

**ROCKY FLATS PLANT
GOLDEN, COLORADO**

**DRAFT HISTORICAL RELEASE REPORT
TECHNICAL REVIEW COMMENTS**

Prepared for

U S ENVIRONMENTAL PROTECTION AGENCY
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1 0 INTRODUCTION

The RFP draft historical release report (HRR) dated January 1992 was reviewed for compliance with the requirements of the interagency agreement (IAG) among the State of Colorado, the EPA, and the U S Department of Energy (DOE) According to the IAG, the HRR will provide

" a complete listing of all spills, releases and/or incidents involving hazardous substances occurring since the inception of the Rocky Flats Plant in 1951 and all spills, releases, and/or incidents requiring implementation of the contingency plan, the notification requirements of 40 CFR 265 56, 6 CCR 1007-3, 265 56, or as required by the Community Right to Know Act The listing shall be accompanied by complete documentation of the events including the description of the events, complete physical and chemical description of the constituents released, responses to the events, and the fate of the constituents released into the environment This information will be utilized by EPA and the State to determine if any of these sites are individual hazardous substance sites and to evaluate the need for initiating RCRA Facility Investigations/Remedial Investigations (RFI/RI) for any and/or all of the events DOE shall also identify any additional sites meeting the definition of an individual hazardous substance site herein referred to as site , not identified above "

The following sections present general and specific comments and recommendations for further investigation of newly identified potential areas of concern (PACs) General comments pertain to the overall quality of the document and specific comments suggest changes on specific pages and sections of the text General and specific comments appear in Sections 2 0 and 3 0, respectively Section 4 0 presents a summary of comments

2 0 GENERAL COMMENTS

The HRR provides a generally comprehensive, well-organized, and clear presentation of releases that have occurred at RFP since 1951. The following general comments refer to minor inconsistencies which should be addressed

- 1 This HRR does not appear to strictly follow the IAG criteria. The IAG states that the HRR should contain a complete listing of all spills, releases, and incidents. In addition, a release may include soil gas, air emissions, and contaminated ground water, surface water, or soil. However, this HRR is based on a narrower definition of the word release. Specifically, information was included in this HRR only when a release met the following three criteria; which were developed by analyzing the definition of IHSS and site: (1) It affected the outdoor environment, (2) it potentially involved a hazardous substance, (3) it was deposited at a discrete location. Although this report focused on outdoor releases, indoor releases were included when the release met the following four criteria: 1) the event had to meet the definition of "release" established for outdoor events, 2) the event had to have an identifiable cause, 3) the event had to involve either 10 pounds (or 10 pints) or more of material, or 1,000 square feet or more of inside building area, 4) the event was not included on the summary of events list.

By creating specific criteria to judge the validity of a spill, release, or incident, certain spills, releases, or incidents were not included in this HRR. Airborne releases from stack emissions were automatically eliminated. In addition, materials or substances used for their intended purposes were also not included as a release of interest. Therefore, this HRR does not meet the overall objective of providing a list of all spills, releases, and incidents. EPA should request that DOE review some of the documentation again and then provide a brief description of all previously excluded spills, releases, incidents, and air releases. General comment 2 contains further information on the exclusion of airborne releases.

- 2 This report did not address air emissions that may have accompanied the accidental releases, spills, and incidents that led to the contamination of the soil, water, or ground water. The following are examples of possible emission sources due to releases or spills

- Ground disturbances
- Fires - intentional and accidental
- Incineration
- Explosions
- Oil burning pit
- Lithium destruction
- Natural gas leaks
- Spray fields
- Landfill - itself and related activities
- Spill areas (fugitive emissions)
- Trenches and sludge disposal areas
- Sandblasting
- Vehicle traffic (resuspension of contaminants)
- Pesticides and herbicides

By excluding the emission sources listed above, this report may not accurately present all the types of contamination in a given area

To determine if the exclusion of air releases affected documents reviewed, PRC reviewed the ranking criteria utilized to review the environmental master file (EMF) files. The attached table identifies files dealing with air releases were marked with a "0", meaning they were not reviewed. In addition, the comments often stated the information was not relevant to the HRR. Air releases are relevant to the HRR and these documents should be reviewed and resulting information included in the report when appropriate.

