CORRES CONTROL
OUTGOING LTR NO

88-RF-3403

DIST	LTR	ENCL
SANCHINI D J	X	
BADER C P		
ERFURDT R J		
HEINTZ E R		
HOOD R C		
IDEKER E H		
KINZER J E		
KIRBY W A		
McNETT J F		
MEYERS G W		
ROECKER J H		
SHANNON W M		
SMITH R E		
WESTON W F	X	
WOZNIAK B D		
YOUNG E R		
BETCHER D H		
CARNIVAL G J		
FERRERA D W		
HARMAN L K		
HEBERT J L		
HOEY J B		
HOFFMAN R B		
KLAMANN R L		
KRIEG D M		
LOUDENBURG G E		
McKINLEY K B	X	X
NAIMON E R		
NEWBY R L		
TURNER H L		
VELASQUEZ R N		
CORRES CONTROL	X	X
BLAHA F	X	X
BLAKESLEE J.	X	X
GREENGARD T.	X	X
FRICK L.J.O.	X	X
HOBBS F.	X	
JAMES R.E.	X	X
LEWIS B.	X	X

CLASSIFICATION
UNCLASSIFIED X
CONFIDENTIAL
SECRET

AUTH CLASSIFIER SIG
B.L Miller (4)
10-27-88
DATE

IN REPLY TO LTR NO

DEC #

LTR APPROVALS

TCG/dal

RF 46469 (Rev 9 88)

Rocky Flats Plant
Aerospace Operations
Rockwell International Corporation
P O Box 464
Golden Colorado 80402-0464
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Contractor to U S Department of Energy

Rockwell International

October 26, 1988 88-RF-3403

Albert E. Whiteman
Area Manager
DOE, RFAO

DRAFT RESPONSE TO COMMENTS BY EPA ON 881 HILLSIDE REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS)

Attn. C. C. Jierree and K. J. Schneider

Attached for your review are three (3) copies of our draft responses to comments by EPA on the March 1, 1988 RI/FS Reports One of the copies is for transmittal to Los Alamos National Laboratory for their review.

We are prepared to discuss these responses with you at your earliest convenience prior to arranging a meeting with the Colorado Department of Health and EPA Please call Tom Greengard, on extension 7121, to arrange a DOE/Rockwell meeting or if you have questions that you want to discuss prior to the meeting.

K. B McKinley
RCRA/CERCLA Program

Orig. & 1 cc - A E. Whiteman
Enc.

ADMIN RECORD

A-OU01-000110

EVALUATION OF RESPONSES TO EPA COMMENTS ON THE 881 HILLSIDE RI/FS

REMEDIAL INVESTIGATION REPORT

SECTION 1. EXECUTIVE SUMMARY

Comment 3 The discussion of trace element and TDS variability should also indicate that these parameters are useful in groundwater characterization and related the related task of characterizing groundwater communication

The last paragraph suggests that trace elements and TDS are only applicable to monitoring the success of remediation In areas where data are ambiguous concerning the presence of contamination, trace elements and TDS are potentially important in defining impacted areas of the plume where the prime contaminants have not migrated due to sorption or geologic heterogeneities The response should indicate that these parameters will be considered in evaluating the potential extent of contamination

Comment 4 The commentor has a valid point in that the TDS values for wells 5-87 (1314-1712 mg/l), 59-86 (812-1047), and 8-87 (1232-1220) are factors of 2 to 3 greater than the background range from wells 46-86, 48-86, 52-86, and 54-86 (129 - 433 mg/l) This is supported by other bedrock wells within the plant site that are generally below 400 mg/l with a few between 400 and 600 mg/l Exceptions to this are wells 34-86 (at S Walnut near the PSZ) at 1779-1813 mg/l and 40-86 (downgradient of the 903 Pad) at 1011 mg/l Because these wells are somewhat distant from sources of concentrated contamination, they should be mentioned as indicators of background TDS variability

