RFCA Stakeholder Focus Group
Attachment A
Agenda

When: **September 13, 2000, 4:30 - 6:30 p.m.**

Where: **Broomfield Municipal Hall, Bal Swan and Zang's Spur Rooms**

4:30 Introductions and Agenda Review

4:40 Approach to Evaluation of Strategies to Meet Water Quality Standards (Reed Hodgin)

4:55 Example Strategies to Meet Water Quality Standards (DOE / Kaiser-Hill)

5:15 Focus Group Discussion on Strategies for Meeting Water Quality Standards

6:10 Topics for Upcoming Meetings

6:20 RSAL Update (DOE, EPA, CDPHE)

6:30 Adjourn

ADMIN RECORD

RFCA Focus Group Cleanup Scenario Discussion

- Scenarios are conceptual
- Scenarios are intended to bound and support the discussion
- Scenarios are based on information we have today, but in many cases technical information is incomplete or inconclusive
- Scenarios are <u>not</u> agency proposals or working draft. They are illustrative.

Scenario Goal- Establish and maintain Surface Water Quality Standard On-site and Off-site

- **Factors:**
  - Establish and Maintain Surface Water Quality Standard
  - RSAL and Clean-up levels
  - Engineered Barriers (control contamination)
- **CERCLA Criteria**

ADMIN RECORD

SW-A-006293

Information for Stakeholders

1) Use of a 30-day Moving Average

Water quality standards in Colorado are generally classified as either acute (levels that show effects in a short term, usually one-day) or chronic (levels that show effects over a long term, usually 30 days or more). The State of Colorado's Basic Standards for Pu and Am have been established as chronic standards which implies a thirty day average. Since the Site recognizes that flows for 30 continuous days are rare, the 30-day moving average procedure was created in an attempt to capture adequate water quality data and provide a better understanding of the Site's hydrologic conditions.

2) Establishing Sample Size

EPA has expressed interested in the issue of sample size, since their enforcement action on Pu and Am exceedances from 1997 had been overturned on the basis of the sample being of non-sufficient quantity (NSQ).

Currently, there are Site activities that will clearly identify the appropriate sample size for a minimally acceptable analysis. At issue is the contractual minimum detectable activity (MDA) that the Site requires from off-site radiochemistry labs. The MDA is usually set at 10% of the target concentration (i.e., 0.015 pCi/L to measure against the 0.15 pCi/L standard), but in the case of the stream standards for these parameters, the MDA was set at 20% (i.e., 0.03 pCi/L). The Site established the increased contractual MDA as a scientific compromise to reduce the counting time and sample size. Using the less stringent MDA resulted in the Integrated Monitoring Plan (IMP) requirement for a 4 liter sample. That value may change, and possibly increase, as a result of current discussions with the labs. The issue will be discussed in a later edition of the IMP, but is not expected to be included with the version currently being published.

Sample size and count times are two of several factors used to determine confidence limits and reliability of the analytical results. The reliability of the analytical results decrease as the MDA increases. The laboratories have determined sample size and count time necessary to meet the contractual MDA.

There are 3 basic options that the laboratories might implement to meet the required MDA: 1) increase the count time and keep sample volume the same, 2) keep count time the same and increase the sample, and 3) increase both the count time and sample volume.

Currently the IMP requires a 4 liter sample for an isotopic analysis from surface water. The Site actually requires 4.12 liters for sample size. The extra 0.12 liter is for radiological screening and release evaluations. The sample size may change based on discussions with the labs.

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One of the issues the Site is currently investigating is whether the currently required lab procedures excessively overestimate the reliability of the analytical results and if procedures can be developed to lessen the uncertainty in the data without a need to increase sample volume.

The Site reviewed the laboratory rationale for blank population calculations used in determining the MDA of a given water sample and determined that the method listed in the current Statement of Work (SOW) for *Isotopic Determinations by Alpha Spectroscopy* should be revised. The current SOW required that the labs use a Winsorized mean method of calculating the blank, which may overestimate the actual MDA that can be achieved, by a laboratory. As a result of this review, the Site has determined that the labs should use the standard deviation of the blank population in calculating MDA. In order for the contracted labs to continue to meet the SOW required MDA, the labs may need to somewhat modify their analytical procedures.

