

**DRAFT
RESPONSE TO DOE HEADQUARTERS'
COMMENTS ON THE SURFACE WATER
IM/IRAP/EA FOR OPERABLE
UNIT NO. 2 DATED
12 JUNE 1990**

(Comments by BDM)

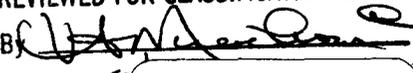
Prepared by

EG&G Rocky Flats, Inc
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16 AUGUST 1990

ADMIN RECORD

REVIEWED FOR CLASSIFICATION/UCNI

By 

Date  A-QU02-000044

GENERAL COMMENTS

Comment 1

This draft IM/IRA addresses surface water remediation at Operable Unit No 2 in response to state and EPA concerns regarding potential adverse impacts to human health and the environment. Contaminated ground water is exiting the subsurface in the form of seeps and these are the principal sources of surface water contamination. Concurrently, Rocky Flats is required by an Agreement in Principle to develop a separate remedial action plan to correct ground water contamination. This remedial action will be delayed, however, because insufficient information exists on the nature and extent of ground water contamination. In collecting and treating the seeps/surface water under the planned activities of the draft IM/IRA, however, the ground water will be treated indirectly.

Some resolution as to the potential overlap of these two efforts should be made, as it appears that remediating the ground water contamination will likely reduce the source of the surface water contamination and therefore preclude the present planned IM/IRA.

Response

Surface water remediation is viewed as a high priority by CDH and EPA and is being expedited to mitigate any potential adverse effects resulting from contaminated surface water that might occur before a ground water remedial action can be implemented. The surface water interim remedial action will likely be affected by a future ground water interim remedial action or the final remedy for OU 2. At that time, the surface water interim remedial action will be integrated and/or changed to fit the overall program.

Comment 2

It is not clear whether the proposed collection and treatment technologies will be applied on a field test basis for wastes collected at CS-61 only or on wastes collected from all collection stations located within Operable Area No 2. In several places in the text of the plan it is stated that granulated activated carbon treatment system is not effective in treating wastes containing vinyl chloride, methylene chloride, and acetone. However, since these parameters have not been detected in waste samples collected at CS-61 the plan contends that this treatment technology is acceptable. Yet in other sections of the plan waste collection from all seep locations found within Operable Area No 2 is discussed and analytical data for these locations indicate the presence of the above noted parameters above detection limits and above potential ARAR levels. Some clarification is appropriate as additional treatment technologies will have to be added to the proposed treatment train if vinyl chloride, methylene chloride, and acetone are present in the waste streams to be treated.

Response

The IRAP proposes granular activated carbon (GAC) adsorption for removal of volatile organic compounds (VOCs) from all collected OU 2 surface waters (i.e., CS-53, CS-55, CS-59, CS-61, CS-63 and CS-64). The analytical data presented in Appendix B indicates that methylene chloride, vinyl chloride and acetone were detected above ARAR levels only in stations SW-56, SW-60, and SW-101 which are upstream of collection point CS-61. These constituents, however, have been estimated below detection limits and/or were also present in laboratory blanks at the downstream station SW-61. Based on the water quality data and other technical and cost considerations, it appears that the selection of GAC as a preferred technology for this application is reasonable. The results of the bench- and field-scale treatability studies will ultimately determine the VOC removal technology to be employed.

The text in Section 4.4.2.1 will be modified to clarify this point.

SPECIFIC COMMENTS

Comment 1

Page 2-22, Table 2-1, and Page 3-5, Table 3-1 1

Tables indicated that vinyl chloride is present in Well No 35-86 at 470 ug/l, this is above the potential ARAR of 5 ug/l

Response

Vinyl chloride has been detected in ground water well 35-86 at values above ARAR. These levels of vinyl chloride, however, have not been detected in OU 2 surface waters.

Also, under the new NCP guidelines for determination of potential ARARs, the ARAR for vinyl chloride is the detection limit of 10 µg/l. This will be updated throughout the document.

Comment 2

Page 2-27, 3rd paragraph

Text indicates that vinyl chloride levels of 470 ug/l are present at Well No 36-87. This well number is different than the one noted with the same contaminant level in the previous comment.

Response

The above cited well number will be corrected to read well 35-86.

Comment 3

Page 2-32, last paragraph

Acetone, methylene chloride, and vinyl chloride were detected in soils surrounding the East Trenches Area at levels up to several hundred ug/kg. This supports the finding that these contaminants are present in Operable Unit No 2 and that they are likely to be found as a surface water contaminant as well.

Response

The soil data in the East Trenches Area suggests that these soils are a source of methylene chloride and acetone contamination in ground water and possibly surface water. However, the design of this interim action is based on surface water quality data.

Comment 4

Page 2-44, Section 2.5

The text states that there is no imminent threat to the public health and the environment posed by the contaminants in the surface water, that any surface water contamination would be retained in on-site.

in downstream surface ponds, and that implementation of the IM/IRA will facilitate contaminated water management. If no imminent threat can be demonstrated then it may be prudent to forego surface water remediation in favor of the ground water remediation program which is mandated by an Agreement in Principle since this will likely largely reduce the source of contaminants to the surface waters and likewise constitute a sound contaminated water management program.

Response

The suggested approach is a rationale one, however, agreement has been reached between DOE RFO and the regulatory agencies to conduct this OU 2 surface water interim remedial action.

Comment 5

Page 4-2, Table 4-1

The title of this table is the "Basis for Design of Surface Water Treatment Plant". The table presents vinyl chloride and methylene chloride influent concentrations at levels above potential ARAR levels. The treatment system as proposed cannot treat or reduce vinyl chloride, methylene chloride, and acetone in influent raw waste streams.

Response

The basis for design is computed using maximum values for contaminants at the surface water station where water is to be collected and at all stations upstream. This is a conservative approach and suggests vinyl chloride, methylene chloride, and acetone will be present in the influent. Water quality data for the stations where surface water is to be collected does not provide evidence of contamination with these compounds. See our response to General Comment 2 which discusses this issue further.

Comment 6

Page 4-7, 3rd paragraph

Add collection system "CS-53" to list.

Response

Correction noted. CS-53 will be added to the list.

Comment 7

Page 4-10, 3rd paragraph

The design for SW-61 may be understated. The flow data taken from flow data obtained from 1988, 1989, and 1990 field investigations indicate a range of 0 - 166 gpm. The design flow of 38 gpm is based on a single monitoring event taken in April 1990 and does not take into account all historical data. Since the flow from this station constitutes roughly two-thirds of the design flow of the treatment system, the treatment system may be seriously underdesigned which may in turn result in frequent system by-pass.

Response

The DOE and the regulatory agencies have agreed that only "base flows" will be collected for the surface water seeps and in-stream monitoring stations. A base flow is defined here as the maximum observed flow excluding flows observed during high precipitation events. For SW-61, the 166 gpm flows observed on March 20, 1989 and March 12, 1990 are clearly high precipitation related flows. Excluding these data, the maximum observed flow recorded in the RFP environmental restoration data base is 35.9 gpm on July 1, 1988. The April 1990 non-storm-related flow of 38 gpm was used as a basis for design. The text in Section 4.3.1.1 will be modified to describe the base flow concept and its use in establishing the basis of the treatment system design.

