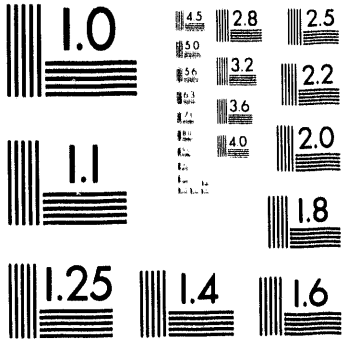
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1 of 2

WINCO-1132 UC-630

LISTED WASTE DETERMINATION REPORT

Environmental Characterization

June 1993

Westinghouse Idaho
Nuclear Company, Inc.

PREPARED FOR THE
DEPARTMENT OF ENERGY
IDAHO OPERATIONS OFFICE
UNDER CONTRACT DE-AC07-84ID12435

IDAHO NATIONAL ENGINEERING LABORATORY
Idaho Chemical Processing Plant

LISTED WASTE DETERMINATION REPORT

1.0 BACKGROUND

On September 23, 1988, the U.S. Environmental Protection Agency (EPA) published a notice clarifying interim status requirements for the management of radioactive mixed waste thereby subjecting the Idaho National Engineering Laboratory (INEL) and other applicable Department of Energy (DOE) sites to regulation under the Resource Conservation and Recovery Act (RCRA). Therefore, the DOE was required to submit a Part A Permit application for each treatment, storage, and disposal (TSD) unit within the INEL, defining the waste codes and processes to be regulated under RCRA.

The September 1990 revised Part A Permit application, that was approved by the State of Idaho identified 101 potential acute and toxic hazardous waste codes (F-, P-, and U- listed wastes according to 40 CFR 261.31 and 40 CFR 261.33) for some TSD units at the Idaho Chemical Processing Plant. Most of these waste were assumed to have been introduced into the High-level Liquid Waste TSD units via laboratory drains connected to the Process Equipment Waste (PEW) evaporator (PEW system). At that time, a detailed and systematic evaluation of hazardous chemical use and disposal practices had not been conducted to determine if F-, P-, or U-listed waste had been disposed to the PEW system.

2.0 PURPOSE

The purpose of this investigation was to perform a systematic and detailed evaluation of the use and disposal of the 101 F-, P-, and U-listed chemicals found in the approved September 1990 Part A Permit application. This investigation was aimed at determining which listed wastes, as defined in 40 CFR 261.31 (F-listed) and 261.33 (P & U-listed) were discharged to the PEW system. Results of this investigation will be used to support revisions to the RCRA Part A Permit application.

3.0 CRITERIA

The logic diagram in Figure 1 outlines the criteria used to determine if a chemical was disposed to the PEW system.

Under the first degree test, determinations were made as to whether the chemicals could physically be formulated in a manner that would allow disposal to the PEW system. Solids/liquids that were not water/solvent soluble were determined NOT to be a F-, P-, or U-listed waste sent to the PEW system. F-, P-, and U-listed solids/liquids that were soluble in water/solvent and were capable of being discharged to a drain were evaluated using either the first/second degree test. If the chemicals were stored/used in area physically connected to the PEW system and no confirmations exist on use/disposal then the chemicals were evaluated using the second degree test.

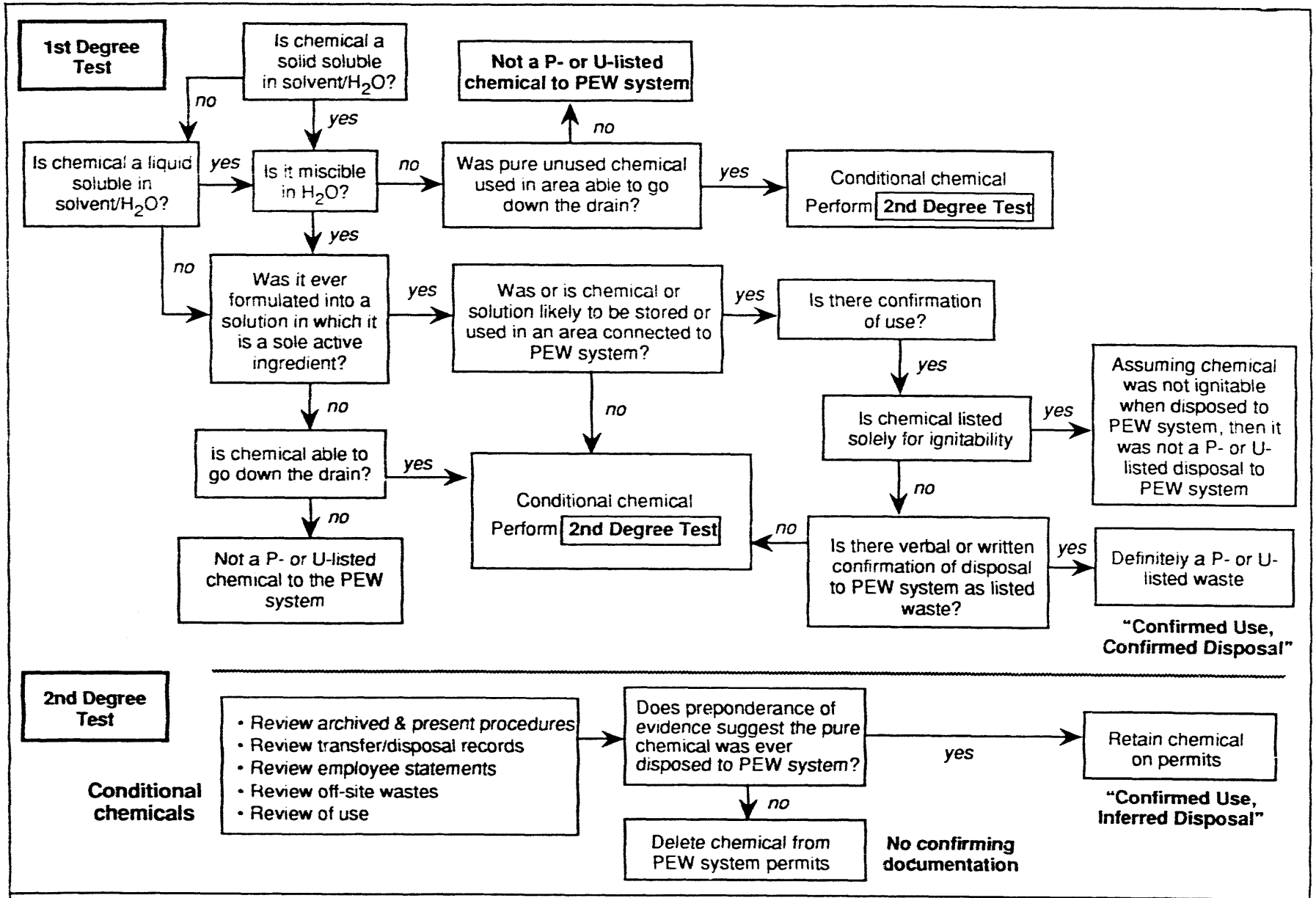


Figure 1. Decision Tree for PEW System Permits (U- and P-listed Wastes)

Under the second degree test, if there were no confirmations that chemicals were used/disposed of to the PEW system, a detailed review of archived and present procedures was performed. In addition, a review of transfer/disposal records; review of employee statements (documented written and verbal); and review of off-site waste shipments was performed. If records indicated the entire inventory of a chemical was disposed of off-site or questionnaires confirmed no disposal to the PEW system, then the chemical was determined NOT to be a F-, P-, or U-listed waste sent to the PEW system.

If documented evidence existed on the use and disposal of a listed (F-, P-, and U-) chemical, then the chemical was identified as "Confirmed use, Confirmed disposal". If documented evidence existed on the use and suggests that the listed chemical was disposed of to the PEW system, the chemical was identified as "Confirmed Use, Inferred disposal." If insuffient data existed on the use/disposal of listed chemical, then the chemical was identified as "No Confirming documentation". The "No Confirming documentation" would also include the chemicals identified as "Inferred use, Inferred disposal".

During this evaluation it was important to distinguish between "Confirmed" and "Inferred" activities. "Confirmed" in this context means there is a contemporaneous record (documented written information) which existed showing use/disposal; and/or an employee statement(s) (documented written or verbal information) indicating (s)he personally observed the chemical being used/disposed. "Inferred" implied that it probably was used and/or disposed but there was no confirmed information.

Those chemicals identified as "Confirmed use, Confirmed disposal" and "Confirmed use, Inferred disposal" will be retained on the Part A Permit application for applicable units. Those chemicals identified as "Inferred use, Inferred disposal", "No confirming documentation", and "Listed solely for ignitability" will be recommended for removal from the Part A Permit application for applicable units.

4.0 PROCEDURE

During this investigation, information was obtained concerning all 101 F-, P-, and U-listed wastes identified in the September 1990 approved Part A Permit application. The listed waste investigation was conducted in four phases. Phase I determined whether the F-, P-, and/or U listed chemicals were used by the analytical laboratories and were disposed to the PEW system ("Confirmed use, Confirmed disposal"). Those chemicals identified as "Confirmed use, Inferred disposal", "Inferred use, Inferred disposal", and "No Confirming documentation" were evaluated further in Phase II, III, and IV.

The following types of information were used to identify the chemicals as "Confirmed use, Confirmed disposal", "Confirmed use, Inferred disposal", "Inferred use, Inferred disposal", and "No confirming documentation":

- Inventory records confirming what chemicals were present at ICPP. The inventory for 1986 was the first comprehensive written inventory for laboratory chemicals that was found.

- Analytical procedures and personal communications confirming the use/disposal of a listed chemical.

- A pre-1986 ICPP Analytical Chemistry procedure (Procedure R.1.30) directing, in part, that organic wastes meeting certain criteria be discarded to the PEW drain.

- A November 29, 1988 letter from John Volpe to distribution prohibited the discharge of listed chemicals to the percolation ponds via the PEW evaporator, tank farm facility, and the service waste system. (Procedure R.1.30 was subsequently updated to prohibit the disposal of listed wastes to the PEW System.)

- Statements from researchers confirming that it was standard practice in pre-1989 laboratory clean outs to dispose of water miscible chemicals to the PEW System.

Several assumptions were made concerning the information that was obtained:

1. Records, personnel statements, and procedures were assumed to be complete, accurate and final.

2. If written procedures existed, they were followed.

3. Chemicals present in the 1986 chemical inventory were representative of those found at the ICPP prior to 1986.

4.1 PHASE I - ANALYTICAL LABORATORY WASTES

Phase I of this investigation focused on determining which of the 101 F-, P-, and U- listed chemicals identified in the September 1990 Part A Permit application entered the PEW system via the laboratory drains. Detailed reviews of all archived and current laboratory procedures were conducted. In addition, personal interviews were conducted with WINCO personnel having knowledge of the analytical laboratories and procedures on use/disposal of these chemicals.

For those procedures resulting in the generation of "Confirmed use, Confirmed disposal" and "Confirmed use, Inferred disposal" listed wastes, laboratory records were checked to determine how often each procedure was used and the quantities of the chemical used. As data allowed, estimates of the concentration of listed waste disposed to the PEW system were made.

4.2 PHASE II - PROCESS DEVELOPMENT, PILOT PLANT STUDIES, AND PRODUCTION

Phase II of this investigation focused on determining which chemicals entered the PEW system through other ICPP areas (i.e., pilot plant and

production) not initially identified as "Confirmed use, Confirmed disposal" from Phase I above. Personal interviews were conducted with WINCO personnel having knowledge of the use/disposal of listed (F-, P-, and U-) chemicals and past ICPP operations. Additional telephone inquiries were made to clarify chemical use and disposal for those chemicals that were not readily classifiable from the interviews.

In addition, written questionnaires were used to obtain information on the use and disposal of all 101 chemicals identified as F-, U-, and P- listed waste on the September 1990 approved Part A Permit application. Additional telephone inquiries were made to clarify chemical use/disposal for those chemicals that were not readily classifiable from questionnaires.

4.3 PHASE III - MATERIAL SAFETY DATA SHEET (MSDS) REVIEW

Phase III of this investigation focused on all chemical MSDSs formerly and currently used at ICPP that may have been used in areas connected to the PEW system. This investigation focused on those chemicals which were not initially identified as "Confirmed use, Confirmed disposal" from Phase I and II above.

4.4 PHASE IV - OFF-SITE SOURCES

The ICPP PEW system was reported to have received infrequent liquid wastes generated at other INEL locations (e.g., off-site sources). Although speculative, the potential existed that waste from these sources could have contained F-, P-, and/or U-listed wastes, and an investigation was conducted to locate available information. Personnel familiar with the PEW system were contacted to determine if records existed concerning this waste or if available personnel could remember the nature of the material. The chemicals looked at in Phase II (i.e., not identified as "Confirmed use, Confirmed disposal") were sent to waste managers from these off-site sources. Off-site sources confirmed no disposal of these listed wastes to the PEW system.

5.0 CONCLUSIONS

Based upon application of the criteria described in Section 3 and the procedures set forth in Section 4, the chemicals listed in Table 1 were identified as "Confirmed use, Confirmed disposal" or "Confirmed use, Inferred disposal", and will be retained in the Part A Permit application. Chemicals listed in Table 2 were identified as "Inferred use, Inferred disposal", "No confirming documentation", or "Listed solely for ignitability", and are recommended for removal from the Part A Permit application for the following TSD units: CPP-659 NWCF Evaporator Storage Tanks; CPP-633 WCF HLW Evaporator Storage Tanks; CPP-659 NWCF Storage Tanks; CPP-604 PEW Condensate/Feed Storage Tanks; CPP-1618 LET&D Nitric Acid Recycle Tank; CPP-604 PEW Evaporator; CPP-659 NWCF Calciner; WINCO Tank Farm; WINCO New Tank Farm; CPP-604 PEW Storage Tanks; CPP-601 WG/WH Cells Storage and Treatment Tanks; WINCO Calcine Bin Sets; CPP-633 WCF Evaporator; CPP-659 NWCF Evaporator; WINCO Percolation Ponds; and CPP-1618 LET&D Evaporators. Appendix A contains a detailed description of the

information available for each of the waste codes appearing on the September 1990 Part A Permit application, arranged alphabetically by chemical name. The Part A Permit application will be amended if additional waste codes are identified as a result of further waste stream characterization.