The laboratory has determined a count time to meet the required MDA and economic constraints. Increasing the count time alone may not be sufficient to meet the contractually required MDA. There are two requirements - the MDA must be met and there must be sufficient sample to rerun the analyses if questionable results occur. The water sample size probably will need to be increased to meet both requirements.

3) Composite versus Grab sample

Composite sampling (collecting multiple samples over a period of time) gives a more representative picture of the water quality of a hydrological event than a single grab sample provides. A grab sample would be a one-time sampling event that would not be representative of an entire period of flow. Grab samples are appropriate for media that is not known to change quickly, such as ground water.

The State of Colorado determines if a stream segment is water quality impaired based on the 85th percentile of a five-year average. The 85th percentile removes spikes that could be unreliable analytical results or otherwise not truly representative of the water quality. This methodology was developed to give a better picture of the true water quality impairment and provides a good model for establishing water quality parameters in regimes where there is little potential for rapidly changing influent streams in the system.

From IMP Assumptions

- The 30-day averages will be conducted twice each month within 5 working days of the 15th and the last day of the month for sample results received between those dates and reported per RFCA ALF.

- Where there is no flow, there may be no samples completed within a 30-day period. However, flow-paced sampling will continue during dry periods, even though flows may be so low that it may take longer than 30 days to fill a sample carboy.

- If no samples are taken during a 30-day interval due to no-flow conditions, then no sample results will be available for use in the computation of a 30-day moving average, and no such average will be reported for that period.

Definitions (Found in Part 1 of new NPDES Permit)

1) The "30-day (and monthly) average", other than for fecal coliform bacteria and total coliform bacteria, is the ~~arthmetic~~arithmetic average of all samples collected during consecutive 30-day period or ~~calender~~calendar month, whichever is applicable. (Geometric means are used to calculate fecal coliform bacteria and total coliform bacteria levels.)

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Acceptable methods for preparation of composite samples are as follows:

a. Constant time interval between samples, sample volume proportional to flow rate at time of sampling;
b. Constant time interval between samples, sample volume proportional to total flow (volumes) since last sample. For first sample, the flow rate at the time the sample was collected may be used;
c. Constant sample volume, time interval between samples proportional to flow (i.e., sample taken every "X" gallons of flow); and,
d. Continuous collection of sample, with sample collection rate proportional to flow rate.

Definitions from Regulation No. 31 - The Basic Standards and Methodologies for Surface Waters

"Chronic Standard" means the level not to be exceeded by the concentration for either a single representative sample or calculated as an average of all samples collected during a thirty-day period.

"Acute Standard" means the level not to be exceeded by the concentration in a single sample or calculated as an average of all samples collected during a one-day period.

RFCA STAKEHOLDER FOCUS GROUP

Where Are We in the Process?