Comment 8

Page 4-12, Table 4-3

The flows reported for the collection stations listed are not maximum flows as titled

Response

The column heading will be changed from "Maximum Flow (GPM)" to "Design Flow (GPM)"

Comment 9

Page 4-20, last paragraph

Add one feed equalization tank to the list of components at the bottom of the page

Response

A 10,000 gallon feed equalization tank will be added to the equipment list after the statement "Auxiliary tanks and process equipment."

Comment 10

Page 4-25, Table 4-5

A filter cake drier could be installed to reduce the volume of water contained in the cake thus reducing the cost of disposal

A year round influent flow to the treatment system of (20) gpm is shown in the text. Some justification for this number is necessary.

A suspended solids concentration of 350 ppm in the influent is shown in the text. Some justification for this number is also necessary.

Response

Processing of the sludge filter cake downstream of the press will be handled as necessary according to the standard waste management procedures at the RFP. A drying step need not be considered within the scope of the surface water preferred IM/IRA. It is noted that disposal costs are based on volume, not weight.

SW-61 represents more than two-thirds of the total design flow. The historical SW-61 flow data used to establish the CS-61 design flow of 38 gpm (i.e. Table 4-3 with the 166 gpm high precipitation related flows eliminated) indicates an annual average collected flow at SW-61 of less than 12 gpm. Twenty (20) gpm was conservatively chosen as the annual average flow for the sum of all collection systems for purposes of estimating sludge generation, power consumption, etc. This point will be clarified in the footnotes of the appropriate cost estimate tables.

A flow weighted maximum TSS concentration of the OU 2 seeps and in-stream monitoring stations was calculated to be 350 ppm based on field investigations performed in 1987, 1988 and 1989. The computation is similar to that for computation of flow weighted maximum contaminant concentrations to establish the basis of design of the surface water treatment plant. Footnotes in the cost tables for membrane filtration and contact filtration will be modified to discuss this estimate.

Comment 11

Page 4-37, last paragraph

The text states that vinyl chloride, methylene chloride, and acetone are not present at SW-61 with no mention that they are nor are not present at the other monitoring/collection stations. My understanding of the proposed treatment system is that it will process wastes collected from six collection stations.

Response

The proposed treatment system will process wastes collected from six collection systems: CS-53, CS-55, CS-59, CS-61, CS-63, and CS-64. However, vinyl chloride, methylene chloride, and acetone were detected above ARAR levels only at stations SW-56, SW-60, and SW-101, which are upstream of CS-61. The text will be modified to provide this clarification. See our responses to General Comment 2.

Comment 12

Page 6-1, 2nd paragraph

Add collection station CS-53 to list.

The text does not state whether a 5,000 gallon capacity sump is installed at CS-61 as is installed at the other collection stations.

Response

The omission of CS-53 from this text will be corrected.

For costing purposes, a 1000 gallon sump is assumed to be installed at CS-61.

Comment 13

Page 6-2, 2nd paragraph, 3rd sentence

Change "well" to "will"

Response

This typographic error will be corrected

Comment 14

Page 6-5, 1st paragraph

It may be desirable to provide additional storage capacity to account for any source surge flow system down-time for maintenance/repair, plant upset, or underdesign

Response

Designers of cross flow membrane filtration systems suggest a minimum of two hours of influent feed equalization capacity to achieve desired operating performance. In regard to source surge flow and underdesign, recall that the 10,000 gallon tank will provide greater than 8 hours retention time under average flow conditions. With adequate standby equipment on hand, this duration should be sufficient for routine maintenance of the treatment system. Furthermore, surface water flows greater than the individual collection system design flows (i.e. base flow) will not be collected as per the agreement between the DOE and the regulatory agencies. Lastly, the specification of a 10,000 gallon tank is for cost estimating purposes. The actual tank size will be determined during final design.

**DRAFT
RESPONSE TO DOE HEADQUARTERS'
COMMENTS ON THE SURFACE WATER
IM/IRAP/EA FOR OPERABLE
UNIT NO. 2 DATED
12 JUNE 1990**

(Comments by Carol Borgstrom)

Prepared by

EG&G Rocky Flats, Inc
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16 AUGUST 1990

GENERAL COMMENTS

Comment 1

The discussion of terrestrial impacts in section 7.3 indicates that the proposed action could potentially impact some or all of the 1,000 feet of linear wetlands due to removal of water from one segment of this habitat. The text indicates that the required consultation with the Corps of Engineers (COE) has been accomplished and, based on verbal communications, the COE has determined that no permit is required. We suggest that this consultation be documented. Is this the spring of 1988 consultation with both COE and the U.S. Fish and Wildlife Service to delineate wetlands which is discussed in section 2.2.6. Please clarify whether or not any mitigation measures, such as erosion control or creation of compensatory wetland areas, would be required. If such mitigation is required, a mitigation plan may be necessary. Also, please indicate whether the loss of flow attenuation provided by these wetlands would be likely to result in a substantial impact on downstream water quality, such as suspended solids at the NPDES discharge location(s).

Response

In the interest of further proof of compliance with the National Environmental Policy Act, DOE and EG&G authorized a new site-wide wetlands assessment to be performed in 1989 by ASI. The report entitled "Wetlands Assessment, Rocky Flats Site," April 1990, provided a thorough updated evaluation of wetlands at the Rocky Flats site. Based on this information, and an updated estimation of water collection/treatment interruption of natural flow in South Walnut Creek (24-36 hours during periods where natural flow is less than the design flow rate), it was determined that there will be no impacts to wetlands. The question of potential impacts, however, led to recent discussions with Mr. Terry McKee, of the Omaha District of the COE, in which he stated that no permit would be required as long as we did not dredge the stream. This consultation has been documented in a telephone contact report and will be followed up with a letter from the COE. No mitigating measures are required.

Because wetlands are not expected to be impacted, there should be no impact to downstream water quality.

Comment 2

The discussion in section 7 of the Environmental Effects of the Proposed Action and Alternatives adequately assesses the primary exposure pathway (airborne), but does not specifically state whether other pathways, such as water consumption, would be important.

Response

Neither the proposed action, nor any of the alternatives should produce any environmental effects. The air pathway is the most important exposure route. The surface water to be collected is not used on site for drinking water, and discharge of surface water off site must meet NPDES permit requirements.

SPECIFIC COMMENTS

Comment 1

P 7-3, paragraph 4 *The effluent from the water treatment units will contain VOCs and radionuclides at a low concentration level. Identification of these levels, if possible, would provide additional support for lack of consideration of the drinking water pathway in the impact analysis.*

Response

The VOC and radionuclide effluent requirements are presented in Section 4, Table 4-1. This table is now referenced in the paragraph cited above.