- 3 Although air releases were not considered in Appendix B to be relevant to the HRR, several air releases are identified as new PACs. The discrepancy between the rationale presented in Appendix B and the PACs described should be explained or made consistent preferably to include information on air releases.
- 4 It is unclear whether this HRR reviewed all the suggested sources of information helpful to identify new IHSSs listed in PRC's Review of Information Request Response - An Update. The

EMF NUMBER	FILE DESCRIPTION	SCORE
10110	ARAC (Atmospheric Release Advisory Capability) Program <i>* Wind Plume Projection Program for Air Modeling</i>	0
13200	Air <i>* Air releases may spread general contamination and are out of scope to the HRR</i>	0
52300	Air Pollution Emergency Episodes - State <i>* This is a statewide plan for high air pollution days and is not relevant to HRR</i>	0
52600	Air Pollution Control Division <i>* Air not of HRR interest</i>	0
52700	State Incinerator Permit <i>* Incinerator permits and air regulations are not of interest to HRR</i>	0
01920	Air Sampling <i>* Not of HRR interest</i>	0
11100	Meteorology and Climate <i>* Irrelevant to HRR</i>	0
12053	Air <i>* MAAM Van was for air pollution monitoring</i>	0
13200	Air <i>* Not relevant to HRR</i>	0
13237	Air Contamination Experience <i>* Not relevant to HRR</i>	0
13220	Air Analysis Results <i>* Not relevant to HRR</i>	0
13201	Filter Systems <i>* Not relevant to HRR</i>	0
13210	Air Sampling Procedures and Methods <i>* Not relevant to HRR</i>	0
13211	Air Sampler Locations <i>* Not relevant to HRR</i>	0
13212	Particles and Particle Size <i>* Not relevant to HRR</i>	0
13213	Stack Monitoring <i>* Air emission monitoring is irrelevant to HRR</i>	0

* = Reason for Score

attachments provided in Dow Chemical and Rockwell International information request responses (IRRs) apparently listed information pertinent to the identification of new IHSSs. Some of the specific attachments are included in the HRR reference list, but the individual IRRs are not listed. EPA should request that DOE verify that it looked at all the potential sources of information listed in PRC's 1990 report. If some sources were missed, the information should be included in the June 1992 HRR amendment.

- 5 Several newly identified PAC locations described in the HRR are not illustrated on the new PAC location map (Plate 3). These include PACs 700-1110, 900-1300, and 900-1303. To provide complete project information, all new PACs should be outlined on Plate 3.

3 0 SPECIFIC COMMENTS

The following specific comments refer to inconsistencies or deficiencies in specific sections of the HRR. By addressing these concerns, the document as a whole will be clarified, and its utility as a source of background information will be enhanced.

- 1 Page 2-3, Section 2.3 The list of file repositories on page 2-3 does not match the list given in Appendix B. All the file repositories identified in the HRR should be specifically addressed in Appendix B.

Rationale Appendix B should contain a brief description of all the HRR file sources.

- 2 Page 3-1, Paragraph 2 This paragraph states that no attempt was made to screen any PACs or PICs from this report. However, the document reviewers were provided with the criteria listed in general comment 1 to use as a document screening tool. Additionally, reviewers were given some specific examples to illustrate what should or should not be included in the report. One example of what was not to be included was a fuel oil spill in a building (Appendix E, Page 4). Therefore, biases were exercised during the initial screening of documents. EPA should request that DOE provide an explanation of how its initial exclusion of certain types of releases, spills, or incidents did not result in a screening of PACs or PICs.

Rationale The IAG states that the HRR is to be a complete listing of all spills, releases, and incidents

- 3 **Page 3-20, Paragraph 4** The last sentence of this paragraph states that release dates that could not be reasonably estimated were reported as unknown. However, in Appendix E, HRR Instructions, page 3, the document reviewers are instructed to never list a date as unknown. The text of the report should be corrected so that the text and the reviewer instructions in Appendix E are consistent

Rationale The text and supporting appendices should be consistent to avoid confusion