September 13, 2000

ADMIN RECORD

The Focus Group Path So Far

Identify Goals of Focus Group

Understand CERCLA Criteria
- How cleanup remedies are evaluated

Help to Craft 903 Pad Cleanup Strategy
- The Next Big Decision

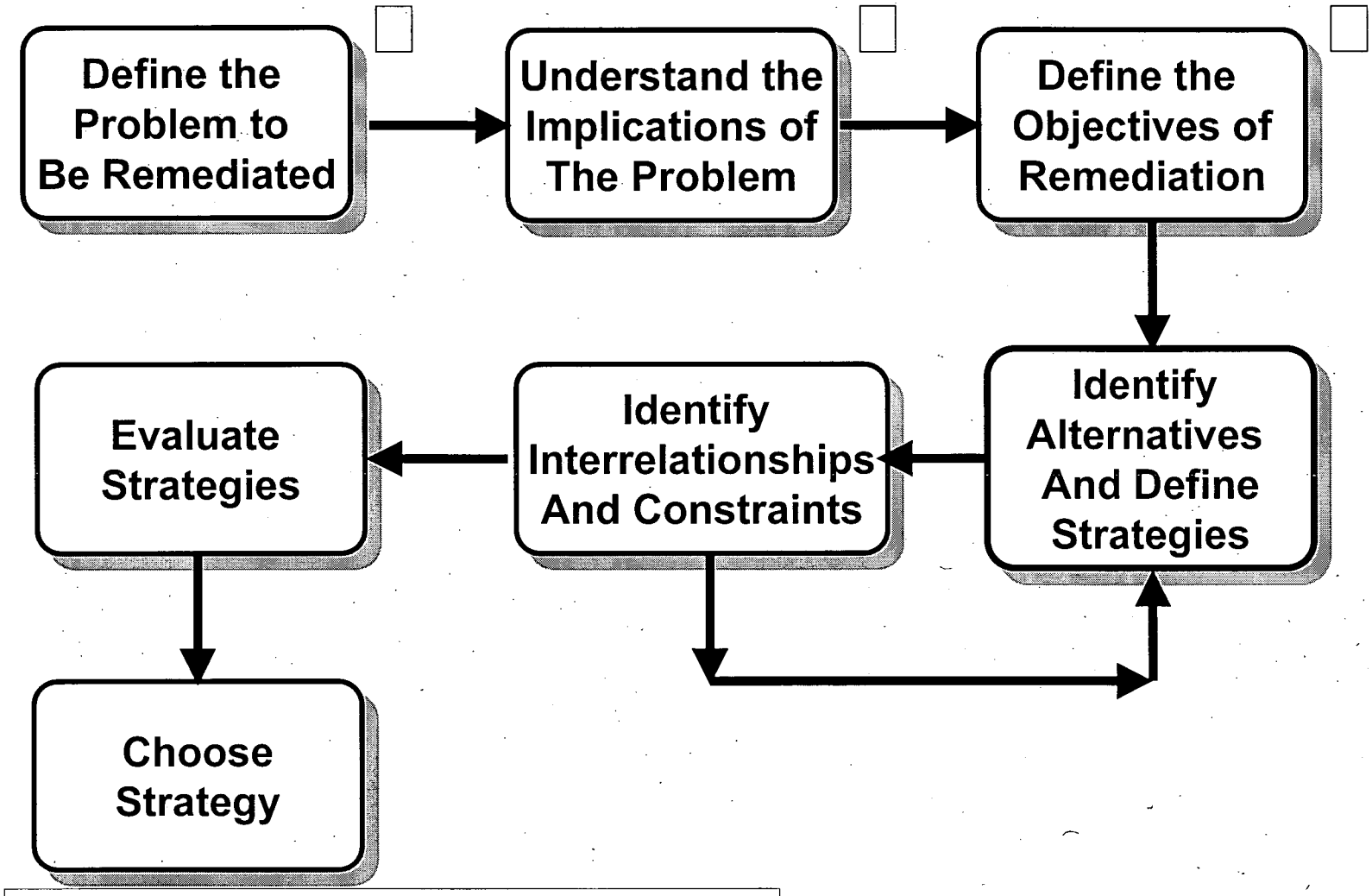
Water Quality Protection
- Strategies to meet the Standard

Risk Reduction
- The RSALs

?

RFCA Stakeholder Focus Group

Crafting a Strategy for Water Quality Protection



RFCA Stakeholder Focus Group

A Focus Group Goal for the 903 Pad Remediation

- Help the RFCA Parties choose the right strategy for cleaning up the 903 pad
- Right the FIRST time

"RIGHT" Means ...

- The strategy that best meets the CERCLA criteria

Some Working Assumptions

- At the conclusion of cleanup, the Site will meet the surface water quality standard as prescribed in RFCA

- Excavation by itself may not be sufficiently protective of surface water quality

Some Working Assumptions

- Meeting the surface water quality standard most efficiently may require a mix of strategies, and this mix may be different in different parts of the Site

- In some areas of the Site, meeting the water standard may require removal of contamination to levels beyond those required by the RSALs

Define Strategies

- What is the overall design of this strategy?
- How will this strategy meet the objectives?
- What are the advantages and disadvantages?
- What are the technical requirements / barriers that must be met or overcome?
- What are the maintenance and monitoring requirements for this strategy?
- What is the schedule for this strategy?
- What is the cost?
- How does this strategy interrelate?