Comment 2

Sections 7.5.1, 7.5.2 and 7.5.3 *Airborne Exposures*. Given the EA statements that the Mound, Oil Burn Pit, Trench T-1, and Woman Creek sites have been contaminated by wind entrained plutonium, the text should explain why wind entrainment of contaminated soil is not considered in the radiological impact analyses for normal operations.

Response

The subject issue (wind entrainment of plutonium) is not part of the proposed action and consequently was not evaluated in this document. The analysis does evaluate the effects of fugitive dust from construction activities and normal operations. It is noted that RFP monitors the 903 Pad and Plant site as well as the greater Denver area for airborne Pu. At no time since the 1971 completion of the drum storage cleanup has the Pu concentration exceeded the DOE "Derived Concentration Guide" of $20 > 10^{-15}$ Ci/m³, even at the source area. This compares with an average radon concentration of 110,000 x 10^{-15} Ci/m³ for the United States.

Comment 3

P 7-11, paragraph 2 *The text implies that, since the EPA does not list an inhalation reference dose for phthalates, it is not necessary to consider impacts of release of these compounds. It is preferable to present a substantive reason for lack of analysis of impacts of exposure to phthalates.*

Response

Your comment is acknowledged and the health effects due to phthalates via the inhalation pathway are addressed in the revised document. The revised paragraph, now found on page 7-14, paragraph 1, now reads as follows:

To calculate conservatively high dose estimates, the uptake of fugitive dust by the workers was based on a continuous exposure to a total airborne dust loading of 15 milligrams per cubic meter (5 mg/m³ respirable) of air, the maximum dust loading permitted by OSHA regulations for nuisance dust. It was estimated that the construction work will continue for sixty calendar days. Assuming no respiratory protection and exposure of workers eight hours per day, five days a week for the full sixty calendar days, the maximum dose to a worker would be 0.2 rem CEDE. A breathing rate of 9.6 cubic meters per eight-hour shift (ICRP 23) was used in the calculation. The incremental cancer risk

and noncancer hazard quotient due to the presence of phthalates in the dust were calculated to be negligible with values of 2×10^{-11} and 4×10^{-6} , respectively

Comment 4

P 7-11, paragraph 5 *The text should explain why dust from truck wakes does not constitute an exposure path for non-driver remediation project workers during normal operations. The explanation should be consistent with the inclusion of this pathway in the impact analysis for non-project site employees (EA, p 7-13) and members of the public (EA, p 7-14)*

Response

The text has been modified and now appears on Page 7-14, paragraph 3, of the revised draft as follows

Transfer of contaminated surface water by tanker truck results in a fugitive dust source term during operations. While the fugitive dust generated in the wake of the vehicle may provide an exposure pathway for other site workers and the public, it is not expected to be a significant exposure pathway for the vehicle operator. The treatment facility and surface water collection sites are not normally occupied by site personnel. The area is mostly desolate and contains only one unoccupied building. Consequently, there will be no significant exposure of site personnel to fugitive dusts at these locations.

Comment 5

P 7-12, paragraph 4 *The text implies that an estimated dust generation rate, in combination with a dispersion model, was used to project construction phase impacts at an on-site guard post. The text also states that the approach used to estimate airborne contamination levels was the same as in Section 7 5 1. Section 7 5 1 states that an assumed dust loading (i.e., the OSHA limit) was used to estimate impacts. The text should be revised to eliminate the apparent inconsistency.*

Response

Your comment is acknowledged. The subject paragraph has been revised to clarify that the same approach to evaluate surface contamination levels, as done in Section 7 5 1, was utilized.

TEXT EDITS/MARGIN COMMENTS

Comment 1

Pages 2-18, Section 2 2 5, Paragraph 2 *Reference should be cited for USFWS concurrence on T&E species*

Response

The citation for this statement is Rockwell International, 1988d This addition has been incorporated into the text

Comment 2

Page 2-19, Paragraph 3 *What about linear wetlands?*

Response

Please see our response to General Comment 1

Comment 3

Page 2-27, Paragraph 3 *1,1-DCA, 1,1-DCE, and vinyl chloride are well known degradation products of TCE and PCE*

Response

The comment has been incorporated into the text

Comment 4

Page 2-28, Paragraph 3 *What is background?*

Response

A discussion and enumeration of background concentration ranges for analytes is in the revised draft

Comment 5

Page 2-29, Paragraph 3 *Again, what is background?*

Response

See above

Comment 6

Page 2-38, Paragraph 2 *Aluminum should be identified as a metal above background*

Response

Aluminum has been identified as above background in the revised text

Comment 7

Page 2-38, Paragraph 1 *Plutonium and americium are insoluble under naturally occurring conditions*

Response

"Under naturally occurring conditions" has been included in the sentence in the revised draft

Comment 8

Page 2-40, Paragraph 1 *Add "or degradation products" to the sentence*

Response

The phrase has been included in the sentence in the revised draft

Comment 9

Page 3-25, First Bullet *Identify the specific organic carcinogens*

Response

Constituents that are carcinogens and the corresponding carcinogenic risk due to exposure at the ARAR concentrations are identified in Table B-1 in the revised draft

Comment 10

Page 4-15, Paragraph 4 *Are there any health concerns pertaining to periodic cleaning of manholes, sumps, etc , to remove accumulated solids?*

Response

Health and safety concerns will be nominal The work would be conducted in accordance with the OSA to assure worker protection

Comment 11

Page 4-35, Paragraph 2 *What if regeneration is required? How will regenerant be disposed?*

Response

These questions are answered previously within the same paragraph

Comment 12

Page 4-22, Paragraph 2, and Page 4-39, Paragraph 3 *Is the Nevada Test Site available?*

Response

The surface water IM/IRA has identified the Nevada Test Site as a potential disposal site for mixed waste generated at the Rocky Flats Plant. The site was selected to provide the reviewer with a targeted disposal site and also provide a concrete basis for conducting a risk assessment. Although the possibility exists that the Nevada Test Site may not be available, it nevertheless provides a reasonable basis for conducting the risk assessment and projected project impacts.

Comment 13

Page 7-5, paragraph 3 *Suggest follow-up to identify whether compensation is required*

Response

The text of Section 7.3 as it pertains to wetlands has been revised based on additional information and is explained in the Response to the first General Comment. The result is no or minimal impact to wetlands. The text has been modified accordingly.

Comment 14

Page 8-2, Section 8.1.2, Personnel Exposure *This paragraph is unclear*

Response

Section 8.1.2 has been modified to improve its clarity. The section now reads as follows:

The No Action alternative will have minimal impact on current workers at the site or at adjacent sites. Workers would still be required to conduct quarterly sampling, which would present no additional impact above current impact levels. The sources of hazardous materials would neither be removed nor controlled. However, the possibility of releasing contaminated water off-site would increase over time. The site would then be a source of public exposure in the long term.

