UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

000005346

DEC 23 1992

Ref: 8HWM-FF

Mr. Richard Schassburger
Department of Energy
Rocky Flats Office
P.O. Box 928
Golden, Colorado 80402-0928

RE: Potential Areas of Concern needing further investigation.

Dear Mr. Schassburger:

In reviewing the table enclosed with our letter of November 30, 1992 on this subject, PAC #600-1001 was mistakenly identified as PAC #600-1101. Enclosed is a corrected summary table. For your information, we are enclosing a second table that lists all of the newly identified potential areas of concern along with pertinent summaries and rationales for conducting further investigations.

If you have any questions regarding these matters, please contact Gary Kleeman at 294-1071.

Sincerely,

Martin Hestmark

Martin Hestmark, Manager
Rocky Flats Project

Enclosures

cc: Mike Arndt, EG&G
Susan Nachtrieb, City of Westminster (TRG)

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ADMIN RECORD

# TABLE 1

## SUMMARY OF PROPOSED OPERABLE UNITS FOR NEWLY IDENTIFIED POTENTIAL AREAS OF CONCERN (PACs) REQUIRING FURTHER INVESTIGATION

| OU | OU6 | OU8 | OU9 | OU12 | OU15 | | | NEW OU | | NEW OU | NEW OU |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Area | Walnut Creek Drain | 700 Area | Industrial Area OPW | 400/800 Area | 100 Area | | | Transformer Leaks | | Proposed Area UBC | Other UBC Areas |
| PAC | 900-1307 | 700-1100<br>700-1101<br>700-1108<br>900-1301<br>PIC #44 | 000-500 | 400-803<br>400-804<br>400-807<br>400-810<br>600-1001<br>800-1201<br>800-1204<br>800-1205 | 100-602<br>100-603<br>100-609<br>100-611<br>300-702<br>400-802<br>PIC #9 | | | 100-607<br>100-608<br>300-708<br>300-709<br>400-800<br>400-801<br>500-900<br>500-901<br>500-902<br>500-904<br>500-905<br>600-1000<br>600-1002<br>600-1003<br>700-1102<br>700-1103<br>700-1104<br>700-1105<br>700-1111<br>700-1112<br>800-1207<br>800 1208<br>800-1209<br>800 1210<br>900 1306<br>PIC #41 | | UBC-371<br>UBC-374<br>UBC-528<br>UBC-559<br>UBC-701<br>UBC-707<br>UBC-731<br>UBC-770<br>UBC-771<br>UBC-774<br>UBC-776<br>UBC-777<br>UBC-778<br>UBC-779<br>UBC-991 | UBC-122<br>UBC-123<br>UBC-125<br>UBC-331<br>UBC-439<br>UBC-440<br>UBC-441<br>UBC-442<br>UBC-444<br>UBC-447<br>UBC-865<br>UBC-881<br>UBC-883<br>UBC-886<br>UBC-887<br>UBC-889 |
| TOTALS | 1 | 5 | 1 | 8 | 7 | | | 26 | | 15 | 16 |