Evaluate Strategies

- Use the 9 CERCLA Criteria:
  1. Overall Protection of human health and the environment
  2. Compliance with ARARs
  3. Long-term effectiveness and permanence
  4. Reduction of toxicity, mobility, or volume

Evaluate Strategies

- Use the 9 CERCLA Criteria:
  5. Short-term effectiveness
  6. Implementability
  7. Cost
  8. State Acceptance
  9. Community Acceptance

September 6, 2000

Dear Stakeholder:

The Rocky Flats Cleanup Agreement (RFCA) Stakeholder Focus Group will meet at the Broomfield Municipal Center at One DesCombes Drive on September 13, 2000. A technical discussion meeting will be held in the Bal Swan room at the Broomfield Municipal Center from 3:00 to 4:15 p.m. The Focus Group meeting will be held in the Bal Swan and Zang's Spur rooms from 4:30 to 6:30 p.m. As agreed to at the August 30, 2000 meeting, we will discuss alternatives for meeting water quality standards at Rocky Flats. The agenda for the September 13 meeting is enclosed (Attachment A).

Rocky Flats has identified the following alternatives for meeting the surface water standards for Plutonium and Americium; they will form the basis for discussion at the September 13 meeting:

- Removal of soil sufficient to meet standards (that is, beyond a land use protection scenario).
- Impoundment and active management, potentially with treatment
- Watershed improvement (natural or artificial), such as paving roads, improving stream banks, etc.
- Passive sediment removal with contours or wetlands in stream channels
- Upstream (Industrial Area) recontouring and revegetation

The meeting minutes from the August 30, 2000 RFCA Stakeholder Focus Group are enclosed (Attachment B). Also enclosed are the following water quality related background materials requested by the Focus Group at the August 30 meeting:

- Preliminary Water Balance Estimates (John Stover; Bob Nininger) (Attachment C),
- Describe the basis for the 30-day water quality standard (John Stover) (Attachment D), and
- Risk basis for 0.15 pCi/l water quality standard (Diane Niedzwiecki) (Attachment E).

ADMIN RECORD

(over)

You are encouraged to attend the technical discussion session on the enclosed materials that will occur in the Bal Swan room at the Broomfield Municipal Center from 3:00 to 4:15 p.m. on September 13, 2000. We will have subject matter experts available to answer any questions on the packet information.

If you need additional information to prepare you for the Focus Group discussion on September 13, please contact the subject matter experts listed in the packet, or call Christine Bennett of AlphaTRAC, Inc. at 303 428-5670 (cbennett@alphatrac.com). Christine will help to find the appropriate resource for you.

Please visit the RFETS RFCA Stakeholder Focus Group website at www.rfets.gov and click on **Stakeholder Focus Group** to access background information, meeting minutes, etc. electronically. You may call either Christine or me if you have any questions, comments, or suggestions concerning the RFCA Stakeholder Focus Group or the upcoming meeting.

Sincerely,

C. Reed Hodgin, CCM
Facilitator / Process Manager

RFCA Stakeholder Focus Group
Attachment C

Title: Preliminary Sitewide Water Balance Projection

Date: September 6, 2000

Authors: John Stover
U.S. Department of Energy, Rocky Flats Field Office
Bob Nininger
Kaiser-Hill Inc., LLC

Phone Number: (303) 966-9735
(303) 966-4663

Email Address: john.stover@rf.doe.gov
robert.nininger@rf.doe.gov

ADMIN RECORD

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RFCA Stakeholder Focus Group
Attachment C
Preliminary Water Balance Estimates

Introduction

Individuals at the last Stakeholder Focus Group Meeting asked for an estimate of the current water balance at the Site. The attached graphics, provided by Applied Hydrology Associates, the subcontractor performing a detailed water balance analysis for the Site, shows a cursory summary of the sources and pathways for water leaving the Site.

Technical Summary

The Rocky Flats Environmental Technology Site (RFETS or Site) is currently undergoing aggressive cleanup for closure. As part of developing a detailed design basis for closure configuration, RFETS is conducting a site-wide water balance (SWWB) whose objective is to provide RFETS with a management tool to evaluate how the site-wide hydrology is likely to change from current to final site configuration. A work plan has been developed that outlines the scope and schedule for this modeling effort. As part of the subcontractors preliminary effort to understand the scope of the project, the subcontractor provided a rough estimate of the existing water balance, in graphical form, using existing Site data.