Table 1 - Chemicals Concluded to have entered the PEW System

Specified Technologies
acetonitrile (U003) (non-wastewater)
ammonium vanadate (P119) (non-wastewater)
formaldehyde (U122) (wastewater & non-wastewater)
formic acid (U123) (wastewater & non-wastewater)
hydrazine (U133) (wastewater & non-wastewater)
hydrogen fluoride (U134) (non-wastewater)
sodium azide (P105) (wastewater & non-wastewater)
thiourea (U219) (wastewater & non-wastewater)
vanadium oxide (P120) (wastewater & non-wastewater)

Concentration Based
1,1,1-trichloroethane (U226, F002)
1,1,2-trichloroethane (U227, F002)
1,4-dioxane (U108)
aniline (U012)
benzene (U019, F005)
carbon disulfide (F005)
carbon tetrachloride (U211, F002)
chloroform (U044)
isobutyl alcohol (U140, F005)
lead acetate (U144)
mercury (U151)
methyl iodide (U138)
methyl ethyl ketone (U159, F005)
methylene chloride (U080, F002)
phenol (U188)
potassium cyanide (P098)
pyridine (U196, F005)
selenium dioxide (U204)
silver cyanide (P104)
sodium cyanide (P106)
tetrachloroethylene (U210, F002)
toluene (U220, F005)
trichloroethylene (U228, F002)

Table 2 - Chemicals not Concluded to Have Entered the PEW System *

REMOVE
1,1,1-trichloroethane (F001)
1,1,1,2-tetrachloroethane (U208)
1,2-dichloroethylene (U079)
1,2-dichloropropane (U083)
1,2,4,5-tetrachlorobenzene (U207)
1,3-dichloropropene (U084)
2-imidazolidinethione (U116)
2-nitropropane (F005, U171)
2-picoline (U191)
3-chloropropanenitrile (P027)
acetone (U002)
acetophenone (U004)
acrylamide (U007)
acrylic acid (U008)
acrylonitrile (U009)
allyl alcohol (P005)
arsenic trioxide (P012)
auramine (U014)
benzenesulfonyl chloride (U020)
benzyl chloride (P028)
bromoform (U225)
n-butyl alcohol (U031)
calcium chromate (U032)
carbon tetrachloride (F001)
carbon disulfide (P022)
p-chloroaniline (P024)
chlorobenzene (U037, F002)
o-chlorophenol (U048)
cresols (U052)
cumene (U055)
cyanide (P030)
cyanogen (P031)
cyclohexane (U056)
cyclohexanone (U057)
dibutyl phthalate (U069)
m-dichlorobenzene (U071)
p-dichlorobenzene (U072)
o-dichlorobenzene (U070)
dichlorophenol (U081)
dimethyl phthalate (U102)
dimethyl sulfate (U103)
ethyl acrylate (U113)
ethyl methacrylate (U118)
ethyl acetate (U112)
fluoranthene (U120)
fluorine (P056)
furfural (U125)

Table 2 - Chemicals not Concluded to Have Entered the PEW System - Continued

REMOVE - Cont.
hexachlorobenzene (U127)
hexachlorobutadiene (U128)
hexachloroethane (U131)
hydrogen sulfide (U135)
lead phosphate (U145)
maleic anhydride (U147)
methanol (U154)
methyl methacrylate (U162)
methyl isobutyl ketone (U161)
methylene chloride (F001)
naphthalene (U165)
nickel carbonyl (P073)
nicotine & salts (P075)
p-nitroaniline (P077)
nitrobenzene (U169)
p-nitrophenol (U170)
paraldehyde (U182)
phthalic anhydride (U190)
resorcinol (U201)
tetrachloroethylene (F001)
thallic oxide (P113)
thallium nitrate (U217)
thallium carbonate (U215)
thioacetamide (U218)
thiosemicarbazide (P116)
o-toluidine (U328)
trichloroethylene (F001)
xylene (U239)

* To be retained for CPP-1617 and CPP-1619

APPENDIX A

CHEMICAL SPECIFIC PART A PERMIT SUMMARY SHEETS

ACETONE (U002)

DESCRIPTION (MERCK Index)

Volatile, highly flammable liquid; characteristic odor; pungent, sweetish taste. Miscible with water, alcohol, dimethylformamide, chloroform, ether, and most oils.

SUMMARY

Acetone was used extensively throughout ICPP as a solvent. Researchers confirmed that unused portions of this chemical were disposed to the PEW system.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical grade chemical to a sink cannot be ruled out.	1. Procedures do not exist that direct the creation of solutions having this chemical as the sole active ingredient.
2. Verbal statements confirm use by analytical.	2. Since the chemical would not have been ignitable at disposal, the characteristic of ignitability is no longer present thus the waste would not be listed for U002.
3. Acetone is miscible in water/solvents.	
4. Confirmation of use of this chemical in an archive analytical procedure.	

JUDGEMENT

Confirmed use, Confirmed disposal; and Listed only for ignitability (first degree test).

RECOMMENDATION

Remove acetone from the Part A permit application, where applicable.

ACETONITRILE (U003)

DESCRIPTION (MERCK Index)

Liquid. Ether-like odor. Poisonous. Flash point 12.8° C (55° F). Used in organic synthesis and for its solvent properties. Soluble in water.

SUMMARY

No archive analytical procedures existed directing the use of acetonitrile. It was found in a 1989 inventory. Verbal statements from researchers confirmed use/disposal as a spent non-ignitable process wastes to PEW system.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical grade chemical to a sink cannot be ruled out.	1. Procedures do not exist that direct the creation of solutions having this chemical as the sole active ingredient.
2. Verbal statements confirm use by analytical.	
3. Acetonitrile is a liquid which is soluble in water.	

JUDGEMENT

Confirmed use; Inferred disposal (first degree test and second degree test).

RECOMMENDATION

Retain acetonitrile on the Part A permit application, where applicable.

ACETOPHENONE (U004)

DESCRIPTION (MERCK Index)

Liquid. Forms laminar crystals at low temperatures. Used in organic synthesis. Slightly soluble in water; and freely soluble in alcohol, chloroform and ether.

SUMMARY

No archive analytical procedures existed directing the use of acetophenone. Some of this chemical was in a lab pack prepared to go to USPCI. September 26, 1991 memo recommended removal of this chemical from the RCRA Part A Permit application submitted with the NWCF Part B Application. Although there was no record of this chemical remaining on site but no confirmation of disposal of acetophenone have not been received from USPCI.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Acetophenone is a liquid and is freely soluble in solvents.	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that directs the generation of solutions having the chemical as the sole active ingredient. 3. Acetophenone is liquid that is slightly soluble in water.

JUDGEMENT

No confirming documentation (first degree test).

RECOMMENDATION

Remove acetophenone from the Part A permit application, where applicable.

ACRYLAMIDE (U007)

DESCRIPTION (MERCK Index)

Monomer: flake-like crystals from benzene. Polymer: various forms, soluble and insoluble in water.

SUMMARY

No archive analytical procedures existed directing the use of acrylamide. September 26, 1991 memo recommended removal of this chemical from the RCRA part A Permit application; however, concern over confirmation of destruction by USPCI existed for this waste. Therefore, this chemical was not removed from the RCRA Part A Permit application revision nor the list of waste codes applicable to the NWCF Part B application submitted in the October 1991 revision.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient.

JUDGMENT:

No confirming documentation (first degree test).

RECOMMENDATION

Remove acrylamide from the Part A permit application, where applicable.

ACRYLIC ACID (U008)

DESCRIPTION (MERCK Index)

Corrosive liquid; acrid odor and fumes. Miscible with water, alcohol and ether. Used in manufacturing of plastics.

SUMMARY

No archived analytical procedures existed directing the use of acrylic acid. Acrylic acid was not found in the 1986 or 1991 inventories, but records for disposal have some acrylic acid. The disposal of CPP-57 was confirmed. An MSDS was found for Magnum-I, RVMA, TPA-11 Resin, manufactured by Pacer Technology, containing acrylic acid as the sole active ingredient in the formulation. Further evaluation lead to the presumption that acrylic acid was not the sole active ingredient.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. An MSDS was on file for Magnum-I, RVMA, TPA-11 resin which contains acrylic acid.	1. There is no confirmed use of this chemical by analytical, process development, or production.
2. Acrylic acid is miscible in water.	2. Since the MSDS describes a resin product that contains acrylic acid, the acrylic acid is probably not the sole active ingredient in the product.
	3. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient.
	4. Since the chemical would not have been ignitable at disposal, the characteristic of ignitability is no longer present thus the waste would no be listed for U008.

JUDGEMENT:

No confirming documentation; and Listed only for ignitability (first degree test).

RECOMMENDATION

Remove acrylic acid from the Part A permit application, where applicable.

ACRYLONITRILE (U009)

DESCRIPTION (MERCK Index)

Explosive, flammable and toxic liquid. Should be stored and used in closed systems whenever possible. Work areas should be adequately ventilated, and should be free from open lights, flames and equipment that is explosion-proof. May polymerize spontaneously, particularly in absence of oxygen or on exposure to visible light. Polymerizes violently in presence of concentrated alkali. Soluble in water.

SUMMARY

No archive analytical procedures existed directing the use of acrylonitrile. It was confirmed to be disposed at USPCI through the lab pack sent off-site. Interviews did not identify it as a chemical used at the ICPP.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Acrylonitrile is a liquid which is soluble in water.	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient.

JUDGEMENT:

No confirming documentation (first degree test).

RECOMMENDATION

Remove acrylonitrile from the Part A permit application, where applicable.

ALLYL ALCOHOL (P005)

DESCRIPTION (MERCK Index)

Colorless liquid; pungent, mustard-like odor, irritating to the eyes. Closed cup flashpoint 75 degrees F. Insoluble in water.

SUMMARY

No archive analytical procedures existed directing the use of the allyl alcohol. Records confirmed it was disposed through a lab pack sent to USPCI. Interviews did not identify it as a chemical used at the ICPP.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient. 3. Allyl alcohol is a liquid that is insoluble in water.

JUDGEMENT:

No confirming documentation (first degree test).

RECOMMENDATION

Remove allyl alcohol from the Part A permit application, where applicable.

AMMONIUM VANADATE (P119)

DESCRIPTION (MERCK Index)

White, or slightly yellow, crystalline powder; slightly soluble in water or alcohol. Used as a reagent in analytical chemistry.

SUMMARY

An archive analytical procedures existed directing the use of ammonium vanadate. This procedure directed the generation of a one liter stock solution containing this chemical mixed with nitric acid.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Confirmation of use of this chemical in archive analytical procedures.	1. Ammonium vanadate is a solid slightly soluble in water/solvents.
2. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	2. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient.

JUDGEMENT

Confirmed use; Inferred disposal (first degree test and second degree test).

RECOMMENDATION

Retain ammonium vanadate from the Part A permit application, where applicable.

ANILINE (U012)

DESCRIPTION (MERCK Index)

Oily liquid; colorless when freshly distilled, darkens on exposure to air and light. Poisonous. Characteristic odor and burning taste; combustible; volatile with steam. Soluble in water.

SUMMARY

An archive analytical procedures existed directing the use of aniline. It was used in mercury extraction. The aniline in the procedure was distilled before use.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out. 2. Confirmation of use of this chemical is in archive analytical procedures. 3. Aniline is a liquid that is soluble in water.	1. Procedures do not exist that directs the generation of solutions having this chemical as the sole active ingredient.

JUDGEMENT:

Confirmed use; Inferred disposal (first degree test and second degree test).

RECOMMENDATION

Retain aniline on Part A permit application, where applicable.

ARSENIC TRIOXIDE (P012)

DESCRIPTION (MERCK Index)

White or transparent, glassy, amorphous lumps or crystalline powder. Sparingly and extremely insoluble in cold water; soluble in 15 parts of boiling water. Practically insoluble in alcohol, chloroform, and ether.

SUMMARY

Arsenic trioxide was found in the 1989 and 1991 inventories. No archive laboratory procedures existed directing the use of arsenic trioxide; however, verbal statements confirmed that it was used/disposed to the PEW system. Verbal statements indicated that in elemental spectroanalysis it was used as a solid or in a standard with an acid. Some was disposed in a lab pack sent to USPCI.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out. 2. Verbal statements confirmed used by analytical.	1. Arsenic trioxide is a solid not very soluble in water. 2. No procedures exist that direct the generation of solutions having arsenic trioxide as the sole active ingredient.

JUDGEMENT

Confirmed use; Inferred disposal (first degree test). No confirming documentation (second degree test).

RECOMMENDATION

Remove arsenic trioxide from the Part A permit application, where applicable.

AURAMINE (U014)

DESCRIPTION (Hawley's Condensed Chemical Dictionary)

Yellow flakes or powder; soluble in water, alcohol and ether. Used as yellow dye for paper, textiles, leather; also an antiseptic; fungicide.

SUMMARY

No archive analytical procedures existed directing the use of auramine. It was not identified in the 1986 analytical laboratory inventory or in interviews and questionnaires with researchers. Records confirmed disposal of some in a lab pack sent to USPCI. It was found in a 1988 inventory, but not found in the 1990 inventory.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Auramine is a solid which is soluble in water.	1. Ther. is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as a sole active ingredient.

JUDGEMENT:

No confirming documentation (first degree test and second degree test).

RECOMMENDATION

Remove auramine from the Part A permit application, where applicable.

BENZENE (U019, F005)

DESCRIPTION (MERCK Index)

Clear, colorless, highly flammable liquid; characteristic odor. Flash point (closed cup): 12° F. Used in the manufacture of many organic compounds and as a solvent. Soluble in 1430 parts water; miscible with alcohol, chloroform, ether, carbon disulfide, carbon tetrachloride, glacial acetic acid, acetone, and oils.

SUMMARY

Archive analytical procedures existed directing the use of benzene for its solvent properties. None of the archive analytical procedures required disposal of unused portions of solutions containing the pure chemical or having benzene as the sole active ingredient.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	1. Benzene is not the sole active ingredient in process solutions. Consequently, disposal of these solutions to the PEW system would constitute a process waste, not a U-listed waste.
2. Confirmation of use of this chemical in archive analytical procedure.	2. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient.
3. Statements confirmed use of this chemical by analytical.	3. Benzene is not very soluble in water.
4. Benzene is liquid that is miscible in solvents.	4. Many waste solvents were evaporated under hoods.