00005347

ADMIN RECORD

TABLE 2

## NEWLY IDENTIFIED POTENTIAL AREAS OF CONCERN

| PAC Number | Located Near or in IOU Number | Type of Release | Contaminants | Remedial Actions | Further Investigation Warranted | Rationale |
|---|---|---|---|---|---|---|
| NE-1400 | N/A | Spill of tear gas powder onto roadway (1987) | 5 pounds CS tear gas powder | The area was hosed down | No | Hosing down the area is considered a sufficient remedial action |
| NE-1401 | 6 | Rupture in Coors Company natural gas line | 5 million cubic feet of natural gas were released | The line was repaired and returned to service | No | The natural gas was dissipated to the atmosphere, so no remediation is necessary. |
| NE-1402 | 2 | Contaminated transformer oil leaked onto asphalt in 1983 | PCB-contaminated fuel | One square foot of contaminated asphalt was removed | No | Appropriate remedial actions were already conducted |
| NE-1403 | 6 | Gas from portable generator spilled onto parking lot in 1991 | 1 quart gasoline | Spill contained with Oil-Dri and removed, packaged material transferred to Building 531 Storage Area | No | Appropriate remedial actions were already conducted |
| SE-1600 | 1 | Former pond received steam condensate from Building 881 in 1955 | 5,400 gallons of steam condensate | None | No | The subsurface soil in the vicinity of this former pond has been sampled in the soil sampling program for OU1. Surface soils have been completely disturbed by construction of the French Drain. |
| SE-1601.1 & SE-1601.2 | 1 | Pond 8 north (SE-1601.1) and Pond 8-South (SE-1601.2) received overflow/blowdown from Building 881 Cooling Towers | Chromium-based biocides | None | No | The subsurface soil in the vicinity of these former ponds has been sampled in soil sampling program for OU1. Surface soils adjacent to 1601.2 were also sampled in the OU1 investigation. |
| SW-1700 | 5 | Fuel spill into Woman Creek drainage in 1975 | Either diesel or gasoline | There is no evidence that remedial actions were conducted | No | Because 18 years have passed since the fuel was spilled into the creek, the fuel has degraded and is no longer a concern. |
| 000-500 | Site wide | Releases from the sanitary sewer system | Plutonium contaminated laundry waste, laboratory waste, photographic waste (included tritium, uranium, plutonium) tritium, chromic acid | Remedial actions were conducted in the areas of four known releases (PAC 800-145, 900-141, 700-144, and 100-604) The actions consisted of repairing the broken line and removing soil at PAC 700-144. | Yes | The sanitary sewer system has probably leaked at locations in addition to the four already identified. To determine if there are other areas of contamination, it is suggested that the sludge from several sewer junctions be sampled for plutonium, americium, and uranium. Results for this sampling could guide the selection of additional soil sampling along the sewer pipelines. |
| 000-501 | Site wide | Spraying waste oil on unpaved roads to suppress dust | Waste oils/diesel fuel number 2 | None | No | The last instance of roadway spraying with waste oil is cited as having been in Sept. 1983. It is improbable that contaminants from the waste oil and/or brines would still be present on the dirt roads or nearby sediments after nine years of exposure |
| 100-600 | 13 | Spill onto concrete and soil, 1990 | 2.75 pounds of mercury | The mercury was vacuumed from the valve floor and contaminated soil was excavated | No | Appropriate remedial actions were already conducted. |

| PAC Number | Located Near or in OU Number | Type of Release | Contaminants | Remedial Actions | Further Investigation Warranted | Rationale |
|---|---|---|---|---|---|---|
| 100-601 | 13 | Spill onto ground, 1989 | 8 ounces 1,2-ethylhexyl phosphoric acid | None | No | The small size of the spill (8 ounces) and the caustic nature of 1,2-ethylhexyl phosphoric acid indicates that this spill does not require remediation. |
| 100-602 | 13 | Break in Building 123 process waste line in 1989 | 25 gallons urine, 12.5 gallons nitric acid, 20 gallons hydrochloric acid, 1.5 pounds ammonium thiocyanate, 1 0 pound ammonium iodide, 2.5 gallons ammonium hydroxide | The spill was near two IHSSs scheduled for remediation investigation, so no action was taken | Yes (Could be easily incorporated in OU13 RI process) | The soil was contaminated as a result of the break in the process waste line This area is not being studied as part of OU9 (OU9 deals exclusively with abandoned process waste lines ) Therefore all breaks or releases from currently operating process waste lines will require a separate remedial investigation |
| 100-603 | 13 | Overflow of process waste from Building 123 in 1989 | Hydrochloric and nitric acids, urine, ammonium thiocyanate, ammonium iodide, and ammonium hydroxide | The spill was neutralized and soil samples were collected to confirm that contamination was restricted to the area | Yes (Could be easily incorporated in OU13 RI process) | The soil was contaminated as a result of the break in the process waste line This area is not being studied as part of OU9 (OU9 deals exclusively with abandoned process waste lines ) Therefore all breaks or releases from currently operating process waste lines will require a separate remedial investigation. |
| 100-604 | 13 | Leaking sanitary sewer pipes, 1990 | Unknown | The pipes were repaired. | No | Sanitary sewer lines from trailers are not likely to contain any impacting contaminants, therefore investigation is not warranted. |
| 100-605 | 13 | Spill onto asphalt or soil, 1989 | 2 gallons hydraulic oil | No documentation was found which detailed a response. | No | Because of the small size of this spill and the type of material involved, (hydraulic oil does not contain PCBs), no remedial actions are warranted. |
| 100-606 | 13 | Spill onto asphalt, 1989 | 8 ounces of TCE | None | No | TCE is very volatile, so an 8-ounce spill in 1989 would no longer be of concern. |
| 100-607 | 13 | Transformer leak onto gravel basement floor, 1984-1986 | PCB bearing cooling oil | None | Yes | A PCB survey was conducted in October 1991 (EG&G, 1991) This survey evaluated the contents of all transformers at RFP Soil contaminated with PCBs from transformer leaks should be remediated, since PCBs do not degrade and are not transported readily. |
| 100-608 | 13 | Transformer leak onto ground, 1989 | 0.25 gallons of PCB containing oil | None | Yes | A PCB survey was conducted in October 1991 (EG&G, 1991). This survey evaluated the contents of all transformers at RFP Soil contaminated with PCBs from transformer leaks should be remediated, since PCBs do not degrade and are not transported readily. |
| 100-609 | 13 | Incinerator releases to the air, 1980-1985 | Dioxins and furans | None | Yes | Dioxins and furans are toxic and their presence should be examined. If the incinerator is still in place, building smear samples should be collected In addition, soil samples should be collected from downwind of the incinerator (southern edge of the 600 Area) and analyzed for dioxins |
| 100-610 | 13 | Asbestos insulation disturbed in 1987 | 12 linear feet of asbestos | Related asbestos was wetted down and pipes were repaired | No | The disturbed asbestos was released to the atmosphere, so no remedial actions are necessary |

