and Points of Evaluation (POE's) for surface water, where Pu, Am and other constituents are monitored

POC's are located downstream of the terminal ponds; exceedences there can result in monetary penalties and mandated mitigation

POE's are located upstream of the terminal ponds at points of particular interest; exceedences result in a source evaluation

A POE was just established at the Sewage Treatment Plant, allowing monitoring of Pu and Am there in addition to Clean Water Act parameters under the NPDES permits

Some possible alternatives for meeting the surface water standards for Pu and Am

1) Removal of soil sufficient to meet standards (that is, beyond a land use protection scenario)
   Advantages: complete, permanent source removal
   Disadvantages: very large excavation required; lower concentration for removal uncertain

2) Impoundment and active management, potentially with treatment
   Advantages: ponds have been shown to be effective in removing radionuclides
   Disadvantages: doesn't solve upstream problems; long-term O&M; treatment effectiveness marginal

3) Watershed improvement (natural or artificial), such as paving roads, improving stream banks, etc.
   Advantages: low-cost, effective, focused on specific problem areas
   Disadvantages: doesn't get rid of the dispersed sources in other areas

4) Passive sediment removal with contours or wetlands in stream channels
   Advantages: effective, low O&M, potential for habitat improvement
   Disadvantages: no source removal, design considerations for very high flows

5) Upstream (Industrial Area) recontouring and revegetation
   Advantages: lowers peak flows and sediment loads
   Disadvantages: no source removal

Other possible alternatives include large-scale capping, piping discharges off-site, tilling and revegtating to lower surface soil concentrations, soil washing, etc.

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