**DRAFT
RESPONSE TO DOE HEADQUARTERS'
COMMENTS ON THE SURFACE WATER
IM/IRAP/EA FOR OPERABLE
UNIT NO. 2 DATED
12 JUNE 1990**

(Comments by Hazwrap for John Sands)

Prepared by

EG&G Rocky Flats, Inc
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Golden, Colorado 80401

16 AUGUST 1990

GENERAL COMMENTS

Comment 1

The measures proposed to mitigate surface water contamination are anticipated to operated for 30 years. Thirty years is the period defined by DOE for completion of all remediation actions. No information is provided in the text to indicate that the proposed action will be complete within 30 years.

The document title indicates that an Environmental Assessment has been performed. The two sections of the document that deal directly with environmental issues do not reflect the elements identified in DOE's Environmental Compliance Guide (10/88). DOE has defined the Environmental Assessment (EA) as performing three primary functions: 1) to determine whether a proposed action requires preparation of an EIS, 2) to aid an agency's compliance with NEPA when no EIS is necessary, and 3) to facilitate preparation of an EIS when one is necessary. It is usually in the EIS portion of the NEPA process that predictive models, pathway analyses, risk assessments, and other investigative procedures are employed. Many of the elements presented in Sections 7.0 and 8.0 of this document are more appropriate for an EIS than an EA. It is suggested that the EA constituent of the title be altered to Environmental Evaluation or some other designation other than one identified as a NEPA process step.

The title also indicates that the document is a decision instrument. The document does not conform to the format of decisional document. A decision document should serve to concisely report the major questions that were identified and accurately record the decisions that were made concerning the proposed action(s).

Response

The expected duration of the surface water IRA is not known. It may continue to operate and be a part of the final action for OU 2. Thirty (30) years is simply the basis for the present worth cost analysis of the alternatives. This will be so stated in the revised draft.

A DOE notice issued on August 2, 1988, entitled Integration of Environmental Compliance Processes, DOE-N-5400 4, established a DOE policy for meeting CERCLA and NEPA requirements for hazardous substance remedial action projects. Quoting directly,

Effective immediately, it is DOE's policy to integrate the requirements of the NEPA and RI/FS processes for remedial actions under CERCLA.

The notice further states that

A key element in the integration process is making a determination on the level of NEPA documentation that is required for a remedial action.

The draft Surface Water IM/IRA/EA has been reviewed by the DOE Office of NEPA oversight. The determination of this NEPA department's staff was

The scope and level of environmental analysis integrated into this document is appropriate, this document is generally adequate as an EA.

The use of EA in the title will remain

The format of the surface water IRAP conforms to CERCLA guidance for the preparation of an Engineering Evaluation/Cost Analysis. We request you provide the format for a DOE decisional document.

Comment 2

General surface contamination may be the predominant cause of radionuclides in surface water. The amount of radionuclide reduction in surface water resulting from treatment of ground water has not been proposed. It is possible that potential ground water contamination could represent an insignificant contribution to the radionuclide complement of surface water.

Response

It is likely that contaminated surficial soils are a source of radionuclide contamination present in OU 2 surface waters. Ground water withdrawal, if it were technically feasible at this time, would eliminate the seep and thus the source of the water of concern. It is recognized that a larger potential problem exists with regard to wide-spread radionuclide contaminated runoff. This is not an issue for the surface water interim action.

Comment 3

Conventional practice would dictate construction of ground water wells at or near the source of contamination. Subsequent ground water withdrawal would establish a negative gradient and reverse the flow of contaminants to the surface water body. Ground water withdrawal could require increased treatment capacity but at the culmination of this action both vertical and horizontal contamination will be removed. Without an analysis of ground water removal and treatment, it is difficult to compare the proposed alternatives.

The concept also does not address the possibility of ground water flow around the containment structures. Assuming that ground water remediation actions may be performed in the vicinity, location of discharge zones may change during the proposed 30 year operating period thus making the collection system obsolete.

It is unclear whether ground water modeling investigations were performed to predict the location and movement of the contamination plume. Major portions of the plume could bypass the collection seeps to emerge at other locations or to contaminate ground water resources off-site.

Decommissioning/decontamination and disposal costs are not presented for the preferred alternative. Operating costs associated with packaging, transport, and disposal of contaminated materials at the Nevada Test Site were not introduced. A comparison of relative risk associated with each alternative was also absent.

Response

The interaction between ground water and surface water contamination is not sufficiently understood to construct an effective ground water withdrawal system to eliminate seeps. The project schedule (presented in the IAG) does not allow time for investigations and modeling necessary for design of a ground water withdrawal system.

The actual operating life of the surface water IRA is not known at this time. The 30-year period established in the document is for the purpose of present worth cost analysis. The effect, if any of the ground remediations conducted in the vicinity of the surface water IRA, would likely be a lowering of the ground water table and elimination or reduction of current seep flows. In this case, the collection system in question may no longer be required.

Modeling investigations to predict the extent and movement of OU 2 ground water contamination has not been conducted due to insufficient data on OU 2 hydrogeology. A Phase II RFI/RIFS Work Plan for OU 2 has been prepared to further characterize the hydrogeology which should allow computer modeling of ground-water flow and contaminant migration. A brief description of the Phase II plan is provided in Section 1.1.

Labor and disposal costs associated with decontamination and decommissioning are not significantly different for the alternatives. Cost identified in this document are for the purposes of comparative analysis and are not intended to provide total estimated cost for budgetary purposes. Costs for disposal of wastes at the Nevada Test Site (NTS) are included in the revised draft. The risk, with respect to disposal at the NTS, is low for all the alternatives as discussed in Section 7.8

Comment 4

It is unclear from this document why the existing surface water collection, monitoring, and discharge system is inadequate to meet the current and future needs for reducing surface water contamination. It appears that the primary focus should be mitigation of the contamination source and effective removal of contaminated ground water.

Response

The existing surface water collection, monitoring and treatment/discharge system is adequate to prevent off-site release of contaminated surface water. However, collection of contaminated surface water "sources" may minimize (1) exacerbation of ground water contamination that could occur through infiltration of contaminated surface water, (2) treatment of high volumes of surface water runoff collected in the existing retention ponds, and (3) volatilization of organic compounds between sources and existing retention ponds. These factors taken together suggest the surface water IM/IRA would further reduce any potential that may exist for off-site release of contaminated water. It is also noted that EPA and the Colorado Department of Health (CDH) view implementation of this surface water IM/IRA, as proposed, to be a high priority.

Comment 5

The presence of contaminated laboratory blanks raises concern for the Quality Assurance/Quality Control procedures employed in the analyses.

Response

Methylene chloride and acetone are commonly used in laboratory solvent extraction. Their high volatility results in their ubiquitous presence in the laboratory air. Therefore, there is potential for lab contamination of field samples. EPA has set guidelines in the Statement of Work (SOW) for the Contract Laboratory Program (CLP) for permissible levels of the common laboratory solvents in laboratory blanks. The levels of methylene chloride and acetone found in laboratory blanks analyzed during the OU 2 surface water sample analysis work are well within the SOW guidelines.