| PAC Number | Located Near OU Number | Scope of Release | Contaminants | Remedial Actions | Further Investigation Warranted | Rationale |
|---|---|---|---|---|---|---|
| 100-611 | 13 | Liquid spill into containment area and 3 pits under Building 123 in 1989 | Several hundred gallons of acidic scrubbing solutions | All spilled materials were contained and transfered to process waste lines | Yes | Berms and pits into which the spilled solution overflowed may not have completely contained the release |
| 100-612 | 13 | Nickel-cadmium battery fell onto pavement in 1991 | 3 quarts potassium hydroxide | Spill contained and cleanup using Oil-Dri. Residue placed in drum for disposal | No | Appropriate remedial actions were already taken |
| 300 700 | 14 | Unknown, scrap building material was buried in trench from 1955-1981 | Buried material consisted of roofing material, styrofoam, asphalt, and plastic sheeting | The material was removed and taken to the sanitary landfill. No radioactivity was discovered in the trench | No | There is no evidence that burying scrap building material had any impact on the environment. |
| 300-701 | 13 | Liquid spill onto loading dock in 1989 | 20 gallons diluted sulfuric acid | Solution removed with vacuum and floor washed, waste sent to process waste system | No | Appropriate remedial actions were already taken. |
| 300-702 | 13 | Spills and leaks of pesticides and herbicides stored in Building 367 between 1952 and 1988 Contaminants released onto soil and possibly nearby drainage ditch. | Pesticides and herbicides in unknown quantities | Soil sampling was scheduled in 1988, but there is no record verifying that the sampling was conducted. | Yes | Soil around Building 367 and along drainage pathways are probably contaminated with residual pesticides and herbicides. Further investigations could include select soil and ditch sampling with analysis for organophosphorus and chlorinated herbicides. |
| 300-703 | 13 | Road oil vapors were ignited in 1970 | Oil vapors and burned road oil residual | Fire was extinguished by fire department with water and dry chemical. | No | Residuals and releases from fire 22 years ago would not be present. |
| 300-704 | 10 and 8 | Fire on roof of Building 381 in 1982 | Smoke and fluorine vapors | None | No | Fluorine vapors have already been dispersed to the atmosphere. |
| 300-705 | 10 and 8 | Spill into containment berm from storage tank north of Building 374 in 1989 | Potassium hydroxide | The liquid was pumped back into the process waste line | No | Appropriate remedial actions were already conducted |
| 300 706 | 10 and 8 | Spill from Tank 805 north of Building 374 in 1989 Liquid spilled onto plywood deck, dripped onto concrete slab, migrated toward sump embedded in sand | 2 gallons of process waste stream included a variety of chemicals | The plywood and concrete were washed with soap, the liquid was pumped to the waste system, and saturated sand and cleaning materials were removed and treated as low-level mixed waste | No | Appropriate remedial actions were already conducted |
| 300 707 | 13 and 10 | Liquid spill from tank onto asphalt in 1985 | 3 gallons of water and sanitizer (water and formaldehyde) | None | No | The 3 gallons of sanitizer have already evaporated |
| 300 708 | 10 | Transformers leaking onto pad of unknown composition until 1987 | PCB containing oil | The transformers were retrofilled in 1987 | Yes | A PCB survey was conducted in October 1991 (EG&G, 1991) This survey evaluated the contents of all transformers at RFP Soil contaminated with PCBs from transformer leaks should be remediated, since PCBs do not degrade and are not transported readily. |
| 300-709 | 13 | Transformer leak | 772 ppm PCB oil | None | Yes | A PCB survey was conducted in October 1991 (EG&G, 1991) This survey should evaluate the contents of all transformers at RFP. Soil contaminated with PCBs from transformer leaks should be remediated, since PCBs do not degrade and are not transported readily |
| 300-710 | 13 | Gasoline spill from supply truck in 1991 | 2 gallons unleaded gasoline | Waste was cleaned up and packaged | No | Appropriate remedial actions were already conducted |