JUDGEMENT:

Confirmed use, confirmed disposal F005; Confirmed use, Inferred disposal U019 (first degree test). Confirmed use; Inferred disposal U019 (second degree test).

RECOMMENDATION

Retain benzene on the Part A permit application as both U019 and F005 waste codes, where applicable.

BENZENESULFONYL CHLORIDE (U020)

DESCRIPTION (MERCK Index)

Colorless, oily liquid. Insoluble in water.

SUMMARY

No archive analytical procedures exists directing the use of benzenesulfonyl chloride. It was confirmed to be disposed at USPCI through a lab pack. Interviews did not identify it as being used at ICPP.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient. 3. Benzenesulfonyl chloride is a liquid that is insoluble in water.

JUDGEMENT:

No confirming documentation (first degree test).

RECOMMENDATION

Remove benzenesulfonyl chloride from the Part A permit application, where applicable.

BENZYL CHLORIDE (P028)

DESCRIPTION (MERCK Index)

Very refractive liquid; insoluble in water; miscible with alcohol, chloroform, ether. Used in manufacture of benzyl compounds, perfumes, pharmaceutical products, dyes, synthetic tannins, and artificial resins.

SUMMARY

No archive analytical procedures existed directing the use of benzyl chloride. Records existed confirming off-site disposal of this material in a lab pack sent to USPCI. An MSDS sheet is on file identifying benzyl chloride as the sole active ingredient in alpha-chlorotoluene from Eastman Kodak Company. Haztrak in the past included benzyl chloride, but the current inventory shows none. Haztrak entry is believed to result from the past inventories of benzyl chloride. Interviews did not identify it as being used at the ICPP.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since an MSDS sheet was on file, some of this chemical was present on-site.	1. There is no confirmed use of this chemical by analytical, process development or production. 2. Benzyl chloride is a liquid which is insoluble in water. 3. Procedures do not exist that direct the generation of this chemical as the sole active ingredient.

JUDGEMENT

No confirming documentation (first degree test).

RECOMMENDATION

Remove benzyl chloride from the Part A permit application, where applicable.

BROMOFORM (U225)

DESCRIPTION (MERCK Index)

[Tribromomethane] Heavy liquid, chloroform odor. Used in separating mixtures of minerals. Soluble in 800 parts water.

SUMMARY

Bromoform was was present in the 1991 inventory. Archive analytical procedures existed directing the use of bromoform; however, a researcher stated that it was mixed with methanol and used as an analytical standard.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	1. Disposal of excess bromoform/methanol standard would have constituted a process, not a listed waste.
2. Statements confirm the use of this chemical by analytical.	2. Bromoform is not readily soluble in water.

JUDGEMENT

Confirmed use; Inferred disposal (first degree test). No confirming documentation (second degree test).

RECOMMENDATION

Remove bromoform on the Part A permit application, where applicable.

n-BUTYL ALCOHOL (U031, F003)

DESCRIPTION (MERCK Index)

Highly refractive liquid with an odor similar to that of fuel oil, but weaker. It is used as a solvent for fats, waxes, resins, shellac, varnish, gums, etc.; and in the manufacture of butyl compounds. Soluble 9.1 ml in 100 ml of water. Miscible with alcohol, ether, and many other organic solvents.

SUMMARY

Archive analytical procedures existed directing the use of n-butyl alcohol as an extractant; however, researchers did not recollect using the procedure. n-Butyl alcohol was present in the 1986 inventory, but not in the 1990 inventory. Some was lab packed for disposal and sent to USPCI.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	1. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient.
2. Confirmation of use of this chemical in archive analytical procedures.	2. Since the chemical would not have been ignitable at disposal, the characteristic of ignitability is no longer present thus the waste would not be listed for U031.
3. The n-butyl alcohol is liquid that is slightly soluble in water.	

JUDGEMENT:

Confirmed use, confirmed disposal F003; and Confirmed use, Inferred disposal U031; and Listed only for ignitability (first degree test).

RECOMMENDATION

Remove n-butyl alcohol from the Part A permit application, where applicable.

CALCIUM CHROMATE (U032)

DESCRIPTION (MERCK Index)

Yellow monoclinic or rhombic crystals. Sparingly soluble in water, but soluble in dilute acids. Used as a pigment and corrosion inhibitor; in the manufacture of chromium; in oxidizing reactions; and in battery depolarization.

SUMMARY

No archive analytical procedures existed directing the use of calcium chromate. It was not present in either the 1986 or 1991 inventories, nor was it present in a review of MSDS sheets as a sole active ingredient. Records confirmed disposal of some of this chemical in a lab pack sent to USPCI. In September, 1991 interviews, one researcher stated that calcium chromate could have been present as a corrosion inhibitor in wastes received from off-site. Interviews with off-site generators could not confirm this speculation.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient. 3. Calcium chromate is a solid that is sparingly soluble in water.

JUDGEMENT:

No confirming documentation (first degree test and second degree test).

RECOMMENDATION

Remove calcium chromate from the Part A permit application, where applicable.

CARBON DISULFIDE (P022, F005)

DESCRIPTION (MERCK Index)

Highly refractive, mobile, very flammable liquid. Poisonous. Use is indicated as a solvent for phosphorus, sulfur, selenium, bromine, iodine, fats, resins, rubbers; also manufacturing uses. Miscible with anhydrous methanol, ethanol, ether, benzene, chloroform, and carbon tetrachloride.

SUMMARY

No archive analytical procedures existed directing the use of carbon disulfide; however, verbal statements confirmed use of carbon disulfide in analytical procedures for its solvent properties. Process development had an inventory (~200 ml).

REASONS TO INCLUDE ON PERMIT AS P-LISTED WASTE	REASONS TO EXCLUDE FROM PERMIT AS P-LISTED WASTE
1. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	1. Carbon disulfide is a liquid that is not readily soluble in water.
2. Verbal statements confirmed use as a solvent (F005) in analytical and process procedures.	2. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient.
	3. Disposal of carbon disulfide was as used solvent and not a P022 listed waste.
	4. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient.

JUDGEMENT

Confirmed use, Confirmed disposal F005; and Confirmed use, Inferred disposal P022 (first degree test). Confirmed use F005, Confirmed disposal F005; and No confirming documentation P022 (second degree test).

RECOMMENDATION

Remove carbon disulfide (P022) from the Part A permit application, where applicable. Retain carbon disulfide (F005) on the Part A permit application, where applicable.

CARBON TETRACHLORIDE (U211, F002)

DESCRIPTION (MERCK Index)

Colorless, clear, heavy, nonflammable liquid. Used as a solvent for oils, fats, lacquers, varnishes, rubber, waxes, resins and as a starting material in the manufacture of organic compounds. One ml dissolves in 2000 ml water.

SUMMARY

Carbon tetrachloride was present in 1986 and 1991 inventories. Six archive analytical procedures existed directing the use/disposal of carbon tetrachloride as a reagent and solvent. Records confirmed disposal of some of this chemical in a lab pack sent to USPCI. One procedure required that carbon tetrachloride be filtered before use and returned to the stock bottle after use; however, the procedure calls for the stock bottle to be disposed of if contaminated.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Confirmation of use and disposal of this chemical in archive analytical procedures.	1. Carbon tetrachloride is not readily soluble in water, therefore, disposal of the pure chemical to the PEW system would not be allowed.
2. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	2. Procedures do not exist that direct the generation of solutions having this chemical as a sole active ingredient.
	3. Carbon tetrachloride is liquid that is not readily soluble in water.

JUDGEMENT

Confirmed use, Confirmed disposal F002 and U211 (first degree test and second degree test).

RECOMMENDATION

Retain carbon tetrachloride on the Part A permit application, where applicable.

p-CHLOROANILINE (P024)

DESCRIPTION (MERCK Index)

Orthorhombic crystals from alcohol or petroleum ether. Soluble in hot water. Freely soluble in alcohol, ether, acetone, and carbon disulfide.

SUMMARY

No archive analytical procedures exist directing the use of p-chloroaniline. It was found in an inventory. It was sent off-site to USPCI for disposal. Interviews did not identify it as a chemical being used at the ICPP.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. The p-dichloroaniline is soluble in hot water and freely soluble in solvents.	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient.

JUDGEMENT:

No confirming documentation (first degree test).

RECOMMENDATION

Remove p-chloroaniline from the Part A permit application, where applicable.

CHLOROBENZENE (U037, F002)

DESCRIPTION (MERCK Index)

Colorless, very refractive liquid with a faint, not unpleasant odor. Flash point: 28° F. Used in the manufacture of phenol, aniline, DDT: solvent for paints; heat transfer medium. Insoluble in water; freely soluble in alcohol, benzene, chloroform, and ether.

SUMMARY

No archive analytical procedures existed directing the use chlorobenzene. It was not present in 1986 and 1991 inventories; however, an MSDS sheet is on file showing chlorobenzene is a chemical received from Eastman Kodak Company. Records confirmed disposal of some this chemical in a lab pack sent to USPCI. The September, 1991 interviews could not confirm use or disposal of chlorobenzene.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since a MSDS was on file, some of this chemical was present on-site.	1. There is no confirmed use of this chemical by analytical, process development, or production.
2. Chlorobenzene is liquid that is freely soluble in solvents.	2. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient.
	3. Chlorobenzene is liquid that is insoluble in water.

JUDGEMENT:

No confirming documentation (first degree test and second degree test).

RECOMMENDATION

Remove chlorobenzene from the Part A permit application, where applicable.

CHLOROFORM (U044)

DESCRIPTION (MERCK Index)

Highly refractive, nonflammable, heavy, very volatile, sweet-tasting liquid; characteristic odor. Used as a solvent for fats, oils, rubber, alkaloids, waxes, gutta-percha, resins; as cleansing agent; and in fire extinguisher with carbon tetrachloride. One ml dissolves in about 200 ml of water. Miscible with alcohol, benzene, ether, carbon tetrachloride, carbon disulfide, and oils.

SUMMARY

Chloroform appears on both the 1986 and 1991 inventories at ICPP. Nine archive analytical procedures existed directing the use of chloroform as an extractant with leftover solutions discarded as "process waste." One procedure, however, required 200 ml of unused chloroform to be generated per procedure. Process development survey indicated that chloroform was used, but it did not enter the PEW system. Records confirmed disposal of some chloroform in a lab pack sent to USPCI.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	1. Employees stated that chloroform was not disposed to the PEW system since it was an organic.
2. Confirmation of use of this chemical in archive analytical procedures.	2. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient.
3. Records and employee statements confirm usage of chloroform.	
4. Chloroform is a liquid that is slightly soluble in water and miscible with solvents.	

JUDGEMENT:

Confirmed use; Inferred disposal (first degree test and second degree test).

RECOMMENDATION

Retain chloroform on the Part A permit application, where applicable.

o-CHLOROPHENOL (U048)

DESCRIPTION (MERCK Index)

Liquid. Slightly soluble in water; freely soluble in alcohol, ether, and caustic alkali solutions.

SUMMARY

No archive analytical procedures existed directing the use of o-chlorophenol. Interviews did not identify it as ever being used at the ICPP.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. o-chlorophenol is a liquid that is slightly soluble in water and freely soluble in solvents.	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as a sole active ingredient.

JUDGEMENT

No confirming documentation (first degree test).

RECOMMENDATION

Remove o-chlorophenol from the Part A permit application, where applicable.

3-CHLOROPROPANENITRILE (P027)

DESCRIPTION (MERCK Index)

Liquid Acrid, characteristic odor. Poisonous! Flashpoint closed cup 168 degrees F. Soluble in water.

SUMMARY

No archive analytical procedures existed directing use of 3-chloropropanenitrile. Records confirm that some was lab packed sent to USPCI. Interviews did not identify it as being used at ICPP.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. The 3-chloropropanenitrile is a liquid is soluble in water.	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient.

JUDGEMENT:

No confirming documentation (first degree test).

RECOMMENDATION

Remove 3-chloropropanenitrile from the Part A permit application, where applicable.

CRESOL (U052)

DESCRIPTION (MERCK Index)

Colorless, yellowish, brownish-yellow, or pinkish liquid; phenolic odor; becomes darker with age and on exposure to light. Poisonous! Soluble in 50 parts of water.

SUMMARY

No archive analytical procedures existed directing use of cresols. It was confirmed that some was disposed at USPCI in a lab pack. Interviews did not identify it as being used at ICPP.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Cresol is a liquid that is slightly soluble in water.	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as a sole active ingredient.

JUDGEMENT:

No confirming documentation (first degree test).

RECOMMENDATION

Remove cresol from the Part A permit application, where applicable.

CUMENE (U055)

DESCRIPTION (MERCK Index)

(Also isopropyl benzene) Colorless liquid. Flash point (closed cup): 102° F. Used in the manufacture of phenols, acetone, acetophenone, α-methylstyrene. Soluble in water; soluble in alcohol and many other organic solvents.

SUMMARY

Cumene was present in the organic kit. Records confirm that some was lab packed and sent to USPCI. No confirmation of disposal/destruction could be found. No analytical procedures were found confirming use, nor were any production, process development or analytical personnel found who remembered using cumene. An MSDS is on file for a product (Hardener #2, 2C,2R from Ceilcote Company of Berea, OH) containing 12% of cumene hydroperoxide (CAS # 80-15-9), cumene (CAS # 98-82-8), and aromatic ketone and alcohols (CAS # not supplied).

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since the chemical was on-site at one time, disposal of the technical- or reagent grade chemical to a drain connected to the PEW system cannot be ruled out.	1. There is not confirmed use of this chemical by analytical, process development, or production.
2. Cumene is a liquid that is soluble in water/solvents.	2. Procedures do not exist that direct the generation of solutions having this chemical as a sole active ingredient.
	3. Cumene in the MSDS referenced was most likely not the sole active ingredient.

JUDGEMENT:

No confirming documentation (first degree test and second degree test).

RECOMMENDATION

Remove cumene from the Part A permit application, where applicable.