The attached graphics show the preliminary Site-wide water balance estimate. The first pair of charts show the relative contributions of different sources of water into the Site (inflows), and pathways for loss of water from the Site (outflows). For example, the left chart shows the relative importance of precipitation and imported water to the inflows. The right chart likewise shows the dominance of evaporative losses to outflow. The third, lower chart provides a closer look at how groundwater may influence surface water on the Site.

These graphics do not constitute a final product from the Water Balance Study, but are provided to give the reader a preliminary understanding of the relative influence of various water sources and pathways at the Site.

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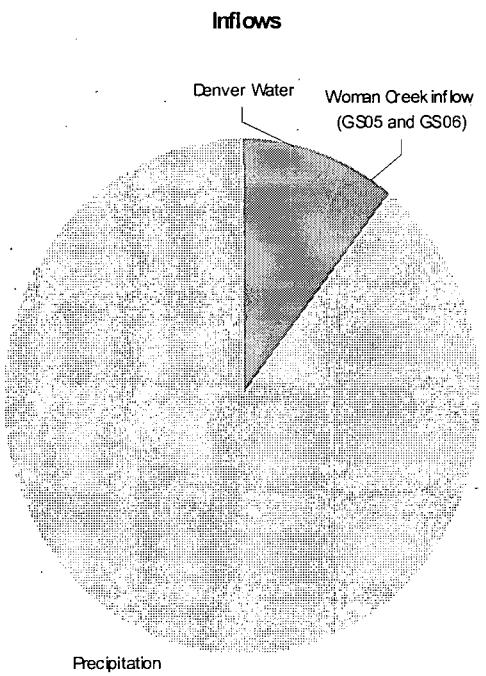
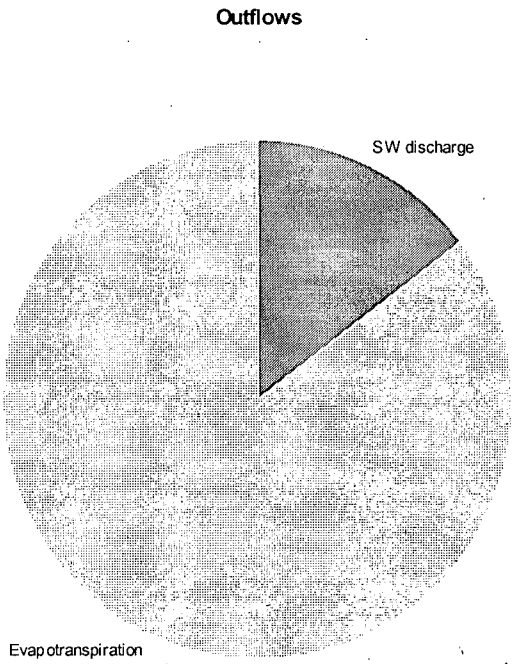
RFCA Stakeholder Focus Group
Attachment C
Preliminary Water Balance Estimates