SECTION 2. INTRODUCTION

Comment 2. The arguement presented would be strengthened by including some basis statistics concerning Sr89,90 at the 881 Hillside and in the background wells Sr89,90 is detected in wells west of the site μ=1 2 pCi/l, s=1.1, and the maximum well 56-86 is 4.01 pCi/l (from RI Appendix F-2) Sr89,90 levels in alluvial wells at the 881 Hillside are as follows· μ=2 0 pCi/l, s=1 45 pCi/l, and the maximum is 4 59 pCi/l (from RI Appendix F-4) Bedrock Sr89,90 at the 881 Hillside are as also follows μ=1 1 pCi/l, s=0 9, and the maximum is 3 4 pCi/l (from RI Appendix F-5) Appendix F-4 lists one sample Sr89,90 sample in each of wells 64-86 and 65-86 at "NR" and 1.74 pCi/l, respectively Therefore, the statement that Sr89,90 is detected in these wells is true but it is barely above background A basic t-test would probably show the difference to be insignificant

Comment 6 Although it is agreed that most radionuclide backgrounds cannot be zero, the comment is requiring the RI to conservatively assume activity of zero when the error bounds of the measurement include zero The response is unclear in that establishing MDAs does not eliminate the problem For example, given the MDA of 0 2 for isotopic plutonium, will a background

measurement of 0 18±0 19 pCi/l be conservatively interpreted as zero? The response must address how these situations will be interpreted Also, it should be pointed out that not all background uncertainties exceed the mean Particularly for the only "true" background well left, 55-86 U238 is at 0 115±0 054 pCi/l (55-86-10-01-87) Finally, there are some radiochemistry errors evident in Appendix F-2, several gross beta sample have uncertainties of zero and there are no error bounds for Sr89,90

SECTION 4: WASTE SOURCE CHARACTERIZATION

Comment 2 The discussion of soil sampling methods is confusing in that it implies that discrete samples and intervals deeper than one foot were for background characterization. Since the comment only addresses background characterization and not sampling technique, the discussion should be dropped

Comment 9. How were these averages derived? Calculations from the RI Appendix F-2 radiochemistry data do not confirm (see Attachment 1) There are also some suspicious numbers in the Am-241 and Pu-238,239 data the number of Am-241 -0.04 pCi/l results (Is this a lower detection limit?), ±0 32 values for Pu-238,239, and the 0.11 Pu-238,239 results.

Comments 10, 11, 12,13: The RI team should be advised that the guidelines for organic data validation they reference (EPA, 1985) have been replaced with new guidance (EPA, 1988) EPA (1988) has replaced requirements for blank contamination levels (i.e contaminant concentrations less than the Contract Required Quantitation Limit (CRQL) or 5xCRQL for the common lab contaminants listed) (EPA, 1985, p 21-22) with the criteria that "no contaminants should be present in the blanks" (EPA, 1988, p 12) Although there has not been a change in the definition of a reportable organic quantity if lab contamination exists, the "allowable" levels of common lab contaminants is no longer quantified and has presumably been reduced Thus, the issue EPA will raise is not a definition of field contamination based on blank contamination, but the level of blank contamination itself The RI team has taken a good approach in assuming all organic contamination is real and arguing that the risk asessment indicates the consequences are minimal.

A minor point, but one that will probably cause some concern with the regulators concerns the language dropping constituents "from further consideration as contaminants " Considering EPA/CDH's comment on the 903 Pad that the RI shoud not interpret data, the revised 881 Hillside RI should consider these constituents as contaminants and reference the risk assessment to indicate that they are "insignificant" contaminants.

Comment 11 The use of the 45% variance to increase the ion count threshold seems "dubious " Compounding noisy data with its own noise would appear to be an artificial way to raise the level of significant counts The RI team should be conservative and use PETREXes recommended 1,000 count cutoff without invoking additional statistics This approach strikes one as "slight-of-hand "

Comment 17 See comment 11

Comment 21 Have these geometric means been corrected for bias when transformed back from the lognormal distribution? Same response for FS Appendix 2, Comment 1.