CYANIDE, SOLUBLE SALTS, n.o.s. (not otherwise specified) (P030)

SUMMARY

Record confirmed disposal of potassium cyanide, sodium cyanide, and silver cyanide; however, records did not confirm disposal of other cyanides have not been found. No archive analytical procedures existed directing the use of generic cyanides; however, verbal statements confirmed use of the specific cyanides. One disposal record indicated waste code P030, but the waste description was silver cyanide.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. There may have been some other cyanide used and disposed to PEW system in the past.	1. Cyanides are adequately addressed through inclusion of potassium cyanide, silver cyanide, and sodium cyanide on the RCRA Part A Permit Application. There is no reason to include a generic cyanide category also. 2. There is no confirmed use of other cyanides by analytical, process development, or production. 3. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient.

JUDGEMENT

No confirming documentation (first degree test and second degree test).

RECOMMENDATION

Remove the cyanide soluble salts, not otherwise specified, from the Part A permit application, where applicable.

CYANOGEN (P031)

DESCRIPTION (MERCK Index)

Highly poisonous gas. Almond-like odor. Acrid and pungent when in lethal concentrations. Soluble in water.

SUMMARY

No archive analytical procedures existed directing the use of the cyanogen. There are no records showing that it ever existed at ICPP. Interviews did not identify it as being used at ICPP.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Cyanogen is a gas that is soluble within water.	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredients. 3. Because it is a gas, there is no means for it to enter the PEW system.

JUDGEMENT:

No confirming documentation (first degree test).

RECOMMENDATION

Remove cyanogen from the Part A permit application, where applicable.

CYCLOHEXANE (U056)

DESCRIPTION (MERCK Index)

Flammable liquid with a solvent odor. Flash point (closed cup): 1° F. Used as a solvent for lacquers and resins, and in analytical chemistry for molecular weight determinations. Solubility in water at 23.5° C. 100 ml of methanol dissolves 57 grams at 20 degrees Celsius. Miscible with ethanol, ethyl ether acetone, benzene, and carbon tetrachloride.

SUMMARY

Cyclohexane appeared in the 1986 and 1991 inventories. No archive analytical procedures existed directing the use of cyclohexane. Confirmation records exists that it was used same as cyclohexanone and disposed to PEW system. Records confirmed disposal of some of this chemical in a lab pack sent to USPCI.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since the chemical was present in an area where drains connect to the PEW system, improper disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	1. Since the chemical would not have been ignitable at disposal, the characteristic of ignitability is no longer present thus the waste would not be listed for U056.
2. Statements confirm the use of this chemical by analytical.	2. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient.
3. Cyclohexane is liquid which is slightly soluble in water.	

JUDGEMENT:

Confirmed use, Confirmed disposal; and Listed only for ignitability (first degree test).

RECOMMENDATION

Remove cyclohexane from the Part A permit application, where applicable.

CYCLOHEXANONE (U057, F003)

DESCRIPTION (MERCK Index)

Oily liquid with an odor reminiscent of peppermint and acetone. Used as a solvent for a variety of organic chemicals, and to derive 2,4-Dinitrophenylhydrazone for use in elemental analysis. Soluble in water. Soluble in alcohol, ether, and other organic solvents.

SUMMARY

Confirmation that cyclohexanone has been disposed of to the PEW system exists in the form of an employee statement. This chemical was present in the 1986 and 1991 inventories.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Statements confirm the use of this chemical by analytical.	1. Disposal may have been exclusively as a spent solvent, not as unused portions of the chemical.
2. Since the chemical was present in an area where drains connect to the PEW system, improper disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	2. Since chemical would not have been ignitable at disposal, the characteristic of ignitability is no longer present thus the waste would not be listed for U057.
3. Cyclohexanone is solid that is soluble in water/solvents.	

JUDGEMENT:

Confirmed use, Confirmed disposal F003 and U057; and Listed solely for ignitability (first degree test).

RECOMMENDATION

Remove cyclohexanone from the Part A permit application, where applicable.

DIBUTYL PHTHALATE (U069)

DESCRIPTION (MERCK Index)

Oily liquid. Soluble in about 2500 part of water.

SUMMARY

No archive analytical procedure existed directing the use of dibutyl phthalate. It was found in an inventory. It was sent off-site to USPCI for disposal. Interviews did not identify it as a chemical being used at the ICPP.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Dibutyl phthalate is a liquid that is readily soluble in water.	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient.

JUDGEMENT:

No confirming documentation (first degree test).

RECOMMENDATION

Remove dibutyl phthalate from the Part A permit application, where applicable.

m-DICHLOROBENZENE (U071)

DESCRIPTION (MERCK Index)

Liquid. Practically insoluble in water; soluble in alcohol and ether.

SUMMARY

No archive analytical procedures existed directing the use of m-dichlorobenzene. Some was awaiting disposal, and the original seal found on the bottle had not been broken. No confirmation of use has been found. A 1986 MSDS was found on file for this chemical from Eastman Kodak Company, a commercial supplier of reagent-grade chemicals, but there were no confirmations of use/disposal.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since a MSDS is on file, some of this chemical was present on-site.	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient. 3. The m-dichlorobenzene is a liquid that is insoluble in water.

JUDGEMENT

No confirming documentation (first degree test and second degree test).

RECOMMENDATION

Remove m-dichlorobenzene from the Part A permit application, where applicable.

o-DICHLOROBENZENE (U070, F002)

DESCRIPTION (MERCK Index)

Liquid; practically insoluble in water. Used as a solvent for a variety of organic compounds; insecticide and fumigant; as degreasing agent for metals, leather, wool; as a heat transfer medium; and as an ingredient of metal polishes.

SUMMARY

No archive analytical procedures existed directing the use of o-dichlorobenzene. Some was awaiting disposal and the original the seal found on the bottle had not been broken. No confirmation of use has been found. A 1986 MSDS was found on file for this chemical from Eastman Kodak Company, a commercial supplier of reagent-grade chemicals, but there were no confirmations of use/disposal.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since a MSDS is on file, some of this chemical was present on-site.	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient. 3. The o-dichlorobenzene is a liquid that is insoluble in water.

JUDGEMENT

No confirming documentation (first degree test and second degree test).

RECOMMENDATION

Remove o-dichlorobenzene from the Part A permit application, where applicable.

p-DICHLOROBENZENE (U072)

DESCRIPTION (MERCK Index)

Volatile crystals with a characteristic penetrating odor. Sublimes ordinary temperatures. Flashpoint closed cup at 150 degrees F. Practically insoluble in water; soluble in alcohol, ether, benzene, chloroform, and carbon disulfide. Non-corrosive; non-staining.

SUMMARY

No archived analytical procedures existed directing the use of p-dichlorobenzene. Some was awaiting disposal and original the seal found on the bottle had not been broken. No confirmation of use has been found. A 1986 MSDS was found on file for this chemical from Eastman Kodak Company, a commercial supplier of reagent-grade chemicals, but there were no confirmations of use/disposal.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since a MSDS is on file, some of this chemical was present on-site.	1. There is no confirming use of this chemical by analytical, process development, or production.
2. The p-dichlorobenzene is solid that is soluble in solvents.	2. Procedures do not exist the direct the generation of solutions having this chemical as the sole active ingredient.
	3. The p-dichlorobenzene is powder that is practically insoluble in water.

JUDGEMENT

No confirming documentation (first degree test and second degree test).

RECOMMENDATION

Remove p-dichlorobenzene from the Part A permit application, where applicable.

1,2-DICHLOROETHYLENE (U079)

DESCRIPTION (MERCK Index)

Liquid; ethereal, slightly acrid odor; gradually decomposed by air, light, and moisture, forming hydrochloric acid. Insoluble in water. Soluble in alcohol, ether, and most other organic solvents.

SUMMARY

No archive analytical procedures existed directing the use of 1,2-dichloroethylene. It was found in an inventory. It was sent off-site to USPCI for disposal. Interviews did not identify it as being used at ICPP.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. 1,2-dichloroethylene is liquid that is soluble in solvents.	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist the direct the generation of solutions having this chemical as the sole active ingredient. 3. 1,2-dichloroethylene is liquid that is insoluble in water.

JUDGEMENT

No confirming documentation (first degree test).

RECOMMENDATION

Remove 1,2-dichloroethylene from the Part A permit application, where applicable.

2,4-DICHLOROPHENOL (U081)

DESCRIPTION (MERCK Index)

Needle-like crystals, volatile with steam. Soluble in chloroform.

SUMMARY

No archive analytical procedures existed directing the use of 2,4-dichlorophenol. Interviews did not identify it as being used at the ICPP.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. 2,4-dichlorophenol is solid that is soluble in solvents.	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient.

JUDGEMENT

No confirming documentation (first degree test).

RECOMMENDATION

Remove 2,4-dichlorophenol from the Part A permit application, where applicable.

1,2-DICHLOROPROPANE (U083)

DESCRIPTION (MERCK Index)

(Propylene dichloride) Flammable, mobile liquid having the odor of chloroform. Flash point (closed cup): 70° F. Used as an oil and fat solvent in dry cleaning fluids and in degreasing operations. Slightly soluble in water; miscible with organic solvents. Slightly soluble in water; miscible with organic solvents

SUMMARY

No archive analytical procedures existed directing the use of 1,2-dicholoropropane. Records confirmed that some of this chemical was disposed of in a lab pack sent to USPCI. A MSDS was identified for this chemical, supplier Supleco, Inc., but the chemical was not present on the 1986 and 1991 inventories. Interviews and surveys from production could not confirm use at ICPP.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since an MSDS is on file for this chemical, some of this chemical was present on-site.	1. There is no confirmed use of this chemical by analytical, process development, or production.
2. 1,2-dichloropropane is slightly soluble in water.	2. Procedures do not exist that direct the generation of solutions having this chemical as a sole active ingredients.

JUDGEMENT

No confirming documentation (first degree test and second degree test).

RECOMMENDATION

Remove 1,2-dichloropropane from the Part A permit application, where applicable.

1,3-DICHLOROPROPENE (U084)

DESCRIPTION (MERCK Index)

Liquid with chloroform odor. Technical product in mixture of as- and trans-isomers.

SUMMARY

No archived analytical procedures existed directing use of 1,3-dichloropropene. Records confirmed that some was disposed at USPCI in a lab pack. Interviews did not identify it as being used at ICPP.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient.

JUDGEMENT

No confirming documentation (first degree test).

RECOMMENDATION

Remove 1,3-dichloropropene from the Part A permit application, where applicable.

DIMETHYL PHTHALATE (U102)

DESCRIPTION (MERCK Index)

Oily liquid with slight aromatic odor. Insoluble in water. Solvent and plasticizer for cellulose acetate and cellulose acetate-butyrate compositions. Also used as insect repellant for personal protection.

SUMMARY

Dimethyl phthalate did not appear in 1986 and 1991 inventories. No archive analytical procedure existed directing the use of dimethyl phthalate. It was found in the organic kit. Records confirmed that some was lab pack and sent to USPCI for disposal. No one in production or off-site indicated that they had used this chemical.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as a sole active ingredient. 3. Dimethyl phthalate is liquid that is insoluble in water.

JUDGEMENT

No confirming documentation (first degree test).

RECOMMENDATION

Remove dimethyl phthalate from the Part A permit application, where applicable.

DIMETHYL SULFATE (U103)

DESCRIPTION (MERCK Index)

Colorless, odorless, oily liquid; extremely hazardous. Used as methylating agent in the manufacture of many organic chemicals and as a war gas. Solubility in water 2.8 grams/100 ml at 18 degrees Celsius. Soluble in ether, dioxane, acetone, and aromatic hydrocarbons. Sparingly soluble in carbon disulfide and aliphatic hydrocarbons.

SUMMARY

No archive analytical procedures existed directing use of dimethyl sulfate; however, a researcher confirmed that it was used in process development. Some of this chemical was confirmed of being disposed in a lab pack sent to USPCI. It was present in the 1986 inventory, but not the 1991 inventory. Disposal confirmations were received. An MSDS is on file for dimethyl sulfate, as a chemical, from Aldrich Chemical Co.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent or technical grade chemical to a sink cannot be ruled out.	1. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient.
2. Verbal statements confirmed use of this chemical by analytical.	
3. Dimethyl sulfate is a liquid that is slightly soluble in solvents/water.	

JUDGEMENT

Confirmed used; Inferred disposal (first degree test). No confirming documentation (second degree test).

RECOMMENDATION

Remove dimethyl sulfate from the Part A permit application, where applicable.

1,4-DIOXANE (U108)

DESCRIPTION (MERCK Index)

Flammable liquid with a faint pleasant odor. Flash point: 5-18° C. Used as a solvent for a variety of organic compounds as well as some inorganic compounds. [Some liquid scintillation cocktails use dioxane.] Soluble in water and the usual organic solvents.

SUMMARY

An archive analytical procedures existed directing the use of 1,4-dioxane as a solvent. It did not appear on the 1986 and 1991 inventories. A researcher remembers using it as a solvent within a titration media. The spent liquid scintillation cocktail was routinely disposed to the PEW system.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out. 2. Confirmation of use in archive analytical procedure. 3. 1,4-dioxane is a liquid that is soluble in water/solvents.	

JUDGEMENT

Confirmed use; Inferred disposal (first degree test and second degree test).

RECOMMENDATION

Retain 1,4-dioxane on the Part A permit application, where applicable.

ETHYL ACETATE (U112, F003)

DESCRIPTION (MERCK Index)

Clear, volatile, flammable liquid; characteristic fruity odor. Flash point (open cup): 1.2°F. Used as an artificial flavoring; as a solvent; and for cleaning of textiles. One ml dissolves in 10 ml water at 25 degrees Celsius; more soluble at lower and less soluble at higher temperatures. Miscible with alcohol, acetone, chloroform, and ether.

SUMMARY

Ethyl acetate appeared in the inventory in 1986 and in the 1991 inventory. Researchers indicated that this chemical was used in "Standard Test Method for Chlorinated Phenoxy Acid Herbicides in Water...". No archived analytical procedures existed directing the use of ethyl acetate. In this procedure it was used to rinse the ampule. An MSDS is on file for ethyl acetate as the sole active ingredient in ethyl acetate supplied by EM Science. Confirmation existed that the chemical was also used by production/process development.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical grade chemical to a sink cannot be ruled out.	1. Since the chemical would not have been ignitable at disposal, the characteristic of ignitability is no longer present thus the waste would not be listed for U112.
2. Statements confirmed the use of this chemical by analytical.	2. Procedures do not exist that direct the generation of solutions having this chemical as a sole active ingredient.
3. Since a MSDS is on file, some of this chemical was present on-site.	
4. Ethyl acetate is liquid that is soluble in water.	