- 4 **Page SE-10, PAC SE-1600** This newly identified PAC provides details of Pond 7 and the steam condensate releases it received from the Building 881 cooling tower. However, the description on page SE-5 for the existing IHSSs 142 10 and 142 11 states that three ponds, (Ponds 6, 7, and 8) received water treatment plant backwash, steam condensate from Building 881, and sewage lift station overflows. None of these ponds currently exist. The description of constituents of interest for PAC SE-1600 should be modified to include water treatment plant backwash and sewage lift station overflows. Therefore, Ponds 6 and 8 should also be identified as PACs as they received the same contaminants as Pond 7

Rationale The IAG requires the HRR report to list all spills, releases, and incidents. In addition, all contaminants should be listed under the heading description of constituents released

- 5 **Page SW-12, IHSS 133.6** This IHSS is described as the concrete wash pad. However, on page SW-10 there is a reference to ashes from the incinerator being placed near the concrete wash pad. It is not clear whether the boundary of this IHSS includes the area of reported ash dumping. Because there is no newly identified PAC for this ash dumping area, it should be included in this current IHSS. If the ash dumping area is already part of the area outlined as the concrete washpad, the text should state this clearly

Rationale All areas impacted by contamination should be addressed in this HRR either as existing IHSSs or PACs

- 6 Figure 000-1 PAC 000-162 and PAC 000-172 are not listed on this figure The figure should be amended to include PAC 000-162 and 000-172

Rationale Figure 000-1 should list all the 000 area PACs

- 7 Page 000-17, PAC 000-101, Comments This section does not state that the boundary of IHSS 000-101 [operable unit (OU) 4] has been modified based on information discovered during this HRR review However, Plate 2 illustrates a much larger boundary for 000-101 than previously defined This new boundary drawing appears to include all the 207 ponds, Buildings 771 and 774, and the interceptor trench pump house (ITPH) drain system The comments section should include an explanation of why the boundary of this IHSS has been expanded

Rationale To be consistent, the text should explain boundary modifications

- 8 Page 100-12, Responses to Operation or Occurrence The paragraph regarding PAC 100-602 refers the reader to the narrative for PAC 100-122 No such PAC number exists in this report The correct PAC number, 400-122, should be listed in this paragraph

Rationale Accurate internal references will avoid confusion and promote utility

- 9 Page 300-8, Comments This paragraph states that PAC 300-134 may overlap PAC 300-123 The reference should be corrected to PAC 300-128

Rationale Accurate internal references will avoid confusion and promote utility

- 10 Page 300-11, Description of Operation or Occurrence PAC 300-151 consists of several spills from Tank 262 However, the location of this tank is not described in the text nor is it illustrated on accompanying figures or plates Instead, PAC 300-151 is illustrated as the 1981 ground fuel spill near Building 374 If the true location of this PAC is the tank and any surrounding soils, then the text and figures should be modified accordingly

Rationale The correction location and description of this PAC should be presented in the HRR

- 11 Page 300-13, Unit Name PAC 300-156 1 is titled Building 334 Parking Lot. However, HRR research determined that the former soil pile is actually covered by the Building 371 parking lot. The name of this PAC should be changed accordingly

Rationale The name of the PAC should indicate where the PAC is located

- 12 Page 300-34, Description of Operation or Occurrence PAC 300-709 is described as a sulfuric acid spill east of Building 371. However, Figure 300-1 and Plates 2 and 3 illustrate PAC-709 east of Building 374. Either the spill was east of Building 374 or the figures are inaccurate. Documentation should be reviewed to determine the exact location of this spill and the text or figures should be corrected accordingly

Rationale All newly identified PACs should be described and illustrated accurately

- 13 Page 300-35, Description of Operation or Occurrence PAC 300-710 is described as Valve Vaults 11, 12, and 13. These three valve vaults are located at three different sites, however, Plate 3 illustrates only one location for this PAC. The plate should be modified to show all locations of Valve Vaults 11, 12, and 13

Rationale The text and plates should be consistent

- 14 Page 400-15, PAC 400-136.1 and 136.2, Unit Name The names of these PACs are described as cooling tower pond west of Building 444 and cooling tower pond east of Building 444. However, the comments section of the narrative describes both these ponds as west of Building 444. Either the unit name or the area location description should be modified