Comment 6

The proposed alternative to collect surface water at Ponds B-5 and C-2 was incomplete and drew unsupported conclusions. It appears that only one alternative was completely developed and evaluated for surface water collection. The other collection alternative was discredited without presentation of supporting information.

Response

Collection of contaminated OU 2 surface water is not a reasonable alternative for consideration in the IM/IRA. The reasons are given in the Response to General Comment 4 of this section. Only one reasonable surface water collection method exists: collection by diversion at the sources. According to the revised National Contingency Plan (March 1990), all reasonable alternatives must be evaluated for the IM/IRA. If, however, only one reasonable alternative exists, the IM/IRA process may proceed with that alternative as the preferred alternative. Furthermore, collection by diversion at the sources is the collection method agreed to by EPA, CDH, and DOE in meetings held in February and March 1990.

SPECIFIC COMMENTS

Comment 1

Table of Contents *A list of acronyms and initialisms would benefit readers unfamiliar with the terminology presented in the document*

Response

A Glossary of Acronyms has been added to the Table of Contents. In addition to acronyms, the list contains chemical compound abbreviations and engineering units

Comment 2

EXECUTIVE SUMMARY, p EX-1, para 3 *No mention is made of the appropriate DOE Orders (DOE Order 5440 1C) or guidance under which this action will be performed*

Response

Reference to DOE Order 5440 1C has been added to the Executive Summary

Comment 3

Section 1 1, p 1-1, para 1-2 *The stated purpose for this document is "to minimize the migration of hazardous substances via surface water from areas that pose a potential long term threat to the public health and environment." The potential long term threat has not been established based upon surface water or ground water model, risk assessments to the public, estimates of probable failure of the existing system, or other quantifiable measures that would validate the assumption*

Response

The potential long-term threat to public health and the environment by contaminated OU 2 surface water, if any, is not known. The project schedule presented in the draft IAG does not allow adequate time to conduct detailed surface and ground water modeling, risk assessments or failure analysis for the existing collection and treatment system. The surface water IM/IRA is being pursued based on unquantifiable potential adverse effects and in accordance with agreements reached with EPA and CDH. See our response to General Comment 4

Comment 4

Section 1 1, p 1-2, para 2 *The admission that insufficient information on the nature and extent of ground water contamination exists at this time to pursue ground water remediation makes the technical basis for this Interim Measures/Interim Remedial Action Plan (IM/IRA) questionable To initiate a proposed IM/IRA after results of the initial site investigation were inconclusive, indicates a concern for a long-term threat that has not been completely assessed This statement should be modified to be more consistent with the document*

Response

See response to Specific Comment 3

Comment 5

Section 1 1, p 1-3, para 4 *Excluding the potential impacts associated with final remedial actions at Operable Unit 2 severely limits the scope of this assessment During the proposed 30 year operating life of the interim measure, changes in the status of ground water at the site could change many of the assumptions used to justify this IM/IRA action Economic justifications, removal efficiency, operating costs, and other parameters related to the IM/IRA action could be altered by remedial activities on Operable Unit 2*

Response

The operating life of the surface water IM/IRA is not known at this time A 30-year period is used as a basis for cost comparison of the alternatives It is difficult to predict the effect of ground water remedial activities on the proposed surface water IM/IRA Regardless, the final remedial action for OU 2 will incorporate, as appropriate, the surface water IM/IRA for compliance with all remediation requirements of the NCP Changes in the basis of design due to OU 2 ground water remedial actions would be incorporated in the final remedial design for OU 2 surface water

Comment 6

Section 2, Figs 2-4 through 2-9 *These figures should identify the boundaries of Operable Unit 2*

Response

The purpose of Figure 2-4 is to illustrate the drainage patterns of the RFP site Furthermore, the scale of Figure 2-4 does not allow accurate location of the OU 2 areas as is provided in Figure 2-2

Figures 2-5 through 2-8 indicate the Individual Hazardous Substance Sites (IHSSs) associated with the 903 Pad, Mound and East Trenches Areas which is the pertinent information to convey on these maps

The IHSSs have been added to Figure 2-9 shown on Figures 2-5 through 2-8

Comment 7

Section 2 *It is recommended that background levels of contaminants be reported in conjunction with field survey results*

Response

Background levels of contaminants are incorporated in Tables A-5 through A-16 in the revised draft

Comment 8

Section 2 3 3 *The discussion of soil contamination at various locations could be reduced by providing the necessary data in tabular form The discussion would also benefit from development of the relationship between contamination levels and soil depth or depth from ground water The discussion would also be enhanced by estimates of contaminant transport through the soil*

Response

Soil, ground water, and surface water data have been tabularized in Appendix A The soil contamination discussion has been concisely summarized, and to the extent possible with the existing data, contaminant interaction within the various media has been discussed

Comment 9

Section 2 3 3, p 2-32, para 5 *The third sentence implies that other reported values for acetone contamination in soils might be in error The sentence should be rewritten to correct this assertion*

Response

The comment is acknowledged The entire section has been rewritten

Comment 10

Section 2 3 4, p 2-34 *A description of sampling frequency for collection on sediment materials would contribute to the text in this subsection A more complete description of sample locations would resolve questions of sampling consistency, e g bottom of stream bed, side of channel, etc*

Response

Sediments are not sampled on a routine basis The sampling technique is presented in the Rocky Flats Plant ER Program SOPs The sampling technique is consistently applied at all sampling locations

Comment 11

Section 2 3 5, p 2-37, para 2 *The first three sentences represent a description of the ground water/surface water interaction that should be moved to Section 1 0 INTRODUCTION and expanded*

Response

The discussing has been expanded to include similarities in local ground water and surface water contamination We felt it best to keep this discussion in Section 2 3 5 in light of our responses to other comments presented here regarding hydrogeology and ground water contaminant migration

Comment 12

Section 2 3 5 1., p 2-38, para 3 *Soil erosion may be indicated by the presence of elevated radionuclide contamination in surface water samples If erosion is a major transport mechanism for contamination of surface water, the importance of collecting and treating ground water may need to be reassessed*

Response

See our response to General Comment 2

Comment 13

Section 2 3 7, p 2-42 *This summary contains information not previously presented in Section 2 3 and might be appropriately retitled interpretation of Environmental Contamination Data*

Response

This section has been rewritten to better summarize the nature and extent of ground water contamination, and deemphasize natural phenomena that could explain elevated inorganic constituents in ground water

Comment 14

Section 3 1, p 3-1, para 1 *The overall objective of the IM/IRA is not the same as the one proposed in Section 1 The different objectives should be resolved*

Response

The overall objective stated in Section 3 1 has been revised to be consistent with the objective stated in Section 1

Comment 15

Section 3 3 1, Tables The 37 pages of tables in this section overpower the text The text would also benefit from development of conclusions based upon the tabular material It is suggested that most of the tables be moved to an appendix