JUDGEMENT

Confirmed use, confirmed disposal F003; Confirmed use, Inferred disposal U112; and Listed only for ignitability (first degree test).

RECOMMENDATION

Remove ethyl acetate from the Part A permit application, where applicable.

ETHYL ACRYLATE (U113)

DESCRIPTION (MERCK Index)

Liquid monomer, with acrid penetrating odor. Flash point, open cup: 60° F. Used in the manufacture of water emulsion paint vehicles, textile and paper coatings, and adhesives. Highly irritating to eyes. Solubility in water: 2 g in 100 ml.

SUMMARY

Ethyl acrylate was not in inventory in 1986 or 1991, but it was in inventory for the organic kit. Memo from researcher stated that "ethyl acrylate was used to prepare gas chromatographic standards (ppm concentrations) for the analysis of this chemical in an insulation adhesive. These solutions were not disposed of through the PEW system because they were not water soluble. Small quantities (ppm concentrations) may have entered the PEW system via disposal of small quantities (i.e., fractions of a gram) of the adhesive itself if it was soluble in water." This was the only documented use of the chemical at ICPP. Ethyl acrylate was sent out in the first drums packed by USPCI.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	1. Disposal of the adhesive itself does not constitute disposal of listed waste since the chemical is not the sole active ingredient in the formulation.
2. Statements confirm the use of this chemical by analytical.	2. Since the chemical would not have been ignitable at disposal, the characteristic of ignitability is no longer present thus the waste would not be listed for U113.
3. Ethyl acrylate is liquid that is soluble in water.	

JUDGEMENT

Confirmed use, Inferred disposal; and Listed only for ignitability (first degree test).

RECOMMENDATION

Remove ethyl acrylate from the Part A permit application, where applicable.

ETHYL METHACRYLATE (U118)

DESCRIPTION (MERCK Index)

Colorless liquid. Soluble in 16 parts of water. Miscible with alcohol an ether.

SUMMARY

No archive analytical procedures existed directing use of ethyl methacrylate. It was confirmed to be disposed at USPCI through a lab pack sent off-site. Interviews did not identify it as being used at ICPP.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Ethyl methacrylate is liquid that is soluble in water.	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient.

JUDGEMENT

No confirming documentation (first degree test).

RECOMMENDATION

Remove ethyl methacrylate from the Part A permit application, where applicable.

FLUORANTHENE (U120)

DESCRIPTION (MERCK Index)

Not included.

SUMMARY

No archive analytical procedures existed directing use of fluoranthene. It was confirmed as being disposed at USPCI through a lab pack. Interviews did not identify it as being used at ICPP.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient.

JUDGEMENT

No confirming documentation (first degree test).

RECOMMENDATION

Remove fluoranthene from the Part A permit application, where applicable.

FLUORINE (P056)

DESCRIPTION (MERCK Index)

Pale yellow, diatomic gas. Most reactive non-metal; higher oxidation potential than ozone; most electronegative element. Reacts vigorously with most oxidizable substances at room temperature, frequently with ignition. Reacts with nitric acid, forming the explosive gas fluorine nitrate.

SUMMARY

Because fluorine is a gas, it would not have entered the liquid waste stream.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
	1. Because it is a gas, there is no means for it to have entered the PEW system.

JUDGEMENT

No confirming documentation (first degree test).

RECOMMENDATION

Remove fluorine from the Part A permit application, where applicable.

FORMALDEHYDE (U122)

DESCRIPTION (MERCK Index)

As a liquid, it is colorless with a pungent odor. The liquid is generated from the gas. It is used as a powerful reducing agent; a disinfecting agent, germicide, and insecticide; treatment of fabrics; and in the production of phenolic, urea, melamine and acetal resins. Miscible with water, alcohol, and acetone.

SUMMARY

Formaldehyde was present in the 1986 inventory, and in 1991 it was designated "transferred to shipping agent." Archive analytical procedures existed directing the use of formaldehyde. The procedure generated more reagent that could be used in a single procedure. Process development used formaldehyde, and confirmation exists that it was disposed to the PEW system. An MSDS is on file for a Formaldehyde/Solvent Treatment Kit, having formaldehyde as its sole hazardous ingredient.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Confirmation of use and disposal of this chemical in archive analytical procedures.	
2. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	
3. Since a MSDS is on file, some of this chemical was present on-site.	
4. Archive analytical procedures require the creation of excess chemical solutions in which formaldehyde is the sole active ingredient.	
5. Formaldehyde is liquid that is miscible with water.	
6. Procedures do exist the direct the generation of solutions having this chemical as the sole active ingredient.	

JUDGEMENT

Confirmed use; Confirmed disposal (first degree test).

RECOMMENDATION

Retain formaldehyde on the Part A permit application, where applicable.

FORMIC ACID (U123)

DESCRIPTION (MERCK Index)

Colorless liquid with a pungent odor. It is a strong reducing agent. Used in a variety of commercial applications and in chemical analysis. Miscible with water, alcohol, ether, and glycerol.

SUMMARY

Formic Acid did not appear in the 1986 inventory, but it did appear in the 1991 inventory. Archive analytical procedures existed directing the use of formic acid. Formic acid was confirmed as being used by production/process development and was identified as entering the PEW system. However, an employee at Analytical indicated that "unused portions [of Formic acid] were 'not' poured down the PEW system drain. Unused portions were maintained as chemical stock for future use. Used portions of formic acid... were disposed of through drains that ... were tied into the PEW system at the time of disposal."

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Confirmation of use and disposal of this chemical by analytical.	
2. Archived procedures require creation of excess chemical solutions in which formic acid is the sole active ingredient.	
3. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	
4. Procedures do not exist that direct the generation of solutions having this chemical as sole active ingredient.	
5. Formic acid is a liquid that is miscible with water/solvents.	

JUDGEMENT

Confirmed use; Confirmed disposal (first degree test).

RECOMMENDATION

Retain formic acid on the Part A permit application, where applicable.

FURFURAL (U125)

DESCRIPTION (MERCK Index)

Colorless oily liquid. Peculiar odor, somewhat resembling the odor of benzaldehyde. Volatile in steam. Soluble in 11 parts of water, very soluble in alcohol ether. Flashpoint closed cup 140 degrees F.

SUMMARY

No archive analytical procedures existed directing the use of furfural. It was confirmed to be disposed at USPCI through a lab pack. Interviews did not identified as being a chemical used at ICPP.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Furfural is liquid that is soluble in water.	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation os solutions having this chemical as the sole active ingredient.

JUDGEMENT

No confirming documentation (first degree test).

RECOMMENDATION

Remove furfural from the Part A permit application, where applicable.

HEXACHLOROBENZENE (U127)

DESCRIPTION (MERCK Index)

Needles. Sublimable. Insoluble in water. Sparingly soluble in cold alcohol; soluble benzene, chloroform, and ether.

SUMMARY

No archive analytical procedures existed directing the use of hexachlorobenzene. It was confirmed to be disposed at USPCI in a lab pack. Interviews did not identify it as being a chemical used at ICPP.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Hexachlorobenzene is solid that is soluble in solvents.	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient. 3. Hexachlorobenzene is a solid that is insoluble in water.

JUDGEMENT

No confirming documentation (first degree test).

RECOMMENDATION

Remove hexachlorobenzene from the Part A permit application, where applicable.

HEXACHLOROBUTADIENE (U128)

DESCRIPTION (MERCK Index)

Not included.

SUMMARY

No archive analytical procedures existed directing the use of hexachlorobutadiene. It was confirmed to be disposed at USPCI through a lab pack. Interviews did not identify it as being a chemical used at ICPP.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient.

JUDGEMENT

No confirming documentation (first degree test).

RECOMMENDATION

Remove hexachlorobenzene from the Part A permit application, where applicable.

HEXACHLOROETHANE (U131)

DESCRIPTION (MERCK Index)

Crystals; camphoraceous odor. Readily sublimes without melting. Soluble alcohol, benzene, chloroform, ether, and oils. Insoluble in water.

SUMMARY

No archive analytical procedure existed directing the use of hexachloroethane. It was confirmed to be disposed at USPCI through a lab pack. Interviews did not identify it as being a chemical used at ICPP.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Hexachloroethane is solid that is soluble in solvents.	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient. 3. Hexachloroethane is a solid that is insoluble in water.

JUDGEMENT

No confirming documentation (first degree test).

RECOMMENDATION

Remove hexachloroethane from the Part A permit application, where applicable.

HYDRAZINE (U133)

DESCRIPTION (MERCK Index)

Colorless oily liquid, fuming in air, with a penetrating odor resembling ammonia. Flash point 126°F. Used as a reducing agent. Water miscible.

SUMMARY

Hydrazine was present in 1986 and 1991 inventories. An archive analytical procedures existed directing the use of hydarazine. Statements made by several users indicate that disposal of unused portions of hydrazine was likely to the PEW system. Off-site disposal of hydrazine was noted in drum CPP-87.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Confirmation of use and inferred disposal of this chemical by analytical. 2. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out. 3. Hydrazine is liquid that is miscible in water.	1. Procedures do not exist that direct the generation of solutions having this chemical as a sole active ingredient.

JUDGEMENT

Confirmed use; Inferred disposal (first degree test and second degree test).

RECOMMENDATION

Retain hydrazine on the Part A permit application, where applicable.

HYDROGEN FLUORIDE (U134)

DESCRIPTION (MERCK Index)

Colorless or almost colorless, fuming liquid. Poisonous. It attacks glass or stoneware, dissolving the silica. It cleans cast iron, copper, brass; decomposes cellulose. Very soluble in water and alcohol. Slightly soluble in ether. Soluble in many organic solvents. Soluble in benzene, toluene, and xylene.

SUMMARY

It was present in 1986 and 1991 inventories. Many archive and active analytical procedures existed directing the use of hydrogen fluoride. The procedure required that more solution be prepared than could be used in a single procedure. It was used in process development and production.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Confirmation of use of this chemical in archive analytical procedures. 2. Since the chemical was used in an area where drains connect to the PEW system, disposal of reagent- or technical-grade chemical to a sink cannot be ruled out. 3. Hydrogen fluoride is a liquid that is very soluble in water.	1. Procedures do not exist that direct the generation of solutions having this chemical as a sole active ingredient.

JUDGEMENT

Confirmed use; Confirmed disposal (first degree test).

RECOMMENDATION

Retain hydrogen fluoride on the Part A permit application, where applicable.

HYDROGEN SULFIDE (U135)

DESCRIPTION (MERCK Index)

Flammable, poisonous gas with characteristic odor of rotten eggs. Burns in air with pale blue flame. Soluble in water; but solution is unstable.

SUMMARY

Because hydrogen sulfide is a gas, it would not have entered the liquid waste stream.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
	1. This chemical is a gas, there is no reason for it to enter the PEW system.

JUDGEMENT

No confirming documentation (first degree test).

RECOMMENDATION

Remove hydrogen sulfide from the Part A permit application, where applicable.

2-IMIDAZOLIDINETHIONE (U116)

DESCRIPTION (MERCK Index)

Needles, prisms from alcohol or amyl alcohol. Soluble in water. Moderately soluble methanol, ethanol, ethylene glycol, and pyridine. Insoluble in acetone, ether, chloroform, and benzene.

SUMMARY

No archive analytical procedures existed directing the use of 2-imidazolidinethione. It was found in a chemical inventory. It was documented that some was sent off-site to USPCI for disposal. Interviews did not identify it as being used at ICPP.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. 2-imidazolidinethione is a solid that is soluble in water.	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient.

JUDGEMENT

No confirming documentation (first degree test).

RECOMMENDATION

Remove 2-imidazolidinethione from the Part A permit application, where applicable.

ISOBUTYL ALCOHOL (U140, F005)

DESCRIPTION (MERCK Index)

Colorless, refractive liquid. Flash point (closed cup): 82° F. Used in the manufacture of esters for fruit flavoring and as a solvent in paint, varnish removers. Soluble in about 20 parts of water; miscible with alcohol and ether.

SUMMARY

Isobutyl alcohol was not present in the 1986 inventory, but was present in the 1991 inventory. Records confirmed disposal of some of lab pack sent to USPCI. A verbal statement made by a researcher indicates that it had been used, although there are no archive analytical procedures existed directing the use of isobutyl alcohol. The researcher could not remember how it was used. The questionnaire directed to Production/Process Development confirmed that isobutyl alcohol was used at ICPP, but disposal was not to the PEW system.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	1. Procedures do not exist that directs the generation of solutions having this chemical as the sole active ingredient.
2. Verbal statements confirm use of this chemical by analytical, process development, and production.	2. Production/Process Development indicated that disposal was not to the PEW system.
3. Isobutyl alcohol is a liquid that is soluble in water.	

JUDGEMENT

Confirmed use, confirmed disposal F005; Confirmed use, Inferred disposal U140 (first degree test). Confirmed use; Inferred disposal U140 (second degree test).

RECOMMENDATION

Retain isobutyl alcohol on the Part A permit application, where applicable.

LEAD ACETATE (U144)

DESCRIPTION (MERCK Index)

The trihydrate is colorless or white granules or powder. Poisonous. Used in various analytical procedures. One gram dissolves in 1.6 ml of water; 0.5 ml boiling water; and 30 ml of alcohol freely.

SUMMARY

No archive analytical procedures existed directing the use of lead acetate; however, researchers confirmed that it was used. It was present on the 1986 and 1988 inventory but not on the 1991 inventory. Verbal statements from researchers indicate use as a "Salting Solution" and as part of platinic electroplating solutions in CPP-637. Researchers stated that the lead acetate solution was not thrown away. Periodically, additional solution was made and added to the existing solution. Disposal records indicated disposal of some lead acetate found in a lab pack sent to USPCI.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- and technical-grade chemical to a sink cannot be ruled out.	1. Procedures do not exist that direct the generation of solutions having lead acetate as the sole active ingredient.
2. Statements confirmed use of lead acetate by process development.	2. Researchers state that the lead acetate solution is not thrown away.
3. Lead acetate is fairly soluble in water and is miscible with water.	