Rationale The comments section should accurately explain any boundary changes

- 15 Page 400-36, Comments It is proposed that the boundaries for PAC 400-205 be expanded to include piping (from the acid source to the sump to the dumpster) and the dumpster located outside Building 460. However, Plate 2 does not illustrate that the boundary of PAC 400-205 has been modified. Plate 2 should be corrected

Rationale For consistency, all boundary modifications should be illustrated on Plate 2

- 16 Figure 600-1 Figure 600-1 illustrates the locations of PACs in the 600 Area Tanks 224 and 221 and the streets are not labeled Street names and tank numbers aid in the orientation of the reader and should be illustrated on this figure

Rationale Fully labelled map locations clarify the document

- 17 Page 600-11, Paragraph 1 The last sentence of this paragraph states that the area around Buildings 663 and 662 will be included in PAC 600-1002 This should be PAC 600-1001

Rationale There is no PAC 600-1002

- 18 Page 600-20, Response to Operation or Occurrence, Paragraph 8 The text states the area around Building 663 was not identified by a July 1984 radiometric survey as being extremely contaminated "Extremely" is a qualitative term and should be defined

Rationale Definition of qualitative descriptions provides for making more informed decisions

- 19 Page 600-20, Response to Operation and Occurrence This section discusses responses to incidents, spills, and releases However, no response has been described for the drum which leaked waste from Building 881 onto the slab in June 1960 The response to this incident should be presented in this section

Rationale A response should be described for each incident to maintain consistency throughout the document

- 20 Page 600-20, Response to Operation and Occurrence, Paragraph 5 The text states that contamination levels reached 3,000 disintegrations per minute (d/m) as a result of the May 1960 acid spills However, the fifth paragraph of the description of operation or occurrence section states "no contamination was detected following the incident " The text should be amended to clarify the difference between these two statements

Rationale The text should be consistent.

- 21 **Page 700-42, Comments** The comments for PACs 700-146 1 through 700-146 6 indicate that the area should be relocated and resized. It is unclear whether the area of PACs 700-146 1 through 700-146 6 should be enlarged or reduced in size. The text should be amended to clarify this.

Rationale Clear descriptions of changes in PAC boundaries promote the utility of the HRR.

- 22 **Page 700-46, Comments** The comments for PAC 700-149 indicate that the area should "be redefined as a 20 by 120 foot area encompassing the west end of the pipeline." It is not clear whether the area of PAC 700-149 should be enlarged or reduced in size. The text should be amended to clarify this.

Rationale Clear descriptions of changes in PAC boundaries promote the utility of the HRR.

- 23 **Page 700-47, Comments** The comments for PACs 700-126 1 and 700-126 2 propose that the boundaries be enlarged to encompass Building 728. The outline of this PAC on Plate 2 (HRR IHSS) is smaller than its outline on Plate 1 (IAG IHSSs). The outlines should be compared and corrected on the plates.

Rationale The outlines of areas on supporting plates should be consistent with each other and with descriptions of the same areas in the document.

- 24 **Page 700-40, Comments** The comments for PAC 700-144 propose that the boundaries of the PAC be redefined "to include the location of the clean-out plug overflow" east of Building 730. However, the outline of PAC 700-144 illustrated on Plate 2 (HRR IHSSs) is smaller than the outline of PAC 700-144 illustrated on Plate 1 (IAG IHSSs). It is not clear whether the boundaries of PAC 700-144 should be enlarged or reduced to include the "clean-out plug overflow." The text should be revised accordingly.

Rationale Clear descriptions of change in PAC boundaries and agreement with supporting plates are necessary

- 25 Page 700-49, Comments The comments for PAC 700-150 1 propose that the area be extended approximately 120 feet east of the extent defined in the IAG. However, the outline illustrated on Plate 1 does not include this area. The plate should be modified to agree with the text.

Rationale The IHSS outlines presented on the plates should agree with the IHSS descriptions in the text.

- 26 Page 700-82, PAC 700-1100, This section describes nickel carbonyl cylinders loaded into waste drums and buried in a pit north of the Building 771 access shaft. Subsequently, the drums were removed from the burial pit and moved to a pit east of the Solar Evaporation Ponds (PAC 000-101). The responses do not address the potential for contamination in the pit east of the solar ponds from this incident or any other releases. The second pit should be discussed as a separate PAC.

Rationale Each area in which contaminants were released into the environment should be identified independently to provide complete historical information as a basis for evaluating the need for further investigation.