Comment 24 The cited tabulations are missing.

Comment 27 The discussion of bedrock contamination at 9-74 is confusing on two counts First, if the geologic log and completion details are not known, the RI team cannot be certain of screening solely in claystone. If this is a composite well, the statement that bedrock groundwater contamination exist at 9-74 has no basis Second, the discussion of 9-74 contamination of BH57-87 and well 43-87 does not recognize that these locations are topographically and hydraulically upgradient of 9-74. Therefore, the only driving force for contamination to move from 9-74 to BH57-87/43-87 is insignificant diffusion

Comment 28 Comment 11,12,13,14 of Section 4.0, second paragraph, applies to this discussion of the risk assessment Also, "significant" should be "insignificant "

SECTION 6 0. SURFACE WATER

Comment 1 The commentor is possibly addressing the efficiency of the South Interceptor Ditch (SID) in intercepting runoff. Since the SID parallels topography, runoff from low intensity precipitation events may pond in SID depressions thereby infiltrating into colluvium upgradient of Woman Creek. The response should demonstrate that this is insignificant due to low volume and infiltration rates.

Comment 3 The depth of alluvium at wells 69-86, 2-87, and 47-87 (13 3, 8 75, and 7 0) together with an " eyeball" inspection of the SID trench would suggest that perhaps as much as the lower half of the alluvium is not intercepted Are there construction records indicating where bedrock was intercepted?

Comment 8 Where is the blank data for SED-1 and SED-2?

SECTION 9 0. PUBLIC HEALTH AND ENVIRONMENTAL CONCERNS

Response to Comment 1 -

The nature of the RI is to gather existing information and to determine, among other things, the background levels for selected constituents This study was conducted to fulfill that purpose and as the result, background levels of various constituents have been proposed The quality and quantity of data aquired in a retrospective study is limited and to some extent conclusions may

be partially unsupported However, based on the conclusions drawn and those of the risk assessment (which selectively used worst cases), unacceptable risks to the public could be posed by consumption of alluvial ground water. As stated in the conclusion of Section 9 0, a feasibility study has been proposed

Additional data or information gathering at this time would be of minimal value Since the 881 Hillside study is but a small part of the Rocky Flats Plant, a further determination of cause and effect of 881 based on site data is fruitless Eventually, it is likely that it will be necessary to repeat some of the background studies for the plant site Such a survey would allow better comparisions with historical site data than will comparing recent potential environmental results (881 data) with site data

Response to Comment 3

The majority of historical surveys for indigenous fauna are contained within the reference.

> DOE (U S Department of Energy), "Final Environmental Impact Statement, Rocky Flats Plant Site, " DOE/EIS-0064, Washington, D C , April 1980

Other historical data can be found in Appendix II rather than Appendix G For additional references, see

- Bly, J A , and F W Whicker, "Plutonium Concentrations in Anthropods at a Neclear Facility," Health Physics, 37 331-336, September 1979
- Little, C.A , F.W. Whicker, and T F Winsor, "Plutonium in a Grassland Ecosystem at Rocky Flats," J. Environ. Qual., 9 350-354, 1980
- Paine, D., "Plutonium in Rocky Flats Freshwater Systems," from Transuranic Elements in the Environment, edited by Wayne C Hanson, Technical Information Center, U.S. DOE / TIC - 22800, 1980
- Wicker, F.W , "Radioecology of Natural Systems -- Final Report, "COO-1156-11, Colorado State University, Fort Collins, Colorado, October 31, 1979
- Winsor, T F , and F W Whicker, "Pocket Gophers and Redistnbution of Plutonium in Soil," Health Physics, August, 1980

ANALYTICAL PROGRAM, QUALITY ASSURANCE, AND DATA MANAGEMENT

Comment 1 ?