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| PAC Number | Located Near or in OU Number | Type of Release | Contaminants | Remedial Actions | Further Investigation Warranted | Rationale |
|---|---|---|---|---|---|---|
| 400-800 | 13 | Small leak from a transformer (1987?) | Dielectric fluid, smear samples contained 10,964 ppm PCBs | The transformer was removed. | Yes | A PCB survey was conducted in October 1991 (EG&G, 1991) This survey evaluated the contents of all transformers at RFP Soil contaminated with PCBs from transformer leaks should be remediated, since PCBs do not degrade and are not transported readily |
| 400-801 | 12 | Transformer leak on roof of Building 447 (1987?) | PCB contaminated transformer oil, smear samples contained 120-94 mg of PCBs | The roofing material was removed. | Yes | Need to confirm that all material contaminated with PCBs has been removed |
| 400-802 | 14 | Drums leaking on a concrete slab from 1955 1969 Equipment stored on slab was also contaminated by the leaking drums | Depleted uranium chips immersed in oil stored in 125 30-gallon drums | The drums were removed in 1956 and the concrete was decontaminated with perchloroethene The equipment was moved to another area After cleanup, parts of the slab registered 108 disintegrations/minute (d/m) | Yes | Soil around the concrete storage area and possibly under the area may be contaminated with uranium. Collection of soil samples around this storage area is suggested |
| 400-803 | 12 | Miscellaneous materials were dumped into storm drain near Building 446 in 1972 Mixture found along open ditch south of Cottonwood Ave. northeastward to Seventh Ave | Silver paint, oil, and aluminum paint | There is no evidence to suggest that remedial actions were conducted. | Yes | Dumping silver and aluminum paint would release heavy metals to the soil It is suggested that soil samples be collected from the area around the storm drain and along the ditch and analyzed for lead, cadmium, chromium, and arsenic |
| 400-804 | 14 | Four ingots of unknown composition fell from a truck onto asphalt in 1957. | Radioactivity | The ignots removed, the area was dry vacuumed, and hot spots were covered with asphalt. | Yes | Field sampling activities (rad survey and asphalt sampling) in OU12 work plan will sufficiently investigate this location. |
| 400 805 | 13 | Leak from a filler pipe near tank #9 in 1990 | Fuel | The filler pipe was repaired | No | Appropriate remedial actions were already conducted. |
| 400-806 | 10(?) | Leak from production tank north of Building 440 onto pavement in 1989 | 5 gallons polymethylene polyphylisocyanate | The liquid was cleaned up using Oil-Dri and residue was placed in hazardous material waste drums. | No | Appropriate remedial actions were already conducted |
| 400-807 | 12 | Sandblasting of railroad cars released contaminants to the air. Sandblasting may still be in operation. | Unknown | None | Yes | Field sampling activities (rad survey, surficial soils and sediment sampling) in OU12 work plan will sufficiently investigate this location. |
| 400-808 | 12 | Oil leaked from vacuum pump | 1 quart vacuum pump oil | Contaminated soils were removed | No | Appropriate remedial actions were already taken. |
| 400-809 | 12 | Oil leak was found in motorcycle parking lot in 1991 | 1 quart motor oil | Spill cleaned up with absorbant material and packaged for disposal | No | Appropriate remedial actions were already taken. |
| 400-810 | 12 | Fire in the inlet-duct of the beryllium air plenum for Building 444 in 1978 | 14 5 grams beryllium | None | Yes | Field sampling activities (surficial soils and sediment sampling) in OU12 work plan will sufficiently investigate this location. |
| 500-900 | 8 | Transformer oil | 50-500 mg/L PCBs | None | Yes | A PCB survey was conducted in October 1991 (EG&G, 1991) This survey evaluated the contents of all transformers at RFP. Soil contaminated with PCBs from transformer leaks should be remediated, since PCBs do not degrade and are not transported readily. |