JUDGEMENT

Confirmed use; Inferred disposal (first degree test). Confirmed use; Inferred disposal (second degree test).

RECOMMENDATION

Retain lead acetate on the Part A permit application, where applicable.

LEAD PHOSPHATE (U145)

DESCRIPTION (MERCK Index)

White powder. Poisonous! Insoluble in water, alcohol. Soluble in nitric acid, fixed alkali hydroxides.

SUMMARY

No archive analytical procedures existed directing the use of lead phosphate. Interviews did not identify as being used at ICPP.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient. 3. Lead phosphate is a solid that is insoluble in water.

JUDGEMENT

No confirming documentation (first degree test).

RECOMMENDATION

Remove lead phosphate from the Part A permit application, where applicable.

MALEIC ANHYDRIDE (U147)

DESCRIPTION (MERCK Index)

Orthorhombic needles from chloroform; also decomposes readily by sublimation. Commercial grades are furnished in fused form, as briquettes. Soluble in water and dioxane.

SUMMARY

No archive analytical procedures existed directing use of the maleic anhydride. It was confirmed to be disposed at USPCI through a lab pack. Interviews did not identify it as being used at ICPP.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Maleic anhydride is solid that is soluble in water.	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient. 3. Confirmed off-site disposal records exist.

JUDGEMENT

No confirming documentation (first degree test).

RECOMMENDATION

Remove maleic anhydride from the Part A permit application, where applicable.

MERCURY (U151)

DESCRIPTION (MERCK Index)

Silver-white, heavy, mobile, liquid metal that is slightly volatile. A wide variety of uses including barometers, thermometers, hydrometers; as a catalyst in oxidation of organic compounds; in determining acid normality and as Millon's reagent. Solubility in water at 25 degrees Celsius is 0.28 micromoles; soluble in organic solvents.

SUMMARY

Archive analytical procedures existed directing the use of mercury. Mercury appears in current and past inventories at ICPP. It is used extensively in archived analytical procedures, in process development, and in production. Statements from researchers confirmed that mercury was disposed to the PEW system. Documentation also confirmed of past disposal of elemental mercury from G-Cell to Tank Farm/PEW.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Statements confirm use of this chemical by analytical, process development, or production.	1. Procedures do not exist that direct the generation of solutions having this chemical as a sole active ingredient.
2. Since the chemical was used in an area were drains connect to the PEW system, disposal of excess reagent- or technical-grad chemical to a sink cannot be ruled out.	2. Mercury is sparingly soluble in water.

JUDGEMENT

Confirmed use; Confirmed disposal (first degree test).

RECOMMENDATION

Retain mercury on the Part A permit application, where applicable.

METHANOL (U154, F003)

DESCRIPTION (MERCK Index)

Flammable, poisonous, mobile liquid. Flash point (closed cup): 54° F. Used as an industrial solvent and as a raw material for making formaldehyde and methyl esters of organic and inorganic acids. Miscible with water, ethanol, ether, benzene, hexones, and most other organic solvents.

SUMMARY

Nine archive analytical procedures existed directing the use of methanol for its solvent properties. Methanol was present in current as well as in 1986 inventories at ICPP. Researchers stated that methanol was disposed of to the PEW system. MSDSs are on file for methanol as the sole hazardous ingredient in Emcol CC-9 distributed by WITCO and methanol distributed by Lyndell Petro Company.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Confirmation of use this chemical in archive analytical procedures.	1. Procedures do not exist that direct the generation of solutions having this solutions having this chemical as a sole active ingredient.
2. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	2. Since the chemical would not have been ignitable at disposal, the characteristic of ignitability is no longer present thus the waste would not be listed for U154.
3. Since a MSDS is on file, some of this chemical was present on-site.	
4. Methanol is a liquid that is miscible with water.	
5. Researchers stated it was disposed to PEW system.	

JUDGEMENT

Confirmed use, Confirmed disposal F003; Confirmed use, Inferred disposal U154; and Listed only for ignitability (first degree test).

RECOMMENDATION

Remove methanol from the Part A permit application, where applicable.

METHYLENE CHLORIDE (U080, F002)

DESCRIPTION (MERCK Index)

Colorless liquid. Used as a solvent for cellulose acetate and in degreasing and cleaning fluids. Not soluble in water.

SUMMARY

Methylene chloride appeared on the 1986 and 1991 inventories. Verbal statements from researchers confirmed use in unidentified procedures solvent; however, no confirmations existed regarding disposal as a U-listed waste. A review of MSDS on file indicates that DOW Chemical is the supplier of methylene chloride as a chemical product, and the Fuller Company supplied methylene chloride as part of SC-0670. Records confirmed disposal of some of this chemical in a lab pack sent to USPCI.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical grade chemical to a sink cannot be ruled out.	1. It is highly unlikely the Fuller SC-0670 product would have been disposed to the PEW system.
2. Verbal statements confirm the use of this chemical by analytical.	2. Since a MSDS is on file, some of this chemical was present on-site.
	3 Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient.
	4. Methylene chloride is liquid that is not soluble within water.

JUDGEMENT

Confirmed use, inferred disposal F002; Confirmed use, Inferred disposal U080 (first degree test). Confirmed use; inferred disposal U080 (second degree test).

RECOMMENDATION

Retain methylene chloride on the Part A permit application, were applicable.

METHYL ETHYL KETONE (U159, F005)

DESCRIPTION (MERCK Index)

(2-Butanone) Flammable liquid with an acetone-like odor. Flash point (closed cup): 21° F. Used as an industrial solvent. Insoluble in water.

SUMMARY

Methyl ethyl ketone (MEK) was found in inventory in 1986 and 1991. No archive analytical procedures existed directing the use of methyl ethyl ketone; however, researchers confirmed its use. A MSDS is on file for a product having MEK as its sole hazardous ingredient. Records exist for the off-site disposal of some of this chemical.

REASONS TO INCLUDE ON PERMIT AS BOTH U159 AND F005 LISTED WASTE	REASONS TO EXCLUDE FROM PERMIT AS AN F005 WASTE
1. Since the chemical was used in areas where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	1. Procedures do not exist that directs the generation of solutions having this chemical as a sole active ingredient.
2. Statements confirm use of this chemical by analytical.	2. If used as a solvent on a cleaning cloth, the spent solvent would have gone to a landfill, not to the PEW system.
3. Since a MSDS is on file, some of this chemical was present on-site.	3. Methyl ethyl ketone is liquid that is insoluble in water.

JUDGEMENT

Confirmed use, confirmed disposal F005; Confirmed use, Inferred disposal U159 (first degree test). Confirmed use, inferred disposal U159 (second degree test).

RECOMMENDATION

Retain methyl ethyl ketone on the Part A permit application, where applicable.

METHYL IODIDE (U138)

DESCRIPTION (MERCK Index)

(Iodomethane) Colorless, transparent liquid. Used in methylations, and in testing for pyridine. Soluble in about 50 parts water. Miscible with alcohol and ether.

SUMMARY

No analytical procedures direct the use of this chemical; however, interviews with researchers indicated that it was used during radioiodine filtration studies. One researcher stated that the pure form of methyl iodide would plate out on the glassware and would be discharged to the PEW system following "decon washes." Production Department questionnaires elicited no positive responses, and it was not identified on any MSDS on file at ICPP. Records confirmed disposal of some in a lab pack sent to USPCI.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Statements by analytical confirm the use and the disposal of this chemical.	1. Procedures do not exist that direct the generation of solutions having this chemical as a sole active ingredient.
2. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	2. Confirmation of off-site disposal exists.
3. Methyl iodide is liquid that is soluble in water.	

JUDGEMENT

Confirmed use; Confirmed disposal (first degree test).

RECOMMENDATION

Retain methyl iodide on the Part A permit application, where applicable.

METHYL ISOBUTYL KETONE (U161, F003)

DESCRIPTION (MERCK Index)

(Hexone) Colorless liquid. Flash point (closed cup): 73° F. Solubility in water 1.93%. Solvent for gums, resins, nitrocellulose, etc.

SUMMARY

Methyl isobutyl ketone is used extensively throughout ICPP as a process chemical, an analytical reagent and in production/process development, primarily as an extractant (for its solvent properties) and to remove impurities. Surveys of researchers confirm that unused portions were disposed to the PEW system.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	1. Procedures do not exist that direct the generation of solutions having this chemical as sole active ingredient.
2. Confirmation of use of this chemical in an archive analytical procedure.	2. Since the chemical would not have been ignitable at disposal, the characteristic of ignitability is no longer present thus the waste would not be listed for U161.
	3. Methyl isobutyl ketone is a liquid that is not readily soluble in water.

JUDGEMENT

Confirmed use, Confirmed disposal F003 and U161; and Listed only for ignitability (first degree test).

RECOMMENDATION

Remove Methyl Isobutyl ketone from the Part A permit application, where applicable.

METHYL METHACRYLATE (U162)

DESCRIPTION (MERCK Index)

(Methacrylic Acid) Long prisms with melting point of 16° C. Polymerizes easily. Used in the manufacture of methacrylate resins and plastics. Soluble in warm water.

SUMMARY

From interviews and questionnaires, it was determined that the only use of methyl methacrylate was as an ingredient in a two-part acrylic cement and filler product used in the model shop to construct a see-through annular tank. According to shop personnel, it would have been "impossible" for methyl methacrylate to have been discarded to the PEW system due to its viscous nature and location of use. Records confirmed disposal of some in a lab pack sent to USPCI.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Statements confirmed use of this chemical as a two-part acrylic cement.	1. Employees stated it was impossible to dispose of methyl methacrylate to the PEW system.
2. Methyl methacrylate is a solid that is soluble in warm water.	2. Procedures do not exist that direct the generation of solutions having this chemical as a sole active ingredient.

JUDGEMENT

Confirmed use; Inferred disposal (first degree test). No confirming documentation (second degree test).

RECOMMENDATION

Remove methyl methacrylate from the Part A permit application, where applicable.

NAPHTHALENE (U165)

DESCRIPTION (MERCK Index)

Monoclinic prismatic plates from ether or by sublimation; also sold as white scales, powder, balls, or cakes. Melting point of 80.2 ° C. Used in the manufacture of hydronaphthalenes, certain dyes, and synthetic resins. Insoluble in water.

SUMMARY

Archive analytical procedure existed directing the use of the naphthalene. Naphthalene was present in the 1986 inventory, but not in the 1991 inventory. Its only documented use was as one of several constituents in liquid scintillation cocktail, per archived laboratory procedures. No MSDS is on file for naphthalene. Records of off-site disposal for some of this chemical exist.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since the chemical was used in an area where drains connect to the PEW system, disposal of minute amounts to a sink cannot be ruled out.	1. Procedures do not exist that direct the generation of solutions having this chemical as a sole active ingredient.
2. Confirmation of use of this chemical in archive analytical procedure.	2. Naphthalene is a solid that is insoluble in water.
3. Since a MSDS is on file, some of this chemical was present on-site.	2. Disposal of the liquid scintillation cocktail would not be a listed waste, since naphthalene is not the sole active ingredient.

JUDGEMENT

Confirmed use; Inferred disposal (first degree test). No confirming documentation (second degree test).

RECOMMENDATION

Remove naphthalene from the Part A permit application, where applicable.

NICKEL CARBONYL (P073)

DESCRIPTION (MERCK Index)

Colorless, volatile liquid. Poisonous. Oxidizes in the air: explodes at about 60°C. Used in organic synthesis. Insoluble in water.

SUMMARY

No archive analytical procedures existed directing the use of nickel carbonyl; however, one researcher confirmed that he definitely used it, but he could not remember how it was used. The researche stated that it was used elsewhere at INEL for EG&G and stored at ICPP in a cylinder. He was unsure of how it may have been used. It never appeared in an inventories. Records indicate that USPCI rejected it when offered for disposal as part of lab pack due to its explosive properties.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Verbal statements confirmed use by researchers in analytical.	1. Because of nickel carbonyl's explosion potential, it was likely considered incompatible with the PEW system processes and was not disposed of to this system.
2. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	2. Nickel carbonyl is a liquid insoluble in water, it is unlikely that it would have been disposed of the PEW system.
	3. No procedures exist that direct the generation of solutions having this chemical as the sole active ingredient.

JUDGEMENT

Confirmed use; Inferred disposal (first degree test). No confirming documentation (second degree test).

RECOMMENDATION

Remove nickel carbonyl from the Part A permit application, where applicable.

NICOTINE AND SALTS (P075)

DESCRIPTION (MERCK Index)

Not found.

SUMMARY

No archive analytical procedure existed directing the use of the nicotine. Interviews did not identify it as ever being used at the ICPP.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist the direct the generation of solutions having this chemical as the sole active ingredient.

JUDGEMENT

No confirming documentation (first degree test).

RECOMMENDATION

Remove nicotine and salts from the Part A permit application, where applicable.

p-NITROANILINE (P077)

DESCRIPTION (MERCK Index)

Bright yellow powder. Soluble in water, alcohol, ether, benzene, methanol. Forms water soluble salts with mineral acids.

SUMMARY

No archive analytical procedures existed directing the use of p-nitroaniline. Interviews did not identify it as ever being used at the ICPP.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. p-nitroaniline is a solid that is soluble in water/solvents.	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as a sole active ingredient.

JUDGEMENT

No confirming documentation (first degree test).

RECOMMENDATION

Remove p-nitroaniline from the Part A permit application, where applicable.

NITROBENZENE (U169, F004)

DESCRIPTION (MERCK Index)

Colorless to pale yellow, oily liquid. Poisonous. Used for manufacturing aniline, refining lubricating oils and manufacturing pyroxilin compounds. One part is soluble in 500 parts of water.

SUMMARY

Nitrobenzene was not present in the 1986 or 1991 inventories. No archive analytical procedures existed directing the use of nitrobenzene. Questionnaires and interviews found no confirmation of the use of this chemical. However, one reseacher stated that he recognized "nitrobenzene was used for something." An MSDS is on file at ICPP for the chemical "nitrobenzene." Records confirmed disposal of some of this chemical in a lab pack sent to USPCI.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since an MSDS is on file, some of this chemical was present on-site.	1. There is no confirmed use of this chemical by analytical, process development, or production.
2. Nitrobenzene is liquid that is slightly soluble in water.	2. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient.