Comment 2 The response to this comment should include discussion of the level of contamination observed in the blanks The best way to accomplish this would be through comparison with other CLP or CLP equivalent laboratories

FEASIBILITY STUDY

SECTION 1.0 INTRODUCTION

Comments 7, 10, and others: The commentors are primarily concerned with the implementation of the screening procedure as they have referenced in the March 1988 guidance rather than the result of the screening itself It is apparent that the criteria used are equivalent to the new guidance and the implementation of it in the revised FS will change nothing

SECTION 3.0. SCREENING OF REMEDIAL ALTERNATIVES

Comment 2 Will the revised FS address applying for variance of metals whose background is demonstrated to be above applicable ARAR?

Comment 5 The geotechnical stability the commentor is referring to probably concerns disrupting the french drain gravel by slumping of upslope alluvium

Comment 8 The revised FS should contain all such calculations (i e 0 04 gpm) in an appendix to belay further comments

SECTION 4.0. DETAILED EVALUATION OF REMEDIAL ALTERNATIVES

Comment 7 How has the effectiveness of the Building 881 footing drain been demonstrated? If there is no evidence that it is fully functional, it should not be used as an example of the expected effectiveness of the french drain

Comment 8 The revised FS should provide a reference for these compaction hydraulic conductivities

APPENDIX 1. RISK ASSESSMENT

Comment 2. The response should indicate that the intricacies of the problem do not have to be exhaustively examined to identify, surround, and treat the area of contamination. In addtion, the weak point in the treatment system, bedrock contamination, will be monitored

Comment 9 The commentor has a point Although these are all isolated organic hits, they are not associated with laboratory blank contamination However it should be argued that the risk associated with the organics in surface water (if conservatively assumed as significant) is minimal since the concentrations are below those used in the risk assessment for groundwater and would volitalize before traveling to the site boundary Strontium and uranium cannot be addressed until bettter resolution of background is obtained

Comment 10 This can be addressed by indicated the supposed concentrations of uranium in ponds C-1 and C-2 are below ARAR

Comment 11 For the sake of completion, risks associated with volitalization of organics at the 881 Hillside should be addressed

ATTACHMENT 1

Am-241 and Pu-239,240 in
881 Hillside Alluvial Groundwater

	Am-241		Pu-239,240	
Well	x	var	x	var
10-81-05-11-87	0	1 2	0 1	0 7
10-81-06-18-87	0	1 2	0 32	0.77
10-81-08-21-87	-0 04	0.56	-0 32	0 46
47-86-05-13-87	0	1.5	0 08	0 71
47-86-06-22-87	0	1.2	0	0 7
47-86-08-14-87	-0 04	0.82	0 11	0 78
47-86-10-06-87	0	0.05	0 11	0 14
49-86-04-08-87	0	4 4	0	2 2
49-86-06-18-87	0	1.3	0.42	0.82
49-86-08-25-87	0 03	0.45	-0 32	0 64
49-86-12-15-87			0	0 18
50-86-05-11-87	0	2	1	1
50-86-06-16-87	0	1.2	0	0 67
50-86-08-14-87	-0 04	0 43	-0 32	0 65
50-86-12-11-87	0	0.19	0	0 1
51-86-05-13-87	0	1 2	0	0 71
51-86-06-17-87	0	1.3	0 29	0 8
51-86-08-20-87	-0 04	0 47	-1 6	0 6
51-86-12-11-87	0	0 19	0	0 14
55-86-05-18-87	0	4 2	0.03	0 65
55-86-05-27-87	0	1.2	0 07	0 82
55-86-07-14-87	-0.04	0 44	-0 14	0 53
55-86-10-01-87	-0 022	←	0 03	0.042 0.05
55-86-10-01-87	0	0.16	0	0.06
55-86D-07-14-87	-0 04	0 56	0 04	0 57
56-86-05-19-87	0	1.3	0.28	0.7
86-86-05-27-87	0	1.2	0 003	0.76
56-86-07-15-87	-0.04	0.59	0	0.46
56-86-10-01-87			0.001	0.05
56-86-10-01-87	0	0.17	0	0.05
average	-0 01		0 007	
55-86 average	-0 017			0 007

ANNOTATED TABLE OF CONTENTS

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