| PAC Number | Located Near or in OU Number | Type of Release | Contaminants | Remedial Actions | Further Investigation Warranted | Rationale |
|---|---|---|---|---|---|---|
| 500 901 | 8 | Transformer oil | 55 ppm PCBs | None | Yes | A PCB survey was conducted in October 1991 (EG&G, 1991) This survey evaluated the contents of all transformers at RFP Soil contaminated with PCBs from transformer leaks should be remediated, since PCBs do not degrade and are not transported readily |
| 500-902 | 8 | Transformer leak | >500 ppm PCBs | The transformer was retrofilled in 1987 | Yes | A PCB survey was conducted in October 1991 (EG&G, 1991) This survey evaluated the contents of all transformers at RFP Soil contaminated with PCBs from transformer leaks should be remediated, since PCBs do not degrade and are not transported readily |
| 500-903 | 8 | 1988 - Drum leaked in RCRA storage unit #1<br>1991 - Release in storage unit | 1988 <4 ounces of S9-63 ppm PCBs<br>1991 40 gallons of "Trim-sol" lubricant mixed with waste oil | 1988 Leaking drum and cleanup debris placed in overpack drum<br>1991 Leak was completely contained within secondary containment pan Leaking drum placed into overpack drum. Spill pumped into new drum. | No | The 1991 incident had no impact on the environment The 1988 event consisted of a release of less than 4 fluid oz. into a cargo container It is unclear whether any release was made to the environment, but due to the small amount of release and the ambiguity involved, further investigation seems to be unnecessary |
| 500-904 | 8 | Transformer leaks | Transformer 223-1 contained >500 ppm PCBs<br>Transformer 223-2 contained <50 ppm PCBs | The transformers were retrofilled in 1987 | Yes | A PCB survey was conducted in October 1991 (EG&G, 1991) This survey evaluated the contents of all transformers at RFP. Soil contaminated with PCBs from transformer leaks should be remediated, since PCBs do not degrade and are not transported readily |
| 500 905 | 8 | Transformer leak | PCBs | None | Yes | A PCB survey was conducted in October 1991 (EG&G, 1991) This survey evaluated the contents of all transformers at RFP Soil contaminated with PCBs from transformer leaks should be remediated, since PCBs do not degrade and are not transported readily |
| 600-1000 | 14 | Transformer oil | >500 mg/L PCBs | Action was proposed, but completion was not documented | Yes | A PCB survey was conducted in October 1991 (EG&G, 1991). This survey evaluated the contents of all transformers at RFP Soil contaminated with PCBs from transformer leaks should be remediated, since PCBs do not degrade and are not transported readily |
| 600 1001 | 14 | Nov 1954 - Drums leaked still bottoms and oils from Building 444 onto slab<br>Sept 1958 - Punctured drum leaked highly contaminated waste coolant from Building 776<br>Mar. 1960 - Drums with loose lids contaminated 2 square feet of slab with solid material from Building 883<br>Drum leaked waste from Building 881 onto slab. | Still bottoms and oils<br>Contaminated waste coolant<br>3,000 counts/min<br>Up to 300 counts/min. | The drums were repacked and the south end of the slab decontaminated<br>The area was cleaned "to an extent" and leaking drum contents transferred to a second drum (Smear count in 1959 found 100,000 counts/min, not related to specific release.)<br>The contamination (up to 3,000 d/m) was removed. Leaking drums were returned to Building 881. | Yes | Soil around this concrete slab and possibly under the pad may be contaminated with uranium. Collection of soil samples around this slab are suggested |

| PAC Number | Located Near or in OU Number | Type of Release | Contaminant | Remedial Actions | Further Investigation Warranted | Rationale |
|---|---|---|---|---|---|---|
| | | May 1960 - Corroded drums leaked acidic waste material from Building 881 onto loading facility | No contamination detected | None | | |
| | | June 1960 - Drum leaked waste from Building 881 onto slab | Waste from Building 881 | None | | |
| 600-1001 (cont.) | 14 | Aug. 1961 - Drums leaked waste from Buildings 444 and 776 in Building 663 | Waste from Buildings 444 and 776 | Equipment was decontaminated or replaced | Above | Above |
| | | Mar. 1968 - Three drums leaked waste and contaminated trailers, forklifts, work area, and personnel clothing and shoes | Not specified | None | | |
| | | Sept. 1963 - Drum contaminated a fork truck, panel truck, and semitrailer in Building 663 | Not specified | | | |
| 600-1002 | 14 | Transformer Storage Area Leak | PCBs | None | Yes | A PC survey was conducted in October 1991 (EG& 1991) This survey evaluated the conte of all transformers at RFP. Soil contaminated with PCBs from transformer leaks should remediated, since PCBs do not degra and are not transported readily |
| 600-1003 | 14 | Transformer leak | PCBs | None | Yes | A PC survey was conducted in October 1991 (EG& 1991) This survey evaluated the conte of all transformers at RFP. Soil contaminated with PCBs from transformer leaks should remediated, since PCBs do not degra and are not transported readily. |
| 700-1100 | 14 | 1964 and 1969-Plutonium contamination from incidents potentially transported along french drain | Possible plutonium | None | Yes | The p tial for radioactive contamination in the area w nts further investigation along the french ain |
| 700-1101 | 14 | Laundry wastewater tank overflowed west of Building 778 into tank pit | Laundry wastewater (probably low-level) | None | Yes | Laund waste water may contain low level radio e contamination. The extent of this radio ity warrants further investigation |
| 700-1102 | 8 | Transformer oil | 14,900 mg/L PCBs | The transformer was removed for retro-filling and relocation several feet to the north The pad was partially removed to 4 inches deep and appears to have had fill recently placed around it. | Yes | A PC rvey was conducted in October 1991 (EG& 1991) This survey evaluated the conte of all transformers at RFP Soil contaminated with PCBs from transformer leaks should remediated, since PCBs do not degra and are not transported readily. |
| 700 1103 | 8 | Transformer oil | 135-7,200 µg PCBs | PCBs were to be cleaned up with Building 707 under the Toxic Substances Control Act. | Yes | A PC rvey was conducted in October 1991 (EG& 1991). This survey evaluated the conte of all transformers at RFP. Soil contaminated with PCBs from transformer leaks should remediated, since PCBs do not degra and are not transported readily. |