Table 3-1 4 Gross alpha and beta are not radionuclides and should not be reported in mg/l units These values should be reported in pCi/l as in Table 3-2 4

Response

The tables are in Appendix D in the revised draft The discussion has been changed to be in keeping with the new NCP (March 1990)

The "typo" mg/l has been corrected to show pCi/l

Comment 16

Section 3 3 2, p 3-29, para 3 A more complete list of location specific requirements should be presented in the text Elements such as area within flood zones and areas affecting water bodies, should be included The text would also benefit from a discussion of the prerequisites for location specific status to determine whether such laws should be considered ARARs Section 2 2 5 through 2 2 7 address these issues and should be incorporated into this discussion

Response

The discussion of the location specific ARARs has been changed per this comment It is more to the point, and focusses on floodplain and wetland restrictions

Comment 17

Section 4 1 1, p 4-4, para 3 Ground water withdrawal may be considered the most appropriate collection technique for Operable Unit 2 but may fail to meet the requirements of the federal agency agreement Insufficient understanding of local hydrology is usually not considered a major constraint in development of a well array

Response

See our response to General Comment 3

Comment 18

Section 4 1 2, p 4-5, para 4 Problems associated with Pond B-5 filtration treatment are not general knowledge A reference to the proposed difficulties would be appropriate

The conclusion that reverse osmosis and electro dialysis are not cost-effective technologies for the removal of radionuclides should be supported by references to other similar design studies or reports of recent investigations

Response

It is well known that conventional fabric filtration is not applicable for filtration of surface waters due to the relatively large concentration of suspended solids present in these waters. The filter media fouls quickly requiring impractically high operation and maintenance. For this reason it is not necessary to reference the current performance of the filtration system on Pond B-5, and therefore, the reference to this system has been removed from the text in the revised draft.

The conclusion that reverse osmosis and electro dialysis are not cost-effective technologies for the removal of radionuclides will be supported by providing installed capital costs for these process units.

Comment 19

Section 4.2.1, p. 4-6, para. 1 *It appears that long-term reliability as a criteria for effectiveness evaluation may be in contradiction with the concept of an IM/IRA. A time interval could appear in parenthesis behind long-term.*

All of the criteria employed for the effectiveness evaluation should be identified either in the text, an accompanying table, or in the appendices.

Response

A more appropriate phrase is "continued reliability over the life of the IM/IRA". The statement in Section 4.2.1 has been modified accordingly.

The criteria for the "effectiveness evaluation" is included in the text in Section 4.2.1. Additional presentation of these criteria in tabular form adds little to the actual evaluations.

Comment 20

Section 4.2.3, p. 4-7, para. 1

Annual operating and decontamination/decommissioning costs are not included in the criteria for evaluation but operating costs are identified in Section 4.3.1.4 and estimated in Table 4-4. Not included in the annual operating costs are estimates for disposal of radioactive, hazardous chemical, and mixed wastes. Costs associated with waste disposal are usually considered major evaluation criteria in the selection of the alternative. It is recommended that these costs be identified and incorporated into future evaluations of the remedial alternatives.

Response

Annual operating costs (including disposal costs) have been added to the cost evaluation criteria listed in Section 4.2.3. Waste disposal costs for construction-generated wastes are also included in the capital cost. See our response to General Comment 3 regarding decontamination/decommissioning costs.

Comment 21

Section 4 3 1 1, p 4-9, Table 4-2

The significance of presenting the raw flow data for SW-61 is unclear The table could be deleted without incurring resistance to the proposed flow value

Response

The historical flow rates recorded for SW-61 lends credibility to the proposed design flow value for CS-61 The historical data also illustrates the seasonal variation in flow rate at SW-61

Comment 22

Section 4 3 1 1, p 4-13, para 1 The eventual fate of sediments and trash removed upstream from the weir is not addressed It is also unclear if these sediments and trash represent a radiological and/or hazardous chemical waste management concern The practices and procedures necessary to evaluate and manage these materials should be alluded to in the text Appropriate disposal of these materials should also be identified The operation and maintenance costs associated with periodic sediment removal from Upper South Walnut Creek is not identified in Table 4-4 It is suggested that this cost be included in the table

Response

Collection and disposal of sediments and debris from all surface water collection stations has been added to Section 4 3 1 1 In addition, the costs associated with recovery and disposal of the wastes are included in Section 4 3 1 2 To be conservative in the cost analysis, the wastes recovered from the collection systems will be handled as mixed wastes intended for disposal at the Nevada Test Site The estimated labor and disposal costs will be presented in Table 4-5, "Assumed Costs for Surface Water Diversion and Collection Systems "

Comment 23

Section 4 3 1 2, p 4-15, para 3 The text does not address all of the criteria for effectiveness evaluation identified in Section 4 2 1 Protection of the community and workers during the remedial action are areas that should be addressed

Response

The comment is acknowledged and the discussion in Section 4 3 1 2 has been expanded to cover community and worker protection in the revised draft

Comment 24

Section 4.3.1.3, p 4-15, para 4 All of the criteria for implementability evaluation were not addressed in this text. Off-site disposal capacity, coordination with other agencies, and the ability to obtain the necessary approvals or permits were not included in the text. It is recommended that these and other criteria be addressed in the text.

Response

We agree. The discussion has been expanded accordingly.

Comment 25

Section 4.3.1.4, Table 4-4, p 4-17 and 4-18 Costs associated with the annual disposal of contaminated materials and decommissioning the surface water diversion and collection systems should be added to Table 4-4.

Response

See our responses to General Comment 3 and Specific Comment 22.

Comment 26

Section 4.3.2.1, p 4-16, para 1 The alternative to collect surface water at Ponds B-5 and C-2 was discredited before an analytical comparison could be performed. Without complete description of the technology, effectiveness, implementability, and cost, the evaluation of this alternative has not been performed as defined by the screening process presented in Section 4.2.

Response

See our responses to General Comments 4 and 6.

Comment 27

Section 4.3.2.2, p 4-19, para 1 The cross media transfer concern was not expressed in Section 4.3.1.2 with the possibility of ground water contamination of surface water. This concern should be addressed for both situations.

No estimate has been provided that indicates the total quantity of VOC that might be released to the atmosphere. Also, no estimate of the quantity of VOC lost to the atmosphere from controlled venting of storage sumps has been presented.

Concern for atmospheric contamination is valid but unbounded in terms of potential magnitude and in comparison with the other proposed alternative. It is recommended that before this issue is presented in the text as a justification for disqualifying an alternative, that it be more completely described and supported by quantitative estimates.

Response

The cross media contaminant transfer is mentioned in Section 4 3 1 2

VOC emissions have not been quantified, and attendant public health risks have not been evaluated because of the large uncertainty in such an analysis. However, it is noted that the VOC emissions are insignificant relative to current releases from the RFP operations. The volatilization cross-media contaminant transfer concept has been presented as a factor in dismissing surface water collection at the existing retention ponds largely because of the negative public perception to uncontrolled contaminant releases at the RFP. This section of the document has been deleted in the revised draft. Please see our response to General Comment 6 for further discussion.