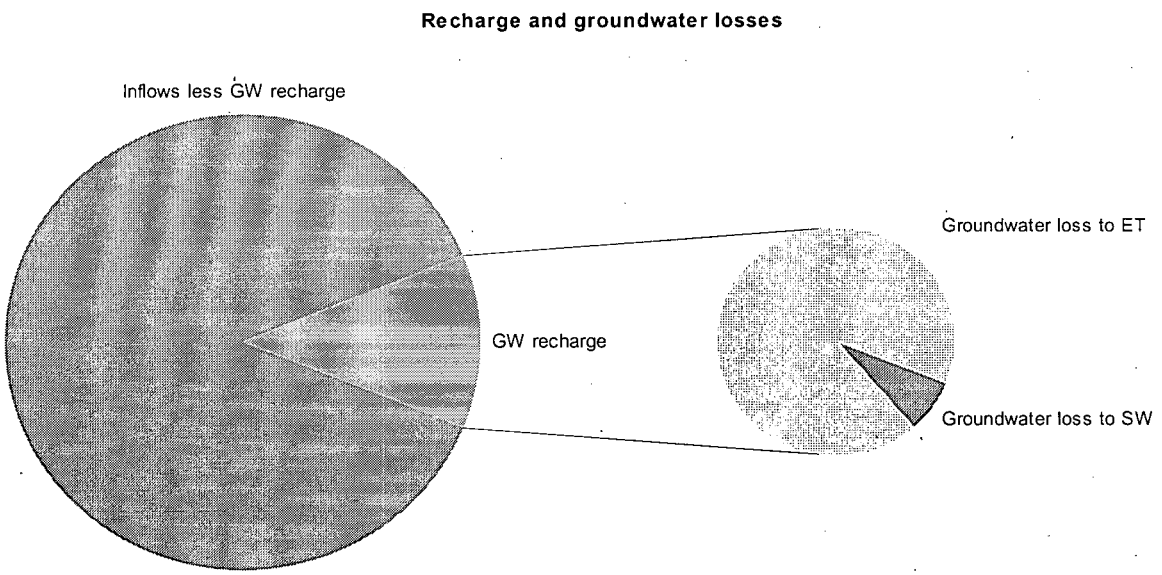


Notes:

- Diagram shows average year.
- Actual P & ET vary year
- Net groundwater term is zero
- Lateral groundwater inflow/outflow not shown - small.

Simple Mass Balance
(cont)

RFCA Stakeholder Focus Group
Attachment C
Preliminary Water Balance Estimates



Simple Groundwater Mass Balance

RFCA Stakeholder Focus Group
Attachment C
Preliminary Water Balance Estimates

RFCA Stakeholder Focus Group
REVISED Attachment D

Title: Basis for 30-day Water Quality Standard

Date: September 13, 2000

Author: John Stover
U.S. Department of Energy, Rocky Flats Field Office

Phone Number: (303) 966-9735

Email Address: john.stover@rf.doe.gov
robert.nininger@rf.doe.gov

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RFCA Stakeholder Focus Group
REVISED Attachment D
Basis for 30-day Water Quality Standard

Use of a 30-day Moving Average

Water quality standards in Colorado are generally classified as either acute (levels that show effects in a short term, usually one-day) or chronic (levels that show effects over a long term, usually 30 days or more). In accordance with Colorado's Water Quality Control Commission's Human Health Policy (Policy 96-2), the State of Colorado's Basic Standards for Plutonium (Pu) and Americium (Am) have been applied as chronic standards. Chronic standards imply a 30-day average.

However, the Commission's Human Health Policy is not intended and should not be interpreted to limit options that may be considered or adopted by the Water Quality Control Commission in any future rulemaking proceedings.

Since the Site recognizes that flows for 30 continuous days are rare, the 30-day moving average procedure was created in an attempt to capture adequate flow and water quality data and provide a better understanding of the Rocky Flats Environmental Technology Site's (Site's) hydrologic conditions. This does not necessarily reflect the risk to human health, which is the basis for the standards. Alternative data interpretations may be considered that are more consistent with the intent of the Commission's Human Health Policy.

Establishing Sample Size

EPA has expressed interested in the issue of sample size, since their enforcement action on Pu and Am exceedances from 1997 had been overturned on the basis of the sample being of non-sufficient quantity (NSQ).

Currently, there are Site activities that will clearly identify the appropriate sample size for a minimally acceptable analysis. At issue is the contractual minimum detectable activity (MDA) that the Site requires from off-site radiochemistry labs. The MDA is usually set at 10% of the target concentration (i.e., 0.015 pCi/L to measure against the 0.15 pCi/L standard), but in the case of the stream standards for these parameters, the MDA was set at 20% (i.e., 0.03 pCi/L). The Site established the increased contractual MDA as a scientific compromise to reduce the counting time and sample size. Using

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RFCA Stakeholder Focus Group
REVISED Attachment D
Basis for 30-day Water Quality Standard

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Title:	Exhibit 10, Colorado Water Quality Control Commission of State of Colorado, Supplement to the Prehearing Statement of the Water Quality Control Division, Matter of Revisions to the Basic Standards for Surface Water and Ground Water Regarding Plutonium and Americium
Date Faxed:	September 6, 2000
From:	Diane Niedzwiecki Colorado Department of Public Health and Environment
Phone Number:	(303) 692-2651
Email Address:	diane.niedzwiecki@state.co.us

ADMIN RECORD