| PAC Number | Located Near or In OU Number | Type of Release | Contaminants | Remedial Actions | Further Investigation Warranted | Rationale |
|---|---|---|---|---|---|---|
| 700-1104 | 8 | Transformer oil | 1,035-3,350 µg PCBs | Transformers were moved and retrofilled Rock and gravel fill was placed around the transformer pad west of Building 708 | Yes | A PCB survey was conducted in October 1991 (EG&G, 1991) This survey evaluated the contents of all transformers at RFP Soil contaminated with PCBs from transformer leaks should be remediated, since PCBs do not degrade and are not transported readily. |
| 700-1105 | 8 | Transformer oil | PCBs | Transformers were retrofilled and moved several feet east and north. | Yes | A PCB survey was conducted in October 1991 (EG&G, 1991) This survey evaluated the contents of all transformers at RFP. Soil contaminated with PCBs from transformer leaks should be remediated, since PCBs do not degrade and are not transported readily |
| 700-1106 | 8 | Process wastewater from valve vault 12 leak spilled onto street from tank truck at entrance to portal 1 | 10 gallons radioactive process wastewater (no radioactivity found on street at the time) | None | Yes | The magnitude of the rad contamination from samples of the process wastewater warrants further investigation. |
| 700-1107 | 8 | June 10, 1986 - Open oil drum filled with water from compressor house roof overflowed and soil flowed onto road past Building 776<br><br>June 12, 1986 - Compressor waste oil spilled from overfilled drum outside door 15T north of Building 776 | 1 to 2 gallons oil<br><br>2 to 3 gallons oil | "Oil-Dri" was poured over the area to absorb the spilled oil. "Oil-Dri" was to be swept up, placed in a drum, and disposed in Present Landfill (PAC NW-114).<br><br>Two bags of oil absorbent were used to absorb the spill | No | Appropriate remedial actions were already conducted |
| 700-1108 | 8 | Process waste storage tanks leaked chemical and radioactive contamination to the soil around Building 774, and minor leakage seeped to building footing drain tiles.<br><br>July 21, 1980 - Process waste line leaked<br><br>June 22, 1987 - Caustic overflowed in bermed area beneath 8,000-gallon above-ground condensate tank. Drained into western condensate receiving tank. | Mar. 1971 - 500 disintegrations per minute per liter (d/m/L) gross alpha<br><br>Apr. 1971 - 400 d/m/L plutonium and 800 ppm nitrate<br><br>1,000 gallons - 2,500 pCi/L total alpha, 4000 pCi/L gross beta, 10,000 mg/L $NO_3$, pH 12 | 1975 - Wet-well with a submersible pump installed at Building 771/774 footing drain outfall pond<br><br>1981 - Interceptor trench pump house installed.<br><br>The initial response - stop flow through waste line to stop leak. FIDLER survey to determine extent of contamination Broken waste line excavated and loose flange identified Contents of western condensate tank sampled, and solution pumped to sanitary sewer or Building 774 for processing | Yes | Levels of radioactivity warrant conducting further scans of radioactive contamination. |
| 700-1109 | 8 | Piece of uranium found on ground between Buildings 778 and 729 | Depleted uranium disk 1" diameter by 1/2-inch thick | The uranium was transported to Building 776 then to Building 779 Nuclear Material Control custodian; stored in 55-gallon drum Site where U found surveyed (counts within background) | No | Depleted uranium is not a serious hazard |
| 700 1110 | 8 | Fire in Building 771 Nickel carbonyl cylinders drummed and buried | Nickel carbonyl | Four 55-gallon drums, 1 GI can with two cylinders and 6 loose cylinders of nickel carbonyl removed from burial pit west of Building 771 to pit east of Solar Evaporation Ponds. Explosive charges used to destructively vent the cylinders and ignite any residual gas. | No | Appropriate remedial actions were already conducted. |