Comment 28

Section 4 3 2 3, p 4-19, para 1 *The issue of high flow treatment is unsupported because this situation has not been previously described in the text. The potential impact of increased water volume on the ARARs has not been addressed with regard to this specific alternative.*

The discussion identifies surface water collection at Ponds B-5 and C-2 as a "backup" alternative. This phrasing indicates a predisposition to the source collection alternative and should be removed from the text.

Response

This section has been deleted in the revised draft. See our response to General Comment 6 for further discussion.

Comment 29

Section 4 3 2 4, p 4-19, para 3 *No cost information is presented. The pump station and transfer line have not been previously identified in the discussion of this alternative. However, without cost information "it was noted that a pump-transfer system will cost significantly less to build and operate than the source diversion collection alternative." This conclusion is unsupported by the text information and should be amended. If cost information exists for this alternative, it should be included in the discussion.*

Response

This section has been deleted in the revised draft. Please see our response to General Comment 6 for further discussion.

Comment 30

Section 4 4 1 1, p 4-20, para 1 *Reference is made to Section 4 2 2 1 but is not present in the document. The correct reference should be substituted or Section 4 2 2 1 should be added to the document.*

Response

The correct reference should have been to Section 4 4 2 1 The text has been changed to correct this error

Comment 31

Section 4 4 1 1, p 4-22, para 2 *The postscript in parenthesis should be removed*

Response

We agree The text has been changed in the revised draft

Comment 32

Section 4 4 1 1, Table 4-5, p 4-24 and 4-25 *Item C, Sludge Waste Disposal estimates an annual cost of \$450/cu yd It is unclear if this estimate includes packaging costs and transportation to NTS*

Response

The estimate does include transportation cost to NTS The footnote will be modified to clearly define the basis for the unit cost

Comment 33

Section 4 4 3, p 4-37, para 3 *One of the major limiting factors in the performance of activated carbon adsorption systems is the inability to performed over a range of contaminant concentrations Contaminant concentrations exceeding design loading capacity could result in release of untreated waste waters This consideration should be addressed in the text*

Response

In our opinion, all treatment technologies for organic contaminant removal have limited ability to perform over a wide range of contaminant loading We feel activated carbon is least affected by this condition relative to the other technologies considered in IRAP/EA

Comment 34

Section 4 4 3 3, p 4-50, para 3 *Concern for increased costs associated with disposal of mixed waste at the Nevada Test Site should be uniformly applied to all situations where mixed waste may be generated*

Response

We agree This concern is discussed in both the activated carbon and air stripping technology evaluations

Comment 35

Section 5 Table 5-1 represents a summary of information developed in preceding sections and is not an analysis No numerical or other uniform basis is provided for comparison of the various alternatives Based upon the information presented in this table, it is not clear that a similar recommendation would be the result

Response

In our opinion the section is adequate in elucidating the major advantages and disadvantages of the alternatives in order to qualitatively determine the preferred alternative A feasibility study for the final remedy at OU 2 would greatly benefit by a quantitative approach

Comment 36

Section 5 2, p 5-4, para 2 Selection of a diversion alternative can not be supported on the basis of the IM/IRA alternative screening process due to an incomplete description and analysis of the retention pond alternative Unless supported by numerical analyses, these criteria should be interpreted as subjective evaluation criteria

Response

See our response to General Comment 6

Comment 37

Section 5 2, p 5-5, para 1 Exclusion of the UV peroxide alternative on the basis of an existing operation at the 881 Hillside and development of a treatment performance data base were not identified earlier as selection criteria If these are valid considerations, they should be incorporated into Section 4 2

Response

This statement was made based on early discussions with EPA where they advanced this notion They have since retracted this position and accordingly this criterion for excluding the UV peroxide alternative has been deleted in the revised draft

Comment 38

Section 5 2, p 5-4 and 5-5 The text contains no discussion or comparison of cost considerations among the proposed alternatives Also no information is presented concerning the cost per gallon for treatment among the various alterative configurations Although the document has stated that the proposed action is not constrained the \$2 million statutory limit (Section 4 2 3), cost considerations are usually considered major elements in evaluation of proposed actions Justification for excluding cost information from the evaluation process should be addressed

Response

The text of the revised draft has been modified to incorporate a discussion of relative cost of the alternatives

Comment 39

Section 6 1 1, p 6-2 It is unclear whether the sumps and associated piping being installed as part of this action will require secondary containment under the same considerations as the 10,000-gallon equalization tank (Section 6 1 2)

Response

All sumps and piping will have secondary containment in order to comply with RCRA regulations pertaining to tanks The text will be modified to make this clear

Comment 40

Section 6 1 2 1, p 6-8, para 1 Alarm systems for unmanned waste water treatment facilities are usually connected to either automatic shutdown circuit or a telemetry system The text provides no indication of the system response to an off-specification event A description of the planned response would be beneficial

Response

This level of detail is best presented in the final design We wish to be as general as possible in the IRAP/EA to achieve greater flexibility in actual design of the collection and treatment systems

Comment 41

Section 7 1, p 7-1, para 3 The conclusion that VOC concentrations in soils at Operable Unit 2 are insignificant is questionable The sentence should be altered to reflect a degree of uncertainty, because all soils in the areas proposed for excavation/construction have not been sampled

Response

Your comment is acknowledged The sentence has been modified and now reads "Based on sample analysis to date, VOC concentrations in soils at OU 2 are insignificant"

Comment 42

Section 7 1, p 7-2, para 5 *Air quality impacts from generation of radioactively contaminated dusts should be given the same consideration as the discussion on VOC impacts*

Response

Air quality impacts are mentioned in several sections of the draft IRAP/EA. In Section 7-5, the text discusses the inhalation of fugitive dust and includes comment on potential radioactive airborne contaminants. Further, the effects on all alternatives (1 through 3) are presented in Section 8 and Tables 8-1A through C. No further change to the text is planned.

Comment 43

Section 7 1, p 7-3, para 1 *Evaluation of the aggregate amount of off-gases from the proposed treatment system was not mentioned earlier in Section 4. If values have been determined for amount of off-gases generated from the treatment system, these values should be reported both here and in Section 4.*

Response

Off-gas releases have not been quantified in the IRAP/EA. However, the paragraph has been modified to read as follows: "Collected contaminated surface water will be processed through the proposed cross flow filtration system and activated carbon system facility. The proposed treatment systems will not produce measurable VOC emissions, therefore no changes in the levels of these gases in the ambient air off-site is expected. The need for periodic membrane cleaning will require the use of a small amount of sodium hypochlorite (NaOCl). This could occur once every 2-4 weeks and will not impact off-site air quality."