- 27 Page 900-9, Comments The comments for PAC 900-109 propose combining PACs 800-102 and 800-103 with PAC 900-109. However, the descriptions of PACs 800-102 (page 800-5) and 800-103 (page 800-7) do not discuss the proposed outlines of PACs 800-102 and 800-103 which remain on Plate 2. The text should be modified so that the descriptions of these three PACs are consistent.

Rationale Consistent descriptions in related sections promote the clear understanding.

- 28 Page 900-37, Comments The comments for PAC 900-173 propose that the area be reduced to include only the south dock of Building 991. The rationale for this reduction includes the explanation that the "building and vaults were used to assemble and store final products, which

consisted of nickel-plated plutonium. " Nickel-plated plutonium is not considered a radioactive threat

If the vaults in which the final products were stored were clean and dry, and if the nickel plating was not cracked and was of a sufficient thickness to inhibit alpha particle emission, it is not necessary to include the areas above these vaults in this IHSS. However, the description of PAC 900-173 does not include a discussion of environmental factors or human error that could damage the nickel plating. Further explanation of environmental conditions within the vaults should be provided, if it is available.

Rationale When proposing reduction in the area of this IHSS, all factors which may affect the integrity of the nickel coating should be evaluated and described before the area is reduced in size.

- 29 **Page 900-37, Physical/Chemical Description of Constituents Released** According to this section of the description of PAC 900-173, Tunnel 996 "might be slightly uranium infiltrated." However, the comments for PAC 900-173 propose that this area be reduced to include only the south loading dock of Building 991. The PAC area may be reduced, but the area over Tunnel 996 should also be retained as part of PAC 900-173.

Rationale Because of the potential for uranium contamination in Tunnel 996, it should not be removed from consideration under this IHSS.

- 30 **Plate 2** This plate illustrates six PACs previously identified in the IAG with modified boundaries. The narrative descriptions of PACs NE-110, 111 1-111 8, NE-156 2; 300-204, 400-129, and 400-207 (located on pages NE-5, NE-7 and NE-28, 300-21, 400-14, and 400-37, respectively) do not include an explanation of why the boundaries have been modified. This information should be added to the report.

Rationale All PAC boundary changes should be explained in detail in the narrative section of the report.

31 Appendix B, Page 1 The ranking of documents within a file repository, was only provided for the EMF files. A similar type of ranking system was probably utilized on the other reviewed file repositories, but no specific information was provided. Because the detailed review of the EMF file document ranking revealed that all documents concerning air releases were initially eliminated (general comment 2), there is a concern that similar documents in other file repositories were also ignored. EPA should request the ranking listing for all documents in each file repository so that an identification of other potential sources of HRR information can be made.

Rationale The IAG states that the HRR is to be a complete listing of all spills, releases, and incidents.

32 Plate 1 The IAG describes PAC 000-101 as the series 207 Solar Evaporation Ponds. Plate 1 illustrates all five of the series 207 Solar Evaporation Ponds, but only Pond 207B north is marked as part of PAC 000-101. All five series 207 Solar Ponds should be clearly marked as part of PAC 000-101.

Rationale Plate 1 is labeled IAG IHSSs, therefore the plate should illustrate PAC 000-101 as described in the IAG.

4 0 SUMMARY

This HRR provided a comprehensive review of all the releases, spills and incidents that have occurred on the site from 1951 to 1990. However, the criteria developed to determine the spills, releases, and incidents to be included in this report were narrower than the IAG criteria. The general comments section of this report detailed the inconsistencies between the HRR and the IAG. More specifically, this HRR did not focus on indoor or air releases.

Specific comments in this review deal with inconsistencies or errors within PAC narratives. Some of the noted inconsistencies or errors included improper location of PACs or other areas of contamination, improper referencing of other PACs, unexplained PAC boundary changes, inaccurate

or inconsistent explanations of the spill, release, and incident. Although many of the inconsistencies are minor, revisions will add clarity to this comprehensive historical guide to Rocky Flats.

The HRR is a valuable resource for background information on the nature of RFP contamination. In general, the data has been clearly and comprehensively presented. The general and specific comments presented above suggest clarification for the text and PAC descriptions.