JUDGEMENT

Inferred use; Inferred disposal (first degree test). No confirming documentation (second degree test).

RECOMMENDATION

Remove nitrobenzene from the Part A permit application, where applicable.

p-NITROPHENOL (U170)

DESCRIPTION (MERCK Index)

Colorless to slightly yellow, odorless crystals. Used in pH titration, in the manufacture of unspecified compounds and as an indicator in 0.1% alcohol solution. Moderately soluble in cold water.

SUMMARY

Nitrophenol was not in either of the 1986 or 1991 inventories. Some of this chemical was taken into the IRC laboratory. A 1986 MSDS is on file for the chemical distributed by Eastman Kodak Company. All employees interviewed or answering a questionnaire indicated that no p-Nitrophenol was used at ICPP to their knowledge. Archive analytical procedures existed directing the use of p-nitrophenol.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since a MSDS is on file, some of this chemical was present on-site.	1. There is no confirmed use of this chemical by analytical, process development, or production.
2. p-nitrophenol is a solid that is moderately soluble in cold water.	2. Procedures do not exist that direct the generation of solutions having this chemical as a sole active ingredient.

JUDGEMENT

No confirming documentation (first degree test and second degree test).

RECOMMENDATION

Remove p-nitrophenol from the Part A permit application, where applicable.

2-NITROPROPANE (U171, F005)

DESCRIPTION (MERCK Index)

Liquid with a flash point of 75° F. Used as a solvent for cellulose acetate, and a variety of other organic materials. Slightly soluble in water. Miscible with many organic solvents.

SUMMARY

Two archived analytical procedures existed directing the use of 2-nitropropane as an extractant. But the sample residue left over would have been evaporated and cleaned with acetone/water and disposed to PEW. Records confirmed disposal of this chemical in a lab pack sent to USPCI. It was present in inventory in 1986, but not in the 1991.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	1. Employee statements deny that spent organic solvent was disposed to the PEW system.
2. Confirmation of use and of disposal of this chemical in archive analytical procedures.	2. Procedures do not exist that direct the generation of solutions having this chemical as a sole active ingredient.
3. 2-Nitropropane is a liquid slightly soluble in water.	

JUDGEMENT

Confirmed use, Confirmed disposal F005; and Confirmed use, Inferred disposal U171 (first degree test). No confirming documentation F005 and U171 (second degree test).

RECOMMENDATION

Remove 2-nitropropane on the Part A permit application for both U171 and F005, where applicable.

PARALDEHYDE (U182)

DESCRIPTION (MERCK Index)

Liquid. Gives acetaldehyde on heating with dilute HCl or sulfuric acid. Used in the manufacture of unspecified organic compounds. Soluble in 8 parts water at 25 degrees Celsius and in 17 parts boiling water. Miscible with alcohol, chloroform, ether, and oils.

SUMMARY

No archive analytical procedures existed directing use of paraldehyde. Paraldehyde was not in inventory in either 1986 or 1991. The summary of disposal records indicates from a lab pack sent to USPCI "Paraldehyde?????", but actual lists of chemicals disposed or awaiting disposal contains "paraformaldehyde." Merck lists paraldehyde separately from paraformaldehyde.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Paraldehyde is a liquid that is soluble in water.	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as a sole active ingredient.

JUDGEMENT

No confirming documentation (first degree test).

RECOMMENDATION

Remove paraldehyde from the Part A permit application, where applicable.

PHENOL (U188)

DESCRIPTION (MERCK Index)

Colorless, acicular crystals or white, crystalline mass with characteristic odor. Used as a reagent in chemical analysis and a variety of other industrial uses. Soluble in water.

SUMMARY

Phenol was present in the 1986 and 1991 inventories. Archive analytical procedures existed directing the use of phenol. Questionnaires to Production/Process Development confirmed it was not used in these areas. A MSDS is on file for the chemical obtained from Dow. Records confirmed that disposal of some of this chemical in a lab pack sent to USPCI.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	1. Procedures do not exist that direct the generation of solutions having this chemical as a sole active ingredient.
2. Confirmation of use of this chemical in archive analytical procedures.	
3. Since a MSDS is on file, some of this chemical was present on-site.	
4. Phenol is solid that is soluble in water.	

JUDGEMENT

Confirmed use; Inferred disposal (first degree test and second degree test).

RECOMMENDATION

Retain phenol on the Part A permit application, where applicable.

PHTHALIC ANHYDRIDE (U190)

DESCRIPTION (MERCK Index)

White, lustrous needles. Sublimes. Soluble in water, alcohol, sparingly in ether.

SUMMARY

No archive analytical procedures existed directing use of phthalic anhydride. It was confirmed to be disposed at USPCI in a lab pack. Interviews did not identify it as being used at ICPP.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Phthalic anhydride is a solid that is soluble in water.	1. There is no confirmed use of this chemical by analytical, process development, or production.

JUDGEMENT

No confirming documentation (first degree test).

RECOMMENDATION

Remove phthalic anhydride from the Part A permit application, where applicable.

2-PICOLINE (U191)

DESCRIPTION (MERCK Index)

Colorless liquid; strong unpleasant odor. Freely soluble in water; miscible with alcohol and ether.

SUMMARY

No archive analytical procedures existed directing use of 2-picoline. It It was in an inventory. It was sent off-site to USPCI for disposal. Interviews did not identify it as being used at ICPP.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. 2-picoline is a liquid that is freely soluble in water and miscible in solvents.	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as a sole active ingredient.

JUDGEMENT

No confirming documentation (first degree test).

RECOMMENDATION

Remove 2-picoline from the Part A permit application, where applicable.

POTASSIUM CYANIDE (P098)

DESCRIPTION (MERCK Index)

White deliquescent, granular powder or fused pieces; odor of HCN. Violent poison. On exposure to air it is gradually decomposed by carbon dioxide and moisture. Uses are similar to sodium cyanide. One part soluble in 2 parts water.

SUMMARY

No archive analytical procedures existed directing the use of potassium cyanide; however, statements confirmed the use in laboratories. Process development stated that no disposal were made to the PEW system; however, analytical stated that due to past laboratory practices, any discarded stock solutions would have been discharged to the PEW system.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Statements confirmed use of this chemical by analytical and process development. 2. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical grade chemical to a sink cannot be ruled out. 3. Potassium cyanide is a solid which is soluble in water.	1. No procedures exist that direct the generation of solutions having potassium cyanide as the sole active ingredient.

JUDGEMENT

Confirmed use; Inferred disposal (first degree test and second degree test).

RECOMMENDATION

Retain potassium cyanide on the Part A permit application, where applicable.

PYRIDINE (U196, F005)

DESCRIPTION (MERCK Index)

Flammable, colorless liquid with disagreeable odor. Flash point: 68° F. Good solvent for many organic and inorganic compounds. Miscible with water, alcohol, ether, oils, and many other organic liquids.

SUMMARY

Employees' statements confirm disposal of both F-listed and U-listed wastes to the PEW system. Pyridine was in 1986 and 1991 inventory.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Confirmation of use of this chemical in archive analytical procedures. 2. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out. 3. Pyridine is a liquid that is miscible in water.	1. Procedures do not exist that direct the generation of solutions having this chemical as a sole active ingredient.

JUDGEMENT

Confirmed use; Confirmed disposal F005 and U196 (first degree test).

RECOMMENDATION

Retain pyridine on the Part A permit application, where applicable.

RESORCINOL (U201)

DESCRIPTION (MERCK Index)

White, needle-like crystals; sweetish taste. Used as a reagent for zinc. Other uses include tanning, cosmetics and manufacturing resins and dyes. Very soluble in water.

SUMMARY

Not in 1991 inventories; however, resorcinol was found in the 1988 inventory. No archive analytical procedures existed directing the use of resorcinol. Records confirmed that some of this chemical was disposed of at USPCI in a lab pack.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Resorcinol is a solid that is very soluble in water.	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as a sole active ingredient.

JUDGEMENT

No confirming documentation (first degree test and second degree test).

RECOMMENDATION

Remove resorcinol from the Part A permit application, where applicable.

SELENIUM DIOXIDE (U204)

DESCRIPTION (MERCK Index)

(Selenium oxide) Lustrous, tetragonal needles. Used as a reagent for alkaloids and as an oxidizing agent. Solubility: 38.4 parts per 100 parts of water.

SUMMARY

Selenium dioxide was present in the 1986 and 1991 inventories. Records confirmed use. Records confirmed disposal of some of this chemical at USPCI in a lab pack.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	1. Chemical is a solid and disposal to a drain of the pure chemical would be unlikely.
2. There is confirming use of this chemical by analytical.	2. No employee confirmed that selenium dioxide was disposed to the PEW system.
3. Selenium dioxide is a solid that is slightly soluble in water.	3. Procedures do not exist that direct the generation of solutions having this chemical as a sole active ingredient.

JUDGEMENT

Confirmed use; Inferred disposal (first degree test and second degree test).

RECOMMENDATION

Retain selenium dioxide on the Part A permit application, where applicable.

SILVER CYANIDE (P104)

DESCRIPTION (MERCK Index)

White or grayish, odorless powder; stable in air; darkens on exposure to light. Violent poison. Used for silver plating; formerly used for extemporaneous preparation of dilute hydrocyanic acid by treatment with HCL. Insoluble in water, alcohol, or dilute acids; soluble in alkali cyanides and in boiling concentrated nitric acid.

SUMMARY

No archive analytical procedures existed directing the use of silver cyanide; however, statements confirmed the use in the laboratories. It was found in a 1988 inventory and in a 1991. Some silver cyanide was lab packed for disposal at USPCI.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Statements confirmed the use of this chemical by analytical and process development.	1. No procedures exist that direct the creation of solutions having potassium cyanide as the sole active ingredient.
2. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical grade chemical to a sink cannot be ruled out.	2. Silver cyanide is a solid which is insoluble in water.

JUDGEMENT

Confirmed use; Inferred disposal (first degree test and second degree test).

RECOMMENDATION

Retain silver cyanide on the Part A permit application, where applicable.

SODIUM AZIDE (P105)

DESCRIPTION (MERCK Index)

Crystals. Upon heating, sodium azide decomposes to sodium and nitrogen. Used in the preparation of hydrazoic acid, lead azide, pure sodium. Highly soluble in water.

SUMMARY

No archive analytical procedures existed directing the use of sodium azide; however, verbal statements confirmed use/disposal of unused portions to the PEW system. It was found in a 1991 inventory.

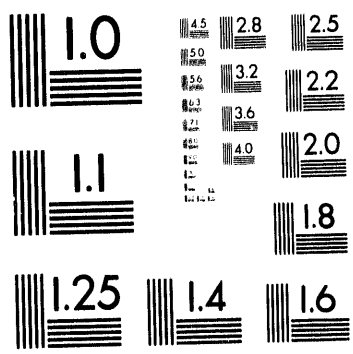
REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	1. No procedures exist that direct the creation of solutions having sodium azide as the sole active ingredient.
2. Verbal statements confirmed use and disposal of this chemical by analytical.	
3. Sodium azide is highly soluble in water.	

JUDGEMENT

Confirmed use; Confirmed disposal (first degree test).

RECOMMENDATION

Retain sodium azide on the Part A permit application, where applicable.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SODIUM CYANIDE (P106)

DESCRIPTION (MERCK Index)

White granules or fused pieces. Violent poison. Odorless when perfectly dry. Used to extract gold and silver from ores; electroplating baths; manufacturing of hydrocyanic acid and other cyanides. Freely soluble in water, slightly soluble in alcohol.

SUMMARY

No archive analytical procedures existed directing the use of sodium cyanide; however, statements confirmed use in the laboratories. It was found in a 1986 inventory, but was not in 1991 inventory. Current use was limited to IRC. Some sodium cyanide was lab packed for disposal to USPCI.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Statements confirm use of this chemical by analytical.	1. No procedures exist that direct the creation of solutions having sodium cyanide as the sole active ingredient.
2. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical grade chemical to a sink cannot be ruled out.	
3. Sodium cyanide is a solid which is freely soluble in water.	

JUDGEMENT

Confirmed use; Inferred disposal (first degree test and second degree test).

RECOMMENDATION

Retain sodium cyanide on the Part A permit application, where applicable.

1,2,4,5-TETRACHLOROBENZENE (U207)

DESCRIPTION (MERCK Index)

Not included.

SUMMARY

No archive analytical procedures existed directing the use of 1,2,4,5-tetrachlorobenzene. It was found in inventory. It was sent off-site for disposal at USPCI. Interviews did not identify it as being used at ICPP.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as a sole active ingredient.

JUDGEMENT

No confirming documentation (first degree test).

RECOMMENDATION

Remove 1,2,4,5-tetrachlorobenzene from the Part A permit application, where applicable.

1,1,1,2-TETRACHLOROETHANE (U208)

DESCRIPTION (MERCK Index)

Nonflammable, heavy, mobile liquid; sweetish, suffocating, chloroform-like odor. Very sparingly soluble in water. Miscible with methanol, ethanol benzene, ether, carbon tetrachloride, chloroform, carbon disulfide, dimethyl formaldehyde, and oils.

SUMMARY

No archive analytical procedures existed directing the use of 1,1,1,2-tetrachloroethane. Records confirmed that some of this chemical was disposed in lab pack sent to USPCI. Interviews and questionnaires have found no confirmation of either use or disposal at ICPP.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. 1,1,1,2-Tetrachloroethane is a liquid that is soluble in water.	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as a sole active ingredient.

JUDGEMENT

No confirming documentation (first degree test).

RECOMMENDATION

Remove 1,1,1,2-tetrachloroethane from the Part A permit application, where applicable.

TETRACHLOROETHYLENE (U210, F002)

DESCRIPTION (MERCK Index)

Colorless, nonflammable liquid. Used in degreasing metals and as a solvent. Also used in dry cleaning. Soluble in about 10,000 volume of water; miscible with alcohol, ether, chloroform, and benzene.