Comment 44

Section 7 2, p 7-3 *The concept of water as a resource has not been evaluated either here or in Section 7 7. Reallocation of surface water from the Woman Creek drainage area to South Walnut Creek could be expected to modify the aquatic environments of both. Also, the quality of water released from the treatment system may alter the chemistry of the receiving system. Assuming a release equal to the design processing rate (60 gal/min) of the treatment system, approximately 31 million gallons of treated water could be released into the South Walnut Creek drainage. These issues should be identified as potential impacts of the proposed action.*

The majority of this discussion focuses upon erosion and spill control. Water quality is a more complex issue and one that should be evaluated relative to appropriate state and federal quality standards.

Response

The concept of water resources has been addressed and is now presented in Section 7 3, Terrestrial Impacts. The proposed interim remedial action will have minimal or no impact on the water resources management of nearby Woman Creek, South Walnut Creek and the South Interceptor Ditch. Currently, the surface water from surface water stations SW-53, SW-55, SW-63, SW-64, SW-77 are collected by the South Interceptor Ditch, delivered to Pond C-2 for treatment, and piped into the Broomfield Diversion Canal. Surface water from surface water collection stations SW-61 and SW-103 feed into South Walnut Creek. None of the surface water collection stations feed or impact Woman Creek.

With respect to impacts to the South Interceptor Ditch, volumes of water generated from the five southerly surface stations (SW-53, SW-55, SW-63, SW-64 and SW-77) that pass into the South Interceptor Ditch are quite low (see Section 4.3.1). The South Interceptor Ditch collects the majority of its water from sources upgradient from this area. Although no measurement was made to determine the actual percentage of water to be diverted from the South Interceptor Ditch, based on the observed flow from these other sources, this diversion should have no impact on water resources management. Similarly, the addition of this diverted and treated water should have no water resources management impact on South Walnut Creek.

The quality of water released from the treatment system will meet the sites NPDES permit requirements. Any alteration to the chemistry of the receiving water will be minor and realistically should have no effect.

Comment 45

Section 7.3, p. 7-5, para. 2 *The last sentence is a conclusion that requires reference to environmental surveys or investigations performed at Operable Unit 2.*

Response

The conclusions presented in Section 7.3, p. 7-5, para. 2, are based on the information presented in Section 2.0, site characterization of this report. Section 2.2 discusses affected and sensitive environment. No further documentation or reference is necessary.

Comment 46

Section 7.3, p. 7-6, para. 1 *The discussion of treated water might be presented in a subsection entitled Aquatic Impacts.*

Response

The reviewer's comment is acknowledged, but it is believed the change is unnecessary and would not add substantially to the document.

Comment 47

Section 7.6, p. 7-15, para. 2 *The most severe credible accident with potential for exposure of either site employees or the public is likely to involve transportation of radiological, hazardous chemical, or mixed wastes. Loss of containment during transit has the opportunity to adversely affect more people than a catastrophic event within the boundaries of Operable Unit 2. It is recommended that an accident analysis involving transportation be considered as a replacement for the most severe credible accident scenario.*

Response

Section 7.8, Transportation Impacts, has been modified to include a paragraph on off-site transportation. This paragraph reads as follows: Off-site transportation impacts associated with the shipment of solidified filter sludge to a mixed waste disposal site, such as the Nevada Test Site, will be

very low as determined in DOE (1990b) Relatively low concentrations of contaminants, the physical form of the waste, disposal site waste acceptance criteria, and compliance with DOT packaging and transport requirements all contribute to very low health effects from incident-free shipment and accident events

Comment 48

Section 7.7, p 7-15 *The quantity of water diverted from the two drainage systems should be recognized as a commitment of resources The annual withdrawal of water from the Woman Creek drainage should be considered commitment of a resource*

Response

As stated in the Response to Comment No 44, on Section 7.2, p 7-3, a section on water resources has been added to the document and is found in Section 7.3, Terrestrial Impacts, beginning on p 7-5 See our response to this comment for additional details The annual amount of water withdrawal is expected to average less than 3 GPM and this amount is considered an insignificant quantity to be considered a commitment of resources

Comment 49

Section 8.1, p 8-1, para 4 *The No Action alternative could be summarized in a single statement - The Agreement in Principal requires interim measures be undertaken, therefore this alternative is unacceptable This statement negates the necessity of Section 8.1.2 and 8.1.3*

Response

Although the No Action Alternative is unacceptable per "The Agreement in Principal," the National Environmental Policy Act (NEPA) requires that we address the no action alternative The sections will remain to fulfill the NEPA requirement

Comment 50

Section 8.2.1, p 8-2, para 3 *Use of modified ditches to transport contaminated surface water to a centralized wastewater treatment system is new information not presented in earlier descriptions of this alternative (Section 4) Addition of this material would be appropriate in earlier sections describing the alternative*

Concern for surface water percolation through ditches was not addressed earlier in Section 4.3.1.1 when describing the source diversion alternative The difference between the alternatives appears to be one of degree and not substance If percolation is a concern, then it is recommended that the diversion channel described in Section 4.3.1.1 be modified to address installation of a liner or other impermeable layer

Response

Ditches will not be used to transfer surface water to a centralized wastewater treatment system The text will be changed to clarify this in the revised draft

Comment 51

Section 8 2 2, p 8-3, para 1 and 2 *This discussion is based upon supposition and would benefit from references to similar situations*

Response

The statements in Section 8-2 2, Personnel Exposure, are factual. Alternative 2 proposes to continue surface flow at the Rocky Flats Plant site in the existing ditches and treat only the waters arriving at Ponds B-5 and C-2. Since these ditches are unlined and not impermeable, it is safe to state that some percolation could occur.

Comment 52

Section 8 2 3, p 8-3, para 3 *This discussion would benefit from a risk assessment or other analysis that supported the expectation of long-term losses*

Response

The discussion in Section 8-2 3, Transportation, is based on information contained in Section 2 and reference material cited in Section 9. Figure 2-11 illustrates surface water and sediment monitoring stations in and around OU 2 and downgradient. Sediment data for those monitoring stations are contained in the "Phase II RFI/RIFS Work Plan for OU 2, published in April 1990. This plan identifies contaminants in the sediments. Continued use of those ditches would only serve to increase the amount of contamination or increase the dispersion of existing contamination, thereby increasing the long-term transportation impacts. The text in Section 8 2 3 will be modified to include citation of the EG&G plan.

Comment 53

Section 8 3 1 *This discussion contains no information concerning the environmental effects of the evaluated treatment technologies. The comparisons presented in Table 8-1-B and -C do not appear to support the text.*

Response

The format of the IM/IRA discusses the Environmental Effects of the proposed interim remedial action in Section 7 and the Environmental Effects of the Alternatives in Section 8. In-so-far as a comparison of treatment technologies, the last sentence of Section 8 3 1 states "There is no appreciable difference in environmental impacts of the alternative organic contaminant treatment technologies".

Evaluation of the treatment technologies for radionuclide removal shows that only the cross flow filtration system provides proven technology for removal of the targeted radionuclides.

As to the comparisons of Tables 8-1-B and 8-1-C, collection of surface water in existing retention ponds has been dismissed. Justification for not evaluating this alternative is provided in Section 4 of the revised draft.