| PAC Number | Located Near or in OU Number | Type of Release | Contaminants | Remedial Actions | Further Investigation Warranted | Rationale |
|---|---|---|---|---|---|---|
| 700-1111 | 8 | Transformer leak | PCBs | The transformer unit was retrofilled in 1987 | Yes | A PCB survey was conducted in October 1991 (EG&G, 1991). This survey evaluated the contents of all transformers at RFP. Soil contaminated with PCBs from transformer leaks should be remediated, since PCBs do not degrade and are not transported readily. |
| 700-1112 | 8 | Transformer leak | 807 ppm PCBs | Cleanup scheduled during 1989, but not confirmed | Yes | The previous remedial action should be confirmed. A PCB survey was conducted in October 1991 (EG&G, 1991) This survey evaluated the contents of all transformers at RFP. Soil contaminated with PCBs from transformer leaks should be remediated, since PCBs do not degrade and are not transported readily |
| 800 1200 | 12 | South process transfer line leaked<br><br>Mar. 15, 1989<br>Mar. 16, 1989<br>Apr. 13, 1989<br>June 1989 - Secondary chase pipe leak detected | Partially neutralized $HNO_3$ or rinsate water contaminated with depleted uranium (pH = 1.2)<br>5 gallons<br>7 gallons (>1 lb radionuclides)<br>15 gallons (>100 lbs corrosives) | Discharge valves were closed and locked out; plumbing was changed and hydrostatically tested The inner line was removed | Yes | Since both the inner and the outer chase pipe were found to be leaking, further investigation is warranted |
| 800-1201 | 14 | 1957 - Plutonium fire contamination | Building 881 (NW corner) total activity = $4.5 \times 10^6$ d/m/kg<br>20 feet west, total activity = $1.5 \times 10^6$ d/m/kg; with some plutonium, uranium-235 in soil (1978) | April 1981 - Contaminated soil removed in two small areas near Building 883 May not be same areas. | Yes | The radioactive contamination in soil in 1978 warrants further investigation in the area around Building 881 |
| 800-1202 | 12 | Battery fell from truck and battery acid spilled on road | 1 qt 1/2 gallon $H_2SO_4$ | $NaHCO_3$ applied to spill and area washed down. Battery disposed in present landfill. | No | Appropriate remedial actions were already conducted |
| 800 1203 | 12 | Broken sanitary sewer line between Building 865 and 886 | Sanitary sewage waste | None | No | No specific contaminants are associated with this break in the sanitary sewer line, however the site-wide sanitary sewer system (PAC 000-500) is listed as needing further investigation. |
| 800-1204 | 12 | Building 886 spills<br>Jan. 1978 - vent pipe overflow onto ground<br>1984 - Tank overflow onto roof and ground<br>1986 - Tank overflow onto roof through downspouts and onto ground | 2 gallons on about 16 sq ft. 410,000 d/m/L alpha<br>Decontamination water radioactivity<br>20 gallons process waste | None | Yes | Levels of radioactivity warrant conducting further scans of radioactive contamination. |
| 800-1205 | 12 | Uranium and plutonium and condensate contaminated east dock of Building 881 | Uranium, plutonium, and condensate | None | Yes | The presence of uranium and plutonium contamination warrants further investigation specifically, the collection of wipe samples of the dock outside Building 881. |