SUMMARY

Tetrachloroethylene (Perc) was present in the 1986 and 1991 inventories and was confirmed as used in the analytical laboratory by questionnaire. However, the laboratory questionnaire did not indicate that Perc was disposed to the PEW system. An MSDS is not on file for tetrachloroethylene as a sole hazardous ingredient. Records confirmed disposal of some of this chemical in a lab pack sent to USPCI.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	1. Procedures do not exist that direct the generation of solutions having this chemical as a sole active ingredient.
2. Statements confirm use of this chemical by analytical.	2. Tetrachloroethylene is not readily soluble in water.
3. Since an MSDS is on file, some of this chemical was present on-site.	
4. Tetrachloroethylene is a liquid that is miscible in solvents.	

JUDGEMENT

Confirmed use, Confirmed disposal F002; Confirmed use, Inferred disposal U210 (first degree test). Confirmed use; Inferred disposal (second degree test).

RECOMMENDATION

Retain tetrachloroethylene on the Part A permit application, where applicable.

THALLIC OXIDE (P113)

DESCRIPTION (MERCK Index)

Brown powder. Insoluble in water; decomposes by HCl with evolution of chlorine and by H_2SO_4 with evolution of oxygen.

SUMMARY

No archive analytical procedures existed directing the use of thallic oxide; however, verbal statements confirmed use/disposal to the PEW system. It was found in a 1991 inventory.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Verbal statements confirmed the use of this chemical by analytical.	1. No procedures exist that direct the creation of solutions having thallic oxide as the sole active ingredient.
2. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	2. Thallic oxide is a solid that is insoluble in water.

JUDGEMENT

Confirmed usage; Inferred disposal (first degree test). No confirming documentation (second degree test).

RECOMMENDATION

Remove thallic oxide from the Part A permit application, where applicable.

THALLIUM CARBONATE (U215)

DESCRIPTION (MERCK Index)

White crystals. Used in the manufacture of imitation diamonds. Soluble in 24 parts water.

SUMMARY

Thallium carbonate was identified in both 1986 and 1991 inventories. The use is unknown and unconfirmed.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Thallium carbonate is a solid that is soluble in water.	1. There is no confirmed use of this chemical by analytical, process development, or production. 2. Procedures do not exist that direct the generation of solutions having this chemical as a sole active ingredient.

JUDGEMENT

No confirming documentation (first degree test and second degree test).

RECOMMENDATION

Remove thallium carbonate from the Part A permit application, where applicable.

THALLIUM NITRATE (U217)

DESCRIPTION (MERCK Index)

White crystals. Used as a reagent in analytical chemistry, especially for the determination of iodine in the presence of bromine and chlorine. Soluble in 10 parts cold water.

SUMMARY

Thallium nitrate was present on 1986, 1988, and 1991 inventories. It was identified in a review of laboratory procedures; however, he did not identify a specific written procedure. Questionnaires sent to analytical laboratory personnel confirmed that it was used, but these did not confirm disposal to the PEW system.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out. 2. Statements confirm the use of this chemical by analytical. 3. Thallium nitrate is a solid that is soluble in water.	1. Confirmation of disposal to the PEW system is lacking for this solid material with unspecified usage. 2. Procedures do not exist that direct the generation of solutions having this chemical as a sole active ingredient.

JUDGEMENT

Confirmed use; Inferred disposal (first degree test). No confirming documentation (second degree test).

RECOMMENDATION

Remove thallium nitrate from the Part A permit application, where applicable.

THIOACETAMIDE (U218)

DESCRIPTION (MERCK Index)

Crystals from benzene. Substitute of hydrogen sulfide in the laboratory. Solubility in water: 16 g in 100 ml.

SUMMARY

Thioacetamide appeared in the 1986 inventory, but not in the 1991 inventory. One archive analytical procedure existed directing the use of thioacetamide. Statements two researchers confirmed it was used at ICPP in a laboratory proceduree to precipitate out the cadmium from solution. Two researchers describe how "acidification of small amounts of reagent" would generate hydrogen sulfide.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	1. Although the questionnaire indicates disposal was to the PEW system, memos on file indicate that the solution was an acid/thioacetamide mixture. Disposal of this solution would not constitute a U-listed waste.
2. Statements confirm the use of this chemical by analytical.	2. Procedures do not exist that direct the generation of solutions having this chemical as a sole active ingredient.

JUDGEMENT

Confirmed use; Inferred disposal (first degree test). No confirming documentation (second degree test).

RECOMMENDATION

Remove thioacetamide from the Part A permit application, where applicable.

THIOSEMICARBIZIDE (P116)

DESCRIPTION (MERCK Index)

White, crystalline powder; soluble in water or alcohol. Used as a reagent for detection of metals.

SUMMARY

No archive analytical procedures existed directing the use of thiosemicarbizide. It appeared in a 1986 inventory. A researcher recollected "a lot of it being around" at one time. Upon further questioning the same researche confirmed his previous statement would have been inconsistent with the inventory of this particular chemical. A researcher stated that thiosemicarbizide may have been confused with diphenylthiocarbizone which was used. Records existed of any use of this chemical. Records confirmed transfer of this chemical to the IRC laboratory.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Verbal statements inferred use of this chemical by analytical.	1. Thiosemicarbizide is a solid and disposal of excess chemical would have been to a landfill or to USPCI.
2. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	2. There is no confirmed use of this chemical by analytical, process development, or production.
3. Thiosemicarbazide is a solid that is soluble in water.	3. Procedures do not exist that direct the generation of solution having this chemical as the sole active ingredient.

JUDGEMENT

Inferred use; Inferred disposal (first degree test and second degree test).

RECOMMENDATION

Remove thiosemicarbazide from the Part A permit application, where applicable.

THIOUREA (U219)

DESCRIPTION (MERCK Index)

Crystals. Forms addition compounds with metallic salts. Used in the manufacture of resins, and as a reagent for bismuth and selenite ions.

SUMMARY

Four archive analytical procedures existed directing the use of thiourea. Use of one procedure required that new stock solutions be prepared every two months. Records indicated only occasional use which was not sufficient enough to consume the entire stock solution every two months. Inventory records confirm it was present in 1991, but not in 1986. It was also used as a complexing agent for decontamination purposes. An MSDS is on file for Solution B, distributed by Eastman Kodak Company, having thiourea as its sole hazardous ingredient.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Confirmation of use and disposal of this chemical in an archive analytical procedure.	
2. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	
3. Since a MSDS is on file, some of this chemical was present on-site.	

JUDGEMENT

Confirmed use; Confirmed disposal (first degree test).

RECOMMENDATION

Retain thiourea on the Part A permit application, where applicable.

TOLUENE (U220, F005)

DESCRIPTION (MERCK Index)

Flammable, refractive liquid with benzene-like odor. Used in the manufacture of many unspecified organic compounds; and as a solvent. [Often used in the formulation of liquid scintillation cocktails].

SUMMARY

Toluene was found in the 1986 and 1991 inventories. Three archive analytical procedures existed directing the use of toluene. The chemical was confirmed as being used/disposed to the PEW system. Records confirmed dipsosal of some of this chemical in a lab pack sent to USPCI. It was identified as a sole active ingredient on several MSDS. The laboratories used it as a reagent and a solvent.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Confirmation of use of this chemical in archive analytical procedures.	
2. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	
3. Since a MSDS is on file, some of this chemical was present on-site.	

JUDGEMENT

Confirmed use, confirmed disposal F005; Confirmed use, Inferred disposal U220 (first degree test). Confirmed use; Inferred disposal U220 (second degree test).

RECOMMENDATION

Retain toluene on the Part A permit application, where applicable.

o-TOLUIDINE (U328)

DESCRIPTION (MERCK Index)

Light yellow liquid becoming reddish brown on exposure to air and light. Used in the manufacture of several organic compounds.

SUMMARY

o-Toluidine was not found in the 1986 or 1991 inventories. One archive analytical procedure existed directing the use of o-toluidine, but reseachers did not remember use of this procedure. This procedure for chlorine were likely done by technicians with standard water test kits using o-toluidine hydrogen chloride solutions, which involve unlisted disposal...No confirmed disposal by employees as pure unused o-toluidine....1.35 g o-toluidine hydrochloride in 1 liter of dilute hydrogen chloride." Records confirmed the disposal of this chemical in a lab pack sent to USPCI.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since the chemical could have been used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out. 2. Statements confirm the use of this chemical by analytical.	1. Field tests were likely conducted using standard water test kits, with reagents pre-mixed. Disposal of the spent solutions would not be a listed waste.

JUDGEMENT

Confirmed use; Inferred disposal (first degree test). No confirming documentation (second degree test).

RECOMMENDATION

Remove o-toluidine from the Part A permit application, where applicable.

1,1,1-TRICHLOROETHANE (U226, F002)

DESCRIPTION (MERCK Index)

(Methyl chloroform, chloroethane) Nonflammable liquid. Used as a solvent in a variety of metal cleaning applications.

SUMMARY

1,1,1-Trichloroethane was used extensively in decontamination operations, purchased under the trade name Oakite Swiff. It was mainly used for its solvent properties.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Statements confirm the use of this chemical by analytical, process development, or production. 2. Since this chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	1. Waste code F001 is limited to large-scale industrial degreasing operations, not "...industrial maintenance and repair operations...".

JUDGEMENT

Confirmed use, Confirmed disposal F002; Confirmed use, Inferred disposal U226 (first degree test). Confirmed use; Inferred disposal (second degree test).

RECOMMENDATION

Retain 1,1,1-trichloroethane on the Part A permit application, where applicable.

1,1,2-TRICHLOROETHANE (U227, F002)

DESCRIPTION (MERCK Index)

(Vinyl chloride) Nonflammable liquid. Used as a solvent for fats, waxes, natural resins, alkaloids.

SUMMARY

1,1,2-Trichloroethane was present on the 1986 and 1991 inventories. No archive analytical procedures existed directing the use of 1,1,2-trichloroethane; however, analytical confirmed that it was used but not disposed of to the PEW system. Records confirmed disposal of some of this chemical in a lab pack sent to USPCI. This chemical was also purchased under the trade name Oakite Swiff.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Statements confirm the use of this chemical by analytical, process development, or production.	1. Although Analytical confirmed its use, it also confirmed that it was not disposed of to the PEW system, implying that it was used on a wipe.
2. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	
3. Statements confirmed use of chemical by analytical, process development, and production.	

JUDGEMENT

Confirmed use, Confirmed disposal F002; Confirmed use, Inferred disposal U227 (first degree test). Confirmed use; Inferred disposal U227 (second degree test).

RECOMMENDATION

Retain 1,1,2-trichloroethane on the Part A permit application, where applicable.

TRICHLOROETHYLENE (U228, F002)

DESCRIPTION (MERCK Index)

Nonflammable, mobile liquid. Used as a solvent for fats, waxes, resins, oils, rubber, paints, varnishes, cellulose esters and ethers. Used for solvent extraction in many industries.

SUMMARY

Trichloroethylene was present on the 1986 inventory, but not in the 1991 inventory. No archive analytical procedures existed directing the use of trichloroethylene. Trichloroethylene was confirmed by questionnaire as being used, but it was not disposed of to the PEW system. In an interview, one researcher stated that trichloroethylene was used as a cleaning solvent. A MSDS is on file for Hi-Luff Solvent, with Trichloroethylene as the sole hazardous ingredient.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	1. F001 waste code applies solely to large industrial degreasing operations. No such large scale use existed at ICPP.
2. Statements confirm the use of this chemical by analytical.	2. Trichloroethylene was likely used on a wipe or rag, therefore, it would not have entered the PEW system.

JUDGEMENT

Confirmed use, Confirmed disposal F002; Confirmed use, Inferred disposal U228 (first degree test). Confirmed use; Inferred disposal (second degree test).

RECOMMENDATION

Retain trichloroethylene on the Part A permit application, where applicable.

XYLENE (U239, F003)

DESCRIPTION (MERCK Index)

Flammable, mobile liquid. Flash point: 29° C. Used as a solvent in the manufacture of several organic compounds. Also used as a cleaning agent in microscope technique. [Often used in liquid scintillation cocktail.]

SUMMARY

Xylene was present in the 1986 and 1991 inventories. Nine archive analytical procedures existed directing the use of xylene as a solvent. Questionnaires completed by researchers confirm both use and disposal to the PEW system. MSDS is on file for the chemical supplied by Eastman Kodak. Records confirmed the disposal of some of this chemical in a lab pack sent to USPCI.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out. 2. Confirmation of use of this chemical in archive analytical procedures. 3. Since a MSDS is on file, some of this chemical was present on-site.	1. All laboratory uses indicate the potential for disposal of xylene as a spent solvent only, not a U-listed waste. 2. Sufficient dilution exists in the PEW system to render this waste non-ignitable.

JUDGEMENT

Confirmed use, Inferred disposal; and Listed only for ignitability (first degree test).

RECOMMENDATION

Remove xylene on the Part A permit application, where applicable.

VANADIUM OXIDE (P120)

DESCRIPTION (MERCK Index)

Yellow to rust-brown orthorhombic crystals. Used as a catalyst in oxidation. One gram dissolves in about 125 ml of water; soluble in concentrated acids; and insoluble in alcohol.

SUMMARY

No specific archive analytical procedures existed directing the use of the vanadium oxide. It was present on the 1986 and 1991 inventories. Process development reported using this chemical compound. Responses to questionnaire indicated use and disposal of vanadium pentoxide to the PEW system.

REASONS TO INCLUDE ON PERMIT	REASONS TO EXCLUDE FROM PERMIT
1. Confirmation of use and disposal of this chemical by process development.	1. Procedures do not exist that direct the generation of solutions having this chemical as the sole active ingredient.
2. Since the chemical was used in an area where drains connect to the PEW system, disposal of excess reagent- or technical-grade chemical to a sink cannot be ruled out.	2. Vanadium oxide is a solid slightly soluble in water.

JUDGEMENT

Confirmed use; Confirmed disposal (first degree test and second degree test).

RECOMMENDATION

Retain vanadium oxide on the Part A permit application, where applicable.

REFERENCES

The following files are the supporting documentation for the Listed Waste Determination Report:

JCK File 12.6.2 Listed Waste Investigation

1. Total Volume Information Folder (1).
2. Background Information Folders (2).
3. Lab Pack Information Folders (2).
4. Archive Analytical Procedures Folders (4).
5. Correspondence Folders (2).
6. Listed Waste Investigation Summary Folders (2).
7. Chemical Specific Folders (100).

DATE FILMED

11/26/93

END