| PAC Number | Located Near or in OU Number | Type of Release | Contaminants | Remedial Actions | Further Investigation Warranted | Rationale |
|---|---|---|---|---|---|---|
| 800-1206 | 12 | Trash container fire in Building 883 | Contaminated trash | The shift superintendent was responsible for improper cleanup activities, and Health Physics was to follow up on the incident with the proper department | No | The drum is probably not at the same location |
| 800-1207 | 12 | Transformer leak | >500 ppm PCBs | The transformer was required to be removed or replaced by fiscal year 1987 or 1988 | Yes | A PCB survey was conducted in October 1991 (EG&G, 1991). This survey evaluated the contents of all transformers at RFP. Soil contaminated with PCBs from transformer leaks should be remediated, since PCBs do not degrade and are not transported readily |
| 800-1208 | 12 | Transformer leak | 435 gallons 110 ppm PCBs | The transformer was retrofilled in 1987 | Yes | A PCB survey was conducted in October 1991 (EG&G, 1991). This survey evaluated the contents of all transformers at RFP. Soil contaminated with PCBs from transformer leaks should be remediated, since PCBs do not degrade and are not transported readily |
| 800-1209 | 12 | Transformer leaks | PCBs | The transformers were retrofilled in 1987 | Yes | A PCB survey was conducted in October 1991 (EG&G, 1991). This survey evaluated the contents of all transformers at RFP. Soil contaminated with PCBs from transformer leaks should be remediated, since PCBs do not degrade and are not transported readily |
| 800-1210 | 12 | Transformer leaks | Possibly PCBs | The transformers were removed from the old pad, retrofilled, and placed on a new pad | Yes | A PCB survey was conducted in October 1991 (EG&G, 1991). This survey evaluated the contents of all transformers at RFP. Soil contaminated with PCBs from transformer leaks should be remediated, since PCBs do not degrade and are not transported readily |
| 800-1211 | 12 | Capacitor leak | 1 pint oil (no PCBs) | A smear sample was taken from the concrete where the leak occurred. A glass bottle was placed under the leak, absorbent pads were put on the spill, and the area was barricaded. | No | Appropriate remedial actions were already conducted. |
| 900-1300 | 8 | Sludge from sanitary sewage treatment reverse osmosis plant | Low-level radioactive waste sludge from sanitary treatment plant | Monitoring ground water and the vadose zone are planned. | No | Monitoring is sufficient to evaluate the potential contamination from sewage sludge. |
| 900-1301 | 8 | 79 drums containing concreted wastes from Building 991 | Drummed concreted wastes contaminated with enriched and depleted uranium | None | Yes | Further investigation of this area is recommended, because concrete stabilization has not always been successful at RFP. In addition, drums were stored outside, above the headwaters of Walnut Creek. Water could have leached radioactivity from waste drums into Walnut Creek where it may be transported to ponds downstream. |
| 900-1302 | 10 | Gasoline spill sprayed into the air or leaked onto the ground from 55-gallon drum | Approximately 2 gallons gasoline | The Hazardous Materials Team sealed the leak, and a concrete containment berm was to be installed around the contractor's fuel storage facility | No | Contamination was not severe and has probably degraded |
| 900-1303 | 6 | Natural gas leak | Natural gas | The pipe was repaired and 400 feet of gas line near Building 991 were slated to be replaced in 1971 | No | The natural gas was dissipated to the atmosphere, so no remediation is necessary |

| PAC Number | Located Near or in OU Number | Type of Release | Contaminants | Remedial Actions | Further Investigation Is Not Warranted | Rationale |
|---|---|---|---|---|---|---|
| 900-1304 | 8 | Chromic acid spilled in cement pit | Several gallons chromic acid laboratory waste | Steps were taken to prevent recurrence. | No | Cement pit and berm functioned properly in containing the spill, therefore no release to the environment. |
| 900-1305 | 8 | Prime coating spilled on roof of Building 991 under intake affected climate inside building | Approximately 5 gallons primer Tremco Tremprime containing mineral spirits as a solvent | Primer was spread around and dried | No | Contamination was not severe and has probably degraded |
| 900 1306 | 8 | Transformer leaks | 114 and 60 ppm PCBs in transformers 991-1 and 991-2, respectively | PCBs were cleaned up and the transformers repaired by an outside contractor | Yes | Need to confirm that all contaminated material was removed from this site. |
| 900-1307 | 8 | Explosive bonding experiment hurled a piece of aluminum 525 feet | Uranium alloy and stainless steel | Measures were to be evaluated to prevent malfunctions during future experiments | Yes | Explosive bonding experiments used uranium The pit area should be investigated to determine the extent of radioactivity in the soil. |
| Under Building Contamination (UBC) | Site wide | Building operations released contaminants into soil or ground water under the buildings | Radionuclides, nitrate solvents, acids, and bases | Some releases have been remediated, but a majority have never been researched | Yes | Under building soil and ground-water contamination resulting from building operations has not be previously addressed. Virtually every current or former building used for operation, production, or maintenance could have contaminated the environment beneath the buildings. It is suggested that soil sampling be conducted in hot areas of building basements and that ground water be monitored for all the appropriate contaminants of interest. Some of the identified PACs (100-611 and 400-157.2) pertain to contamination under buildings, these PACs may be investigated concurrently with the UBCs |
| PIC #9 | 13 | Leaking drums outside Building 551 | Aqueous ammonia and carbon tetrachloride | No cleanup mentioned | Yes | Field sampling activities for IHSS 158 in the OU 13 work plan will sufficiently investigate this location with minor revisions. |
| PIC #41 | 8 | Transformer leaks | PCBs | Transformer 777-1 was scheduled for cleanup to occur on August 14, 1989 | Yes | PCBs do not degrade and are not readily transported. |
| PIC #44 | 8 | Liquid contaminated to 6,700 d/m/s | Unknown distillate | Soil samples taken for analysis No cleanup mentioned | Yes | Contaminated liquid was pumped to the ground south of building 374; no cleanup known. |

REFERENCES

EG&G Rocky Flats, 1991, "Assessment of Known, Suspect, and Potential Environmental Releases of Polychlorinated Biphenyls (PCBs)," October 1991

d/m/L = distintegrations per minute per liter
pCi/L = pico-curie per liter